The Journal of Bangladesh College of Physicians and Surgeons is a peer reviewed Journal. It is published four times a year, (January, April, July and October). It accepts original articles, review articles, and case reports. Complimentary copies of the journal are sent to libraries of all medical and other relevant academic institutions in the country and selected institutions abroad.

While every effort is always made by the Editorial Board and the members of the Journal Committee to avoid inaccurate or misleading information appearing in the Journal of Bangladesh College of Physicians and Surgeons, information within the individual article are the responsibility of its author(s). The Journal of Bangladesh College of Physicians and Surgeons, its Editorial Board and Journal Committee accept no liability whatsoever for the consequences of any such inaccurate and misleading information, opinion or statement.
A manuscript number will be mailed to the corresponding author within two working days.

The cover letter should include the corresponding author’s full address and telephone/fax numbers and should be in an e-mail message sent to the editor, with the file, whose name should begin with the first author’s surname, as an attachment.

The Journal of Bangladesh College of Physicians and Surgeons will only accept manuscripts submitted as e-mail attachments or triplicate Hard copy with a soft copy.

Article Types
Five types of manuscripts may be submitted:

Editorials: It will be preferably written invited only and usually covers a single topic of contemporary interest.

Original Articles: These should describe new and carefully confirmed findings, and experimental procedures should be given in sufficient detail for others to verify the work. The length of a full paper should be the minimum required to describe and interpret the work clearly.

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Case Reports: This should cover uncommon and/or interesting cases with appropriate confirmation process.

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All manuscripts are initially screened by editor and sent to selective reviewer. Decisions will be made as
rapidly as possible, and the journal strives to return reviewers’ comments to authors within 3 weeks. The editorial board will re-review manuscripts that are accepted pending revision. The JBCPS editorial board will try to publish the manuscript as early as possible fulfilling all the rigorous standard journal needs.

I. A. Preparing a Manuscript for Submission to JBCPS

Editors and reviewers spend many hours reading manuscripts, and therefore appreciate receiving manuscripts that are easy to read and edit. Much of the information in this journal’s Instructions to Authors is designed to accomplish that goal in ways that meet each journal’s particular editorial needs. The following information provides guidance in preparing manuscripts for this journal.

Conditions for submission of manuscript:

- All manuscripts are subject to peer-review.
- Manuscripts are received with the explicit understanding that they are not under simultaneous consideration by any other publication.
- Submission of a manuscript for publication implies the transfer of the copyright from the author to the publisher upon acceptance. Accepted manuscripts become the permanent property of the Journal of Bangladesh College of Physicians and Surgeons and may not be reproduced by any means in whole or in part without the written consent of the publisher.
- It is the author’s responsibility to obtain permission to reproduce illustrations, tables etc. from other publications.

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- Ethical aspect of the study will be very carefully considered at the time of assessment of the manuscript.
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- Permission of the patients and/or their families to reproduce photographs of the patients where identity is not disguised should be sent with the manuscript. Otherwise the identity will be blackened out.

Preparation of manuscript:

**Criteria:** Information provided in the manuscript are important and likely to be of interest to an international readership.

**Preparation:**

1. Manuscript should be written in English and typed on one side of A4 (290 x 210cm) size white paper.
2. Margin should be 5 cm for the header and 2.5 cm for the remainder.
3. Style should be that of modified Vancouver.
4. Each of the following section should begin on separate page:
   - Title page
   - Summary/abstract
   - Text
   - Acknowledgement
   - References
   - Tables and legends.

Pages should be numbered consecutively at the upper right hand corner of each page beginning with the title page

I. A. 1. a. General Principles

- The text of observational and experimental articles is usually (but not necessarily) divided into the following sections: Introduction, Methods, Results, and Discussion. This so-called “IMRAD” structure is a direct reflection of the process of scientific discovery.
- Long articles may need subheadings within some sections (especially Results and Discussion) to clarify their content. Other types of articles, such as case reports, reviews, and editorials, probably need to be formatted differently.
- Electronic formats have created opportunities for adding details or whole sections, layering information, crosslinking or extracting portions of articles, and the like only in the electronic version.
- Authors need to work closely with editors in developing or using such new publication formats and should submit supplementary electronic material for peer review.
- Double-spacing all portions of the manuscript—including the title page, abstract, text, acknowledgments, references, individual tables, and legends—
and generous margins make it possible for editors and reviewers to edit the text line by line and add comments and queries directly on the paper copy.

- If manuscripts are submitted electronically, the files should be double-spaced to facilitate printing for reviewing and editing.
- Authors should number on right upper all of the pages of the manuscript consecutively, beginning with the title page, to facilitate the editorial process.

I. A. 1. b. Reporting Guidelines for Specific Study Designs

Research reports frequently omit important information. Reporting guidelines have been developed for a number of study designs that JBCPS journals ask authors to follow. Authors should consult the Information for Authors of this journal. The general requirements listed in the next section relate to reporting essential elements for all study designs. Authors are encouraged also to consult reporting guidelines relevant to their specific research design. A good source of reporting guidelines is the EQUATOR Network (http://www.equator-network.org/home/) or CONSORT network (http://www.consort-statement.org).

I. A. 2. Title Page

The title page should have the following information:

1. Article title. Concise titles are easier to read than long, convoluted ones. Titles that are too short may, however, lack important information, such as study design (which is particularly important in identifying type of trials). Authors should include all information in the title that will make electronic retrieval of the article both sensitive and specific.

2. Authors’ names and institutional affiliations.

3. The name of the department(s) and institution(s) to which the work should be attributed.

4. Disclaimers, if any.

5. Contact information for corresponding authors. The name, mailing address, telephone and fax numbers, and e-mail address of the author responsible for correspondence about the manuscript.

6. The name and address of the author to whom requests for reprints should be addressed or a Statement that reprints are not available from the authors.

7. Source(s) of support in the form of grants, equipment, drugs, or all of these.

8. A short running head or footline, of no more than 40 characters (including letters and spaces). Running heads are published and also used within the editorial office for filing and locating manuscripts.

9. The number of figures and tables. It is difficult for editorial staff and reviewers to determine whether the figures and tables that should have accompanied a manuscript were actually included unless the numbers of figures and tables are noted on the title page.

I. A. 3. Conflict-of-Interest Notification Page

To prevent potential conflicts of interest from being overlooked or misplaced, this information needs to be part of the manuscript. The ICMJE has developed a uniform disclosure form for use by ICMJE member journals (http://www.icmje.org/coi_disclosure.pdf) and JBCPS has accepted that.

I. A. 4. Abstract

- Structured abstracts are essential for original research and systematic reviews. Structured abstract means introduction, methods, results and conclusion in abstract

- Should be limited to 250 words

- The abstract should provide the introduction of the study and blinded state and should state the study’s purpose, basic procedures (selection of study subjects or laboratory animals, observational and analytical methods), main findings (giving specific effect sizes and their statistical significance, if possible), principal conclusions. It should emphasize new and important aspects of the study or observations. Articles on clinical trials should contain abstracts that include the items that the CONSORT group has identified as essential (http://www.consort-statement.org).

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I. A. 5. Introduction
• Provide a context or background for the study (that is, the nature of the problem and its significance). It should be very specific, identify the specify knowledge in the aspect, reasoning and what the study aim to answer.
• State the specific purpose or research objective of, or hypothesis tested by, the study or observation; the research objective is often more sharply focused when stated as a question.
• Both the main and secondary objectives should be clear.
• Provide only directly pertinent primary references, and do not include data or conclusions from the work being reported.

I. A. 6. Methods
The Methods section should be written in such way that another researcher can replicate the study.

I. A. 6. a. Selection and Description of Participants
• Describe your selection of the observational or experimental participants (patients or laboratory animals, including controls) clearly, including eligibility and exclusion criteria and a description of the source population. Because the relevance of such variables as age and sex to the object of research is not always clear, authors should explain their use when they are included in a study report—for example, authors should explain why only participants of certain ages were included or why women were excluded. The guiding principle should be clarity about how and why a study was done in a particular way. When authors use such variables as race or ethnicity, they should define how they measured these variables and justify their relevance.

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• Identify the methods, apparatus (give the manufacturer’s name and address in parentheses), and procedures insufficient detail to allow others to reproduce the results. Give references to established methods, including statistical methods (see below); provide references and brief descriptions for methods that have been published but are not well-known; describe new or substantially modified methods, give the reasons for using them, and evaluate their limitations. Identify precisely all drugs and chemicals used, including generic name(s), dose(s), and route(s) of administration.
• Authors submitting review article should include a section describing the methods used for locating, selecting, extracting, and synthesizing data. These methods should also be summarized in the abstract.

I. A. 6. c. Statistics
• Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to verify the reported results. When possible, quantify findings and present them with appropriate indicators of measurement error or uncertainty (such as confidence intervals).
• Avoid relying solely on statistical hypothesis testing, such as P values, which fail to convey important information about effect size. References for the design of the study and statistical methods should be to standard works when possible (with pages stated).
• Define statistical terms, abbreviations, and most symbols.
• Specify the computer software used.

I. A. 7. Results
• Present results in logical sequence in the text, tables, and illustrations, giving the main or most important findings first. Please keep the result the sequence of specific objective selected earlier.
• Do not repeat all the data in the tables or illustrations in the text; emphasize or summarize only the most important observations. Extra or supplementary materials and technical detail can be placed in an appendix where they will be accessible but will not interrupt the flow of the text, or they can be published solely in the electronic version of the journal.
• When data are summarized in the Results section, give numeric results not only as derivatives (for example, percentages) but also as the absolute numbers from which the derivatives were calculated, and specify the statistical methods used to analyze them.
• Restrict tables and figures to those needed to explain the argument of the paper and to assess supporting data. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables.
• Avoid nontechnical uses of technical terms in statistics, such as “random” (which implies a randomizing device), “normal,” “significant,” “correlations,” and “sample.” Where scientifically appropriate, analyses of the data by such variables as age and sex should be included.

I. A. 8. Discussion
• Emphasize the new and important aspects of the study and the conclusions that follow from them in the context of the totality of the best available evidence.
• Do not repeat in detail data or other information given in the Introduction or the Results section.
• For experimental studies, it is useful to begin the discussion by briefly summarizing the main findings, then explore possible mechanisms or explanations for these findings, compare and contrast the results with other relevant studies, state the limitations of the study, and explore the implications of the findings for future research and for clinical practice.
• Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not adequately supported by the data. In particular, avoid making statements on economic benefits and costs unless the manuscript includes the appropriate economic data and analyses. Avoid claiming priority or alluding to work that has not been completed. State new hypotheses when warranted, but label them clearly as such.

I. A. 9. References
I. A. 9. a. General Considerations Related to References
• Although references to review articles can be an efficient way to guide readers to a body of literature, review articles do not always reflect original work accurately. Readers should therefore be provided with direct references to original research sources whenever possible.
• On the other hand, extensive lists of references to original work of a topic can use excessive space on the printed page. Small numbers of references to key original papers often serve as well as more exhaustive lists, particularly since references can now be added to the electronic version of published papers, and since electronic literature searching allows readers to retrieve published literature efficiently.
• Avoid using abstracts as references. References to papers accepted but not yet published should be designated as “in press” or “forthcoming”; authors should obtain written permission to cite such papers as well as verification that they have been accepted for publication.
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• Avoid citing a “personal communication” unless it provides essential information not available from a public source, in which case the name of the person and date of communication should be cited in parentheses in the text. For scientific articles, obtain written permission and confirmation of accuracy from the source of a personal communication. Some but not all journals check the accuracy of all reference citations; thus, citation errors sometimes appear in the published version of articles. To minimize such errors, references should be verified using either an electronic bibliographic source, such as PubMed or print copies from original sources.
• Authors are responsible for checking that none of the references cite retracted articles except in the context of referring to the retraction. For articles published in journals indexed in MEDLINE, the ICMJE considers PubMed the authoritative source for information about retractions.

I. A. 9. b. Reference Style and Format
• References should be numbered consecutively in the order in which they are first mentioned in the text.
• Identify references in text, tables, and legends by Arabic numerals in superscript.
• References cited only in tables or figure legends should be numbered in accordance with the sequence established by the first identification in the text of the particular table or figure.
I. A. 10. Tables
- Tables capture information concisely and display it efficiently.
- Use tables/figures that are relevant to study
- Try to limit the number of tables/figures
- Type or print each table with double-spacing on a separate sheet of paper. Number tables consecutively in the order of their first citation in the text and supply a brief title for each.
- Do not use internal horizontal or vertical lines. Give each column a short or an abbreviated heading. Authors should place explanatory matter in footnotes, not in the heading. Explain all nonstandard abbreviations in footnotes, and use the following symbols, in sequence:
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- Identify statistical measures of variations, such as standard deviation and standard error of the mean.
- Be sure that each table is cited in the text. If you use data from another published or unpublished source, obtain permission and acknowledge that source fully.

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- Figures should be either professionally drawn and photographed, or submitted as photographic-quality digital prints. In addition to requiring a version of the figures suitable for printing, (for example, JPEG / GIF)
- Authors should review the images of such files on a computer screen before submitting them to be sure they meet their own quality standards. For x-ray films, scans, and other diagnostic images, as well as pictures of pathology specimens or photomicrographs, send sharp, glossy, black-and-white or color photographic prints, usually 127 _ 173 mm (5 _ 7 inches)
- Letters, numbers, and symbols on figures should therefore be clear and consistent throughout, and large enough to remain legible when the figure is reduced for publication.
- Photographs of potentially identifiable people must be accompanied by written permission to use the photograph. Figures should be numbered consecutively according to the order in which they have been cited in the text.
- If a figure has been published previously, acknowledge the original source and submit written permission from the copyright holder to reproduce the figure. Permission is required irrespective of authorship or publisher except for documents in the public domain.
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- Measurements of length, height, weight, and volume should be reported in metric units (meter, kilogram, or liter) or their decimal multiples.
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- Drug concentrations may be reported in either SI or mass units, but the alternative should be provided in parentheses where appropriate.

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- Use only standard abbreviations; use of nonstandard abbreviations can be confusing to readers.
- Avoid abbreviations in the title of the manuscript.
- The spelled-out abbreviation followed by the abbreviation in parenthesis should be used on first mention unless the abbreviation is a standard unit of measurement.

I. B. Sending the Manuscript to the Journal
- If a paper version of the manuscript is submitted, send the required number of copies of the manuscript and figures; they are all needed for peer review and editing, and the editorial office staff cannot be expected to make the required copies.
• Manuscripts must be accompanied by a cover letter, conflicts of interest form, authorship and declaration, proforma of which is available in JBCPS web site.

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As part of the submission process, authors are required to check off their submission’s compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines.

**Check Lists**
Final checklists before you submit your revised article for the possible publication in the Journal of Bangladesh College of Physicians and Surgeons:

1. Forwarding/Cover letter and declaration form
2. Authorship and conflicts of interest form
3. Manuscript
   o Sample of the above documents is available in the following links: http://www.bcpsbd.org (registration required for download)
   o If you have submitted mention document (1, 2, 3) above, when you first submitted your article then you don’t need to re-submit but if there is change in the authorship or related then you have to re-submit it.

• General outline for article presentation and format
  △ Double spacing
  △ Font size should be 12 in arial
  △ Margins 5 cm from above and 2.5 cm from rest sides.
  △ Title page contains all the desired information (vide supra)
  △ Running title provided (not more than 40 characters)
  △ Headings in title case (not ALL CAPITALS, not underlined)
  △ References cited in superscript in the text without brackets after with/without comma (,) or full stop (.)
  △ References according to the journal’s instructions – abide by the rules of Vancouver system. Use this link to get into the detail of Vancouver system.

• **Language and grammar**
  △ Uniformity in the language
  △ Abbreviations spelt out in full for the first time
  △ Numerals from 1 to 10 spelt out
  △ Numerals at the beginning of the sentence spelt out

• **Tables and figures**
  △ No repetition of data in tables/graphs and in text
  △ Actual numbers from which graphs drawn, provided
  △ Figures necessary and of good quality (colour)
  △ Table and figure numbers in Arabic letters (not Roman)
  △ Labels pasted on back of the photographs (no names written)
  △ Figure legends provided (not more than 40 words)
  △ Patients’ privacy maintained (if not, written permission enclosed)
  △ Credit note for borrowed figures/tables provided
  △ Each table/figure in separate page
If you have any specific queries please use at www.bcps.com

Manuscript Format for Research Article

• **Title**
  △ Complete title of your article
  △ Complete author information
  △ Mention conflict of interest if any

• **Abstract**
  △ Do not use subheadings in the abstract
  △ Give full title of the manuscript in the Abstract page
  △ Not more than 200 words for case reports and 250 words for original articles
  △ Structured abstract (Including introduction, methods, results and discussion, conclusion) provided for an original article and (Introduction, results and discussion, conclusion) for case reports.
  △ Key words provided – arrange them in alphabetical order (three – five )

• **Introduction**
  △ Word limit 150 -200 words
  △ Pertinent information only

• **Material and Methods**
  △ Study Design
  △ Duration and place of study
  △ Ethical approval
  △ Patient consent
  △ Statistical analysis and software used.

• **Result**
  △ Clearly present the data
  △ Avoid data redundancy
  △ Use table information at the end of the sentence before full stop between the small bracket

• **Discussion**
  △ Avoid unnecessary explanation of someone else work unless it is very relevant to the study
  △ Provide and discuss with the literatures to support the study
  △ Mention about limitation of your study

• **Conclusion**
  △ Give your conclusion
  △ Any recommendation

• **Acknowledgement**
  △ Acknowledge any person or institute who have helped for the study

• **Reference**
  △ Abide by the Vancouver style
  △ Use reference at the end of the sentence after the full stop with superscript

• **Legends**
  △ Table
  △ Figures

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Chikungunya Outbreak in Dhaka: Lessons for Bangladesh

Chikungunya virus (CHIKV) was first identified in 1952-53 at the Makonde plateau in the southern part of Tanzania (previous Tanzanyika). Chikungunya is a Makonde word means 'that which bends up'- bending posture of the individuals infected with virus. Chikungunya virus belongs to the genus Alfavirus, of the Togoviridae family which has 12 kb positive-sense RNA genome that envelopes 4 non-structured protein NSP1-4 with five structural proteins (C, E3, E2, 6K, E1). CHIKV is transmitted by the mosquito Aedes aegypti or A albopictus which also cause dengue (and Zika). The virus was spread to Asia in 1954 to the Phillipines. Currently three distinct genetic linkage were identified- West African, the East Central Southern African lineage, and Asian lineage.

The classic clinical presentation of abrupt high fever (>39°C) with severe arthralgia-myalgia and exantheme of maculopapular rash having no feature of severe bleeding, absence of hypotension/shock and thrombocytopenia distinguishes it from dengue (Table).

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Most of the patients of Chikungunya infection are symptomatic, has three phases of illness- acute, subacute and chronic course. Joint pain and swelling with severe morning stiffness having symmetrical involvement, involving mostly distal joints. Synovitis or periarticular swelling are present in 32-95% patients, even may have large joint effusion, improves in 1 month, in 15% some persistent joint pain and swelling-morning stiffness may remain more than 3 years.

There are three hypotheses for prolonged course-persistence of infectious virus, persistence of virus nucleic acid which could trigger persistent immunopathology, triggering of persistent immune activation in certain individuals after the infectious virus have been cleared.

High risk groups are neonates, elderly and immunocompromised persons. Deaths may be rarely due to fulminant hepatitis, myocarditis, encephalitis/encephalopathy, seizure, multiorgan involvement. The increased virulence in the recent outbreak in Bangladesh and in other countries might be due to mutation in the envelop glycoprotein ‘gain of fitness adaptation for dissemination by A albopictus and ability to adapt and replicate in this vector’. Confirmatory test of PCR is not readily available, treatment is symptomatic, and there is no vaccine for prevention.

Outbreak of CHIK virus infection happened earlier in Bangladesh: first outbreak in Rajshahi and Chapainawabganj 2008 affecting 39 patients, outbreak in 2011 in Dohar, Dhaka affecting 196 patients. Sporadic cases occurred 2013, 2014, and 2015 in Dhaka with a big outbreaks in December 2016. Case reports were earlier made on four patients of CHIKvirus infection from Bangladesh. In 2017 a large number of febrile illness with joint involvement were reported from different areas of Dhaka city which prompted the Directorate General of Health Services, Ministry of Health and Family Welfare, GOB to investigate the vector, cases and confirmed the Chikungunya outbreak in Dhaka. Subsequently limited number of cases were also reported from a number of districts outside Dhaka. A large number of media reports, editorial, TV talks happened. The government quickly responded by arranging creation of public and professional awareness, vector control measures and management of patients.

Public health system in urban areas in Bangladesh is relatively weak, care is provided by different health care
providers and organizations in a fragmented manner. We have limited capacity of surveillance system and facility for confirming the causes of viral illness. Institute of Epidemiology Disease Control and Research (IEDCR), Dhaka, Bangladesh investigated all the previous and present outbreak of Chikungunya. In the present outbreak 1248 cases of febrile illness with suspected CHIK virus infection since the outbreak were tested, out of which 939 were found to be PCR positive from 9th April to 9th August 2017. Professional societies also came forward to train the members and the public on relevant issues. There is no systematic follow up of the cases although a proportion of patients developed persistent joint pain for prolonged period causing restricted activity. Around 30% patients had joint pain for more than a month during 2011 outbreak. In Dhaka 10,264 patients received treatment in different hospitals due to joint pain after suspected CHIK virus infection since 12 May 2017. There was no report of death by CHIK virus infection from the government reports but from the private sector few deaths were described in patients with other additional health problems.

During the re-emergence of Chikungunya virus infection in India in 13 states after more than 32 years of first report caused more than 1.5 million cases with some deaths for example 11 in Gujrat out of 225 confirmed cases, 74 deaths in Kerala (not confirmed in many cases by independent review by the central government). Despite low case fatality the disease is associated with substantial health burden and economic loss to the affected population having prolonged disability in some patients.

It is essential to conduct detailed investigation of the outbreak with documentation of cases. IEDCR and DGHS, GOB did an excellent job in case and vector investigation, detected Aedes albopictus in all rural outbreaks and in Dhaka A aegypti are predominant vector with few A albopictus (Unpublished data, Disease Control Unit, DGHS, Dhaka, Bangladesh). For future prevention we need to have an Integrated Vector Control Management Plan for strict vector control all along not during such an outbreak only, to have a good surveillance (patient and vector) which is considered to be one of the important pillars of public health for vector borne diseases, and effective community education. WHO Global Vector Control Response for 2017-2030 ‘aims to reduce the burden and threat of vector-borne diseases through effective, locally adapted and sustainable vector control’. Chikungunya outbreak in Dhaka signifies the necessity of improving public health capacity of Bangladesh for the control of vector borne diseases.


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SSO & Coordinator, One Health Laboratory, Institute of Epidemiology, Disease Control and Research (IEDCR), Dhaka, Bangladesh.

References:
Cervical carcinoma is a preventable condition and over 95% of patients with early carcinoma cervix can be cured. But still women dying from malignant disease of all kinds the cervix is the common organ primarily involved. The study was conducted to find out the predisposing factors of carcinoma cervix in our population and to scrutinize the patients in early stages, so that measures can be taken to prevent it. After approval of ethical committee and informed written consent fifty patients from Dhaka Medical College hospital were included in this study from January 2003 to December 2003. Among the 50 patients 36 were between 31 to 50 years, 42 patients present with blood stained per vaginal discharge and 40 present with post-coital bleeding. Regarding identifiable risk factors early age of 1st intercourse was most common followed by multiparity. Ninety four percent of patients had squamous cell carcinoma and reminder were adenocarcinoma. Incidence of carcinoma cervix can be decreased by health education with special attention to risk factors and morbidity and mortality can be reduced by detection of cases in early stage when it is still curable.

Key words: Carcinoma cervix, Early detection, Predisposing factors.

Clinical Profile of Patients with Carcinoma Cervix
in a Tertiary Level Hospital
M ZEBUNNESAA, MM KARIMb, S DHARC, K NESSAd, K BEGUME

Summary:
Cervical carcinoma is a preventable condition and over 95% of patients with early carcinoma cervix can be cured. But still women dying from malignant disease of all kinds the cervix is the common organ primarily involved. The study was conducted to find out the predisposing factors of carcinoma cervix in our population and to scrutinize the patients in early stages, so that measures can be taken to prevent it. After approval of ethical committee and informed written consent fifty patients from Dhaka Medical College hospital were included in this study from January 2003 to December 2003. Among the 50 patients 36 were between 31 to 50 years, 42 patients present with blood stained per vaginal discharge and 40 present with post-coital bleeding. Regarding identifiable risk factors early age of 1st intercourse was most common followed by multiparity. Ninety four percent of patients had squamous cell carcinoma and reminder were adenocarcinoma. Incidence of carcinoma cervix can be decreased by health education with special attention to risk factors and morbidity and mortality can be reduced by detection of cases in early stage when it is still curable.

Key words: Carcinoma cervix, Early detection, Predisposing factors.

Introduction:
The cervix is the commonest site for female genital cancer. Cervical cancer is the second most common cancer among women worldwide after breast cancer. Globally it was responsible for 275000 deaths in 2008. Nearly 83% of these deaths occurred in developing countries where it is the 10th most common cancer. Among women, it is the leading cause of cancer mortality, accounting for 26% of all cancer deaths. In the developing countries carcinoma cervix is the most common malignancy in the female and a major public health problem. The estimated new cancer cervix cases per year is 500.000 of which 79% occur in the developing countries like us. Due to availability of routine screening for detecting carcinoma in situ and availability of proper management, the incidence of invasive carcinoma has greatly reduced. According to cancer registry report, In Bangladesh, carcinoma cervix is the second most common cancer among female which is 21.5%. The cause of carcinoma cervix is not known but certain predisposing factors are recognized such as early marriage, low socioeconomic condition, multiparity, early age of first intercourse, multiple sexual partner, high risk male partner, sexually transmitted diseases, immunosuppressant, oral contraceptive pill. HPV type 16 & 18 has stronger association with cervical carcinoma. Western countries have seen a dramatic fall in the occurrence of cervical cancer due to widespread conduction of pap smear.

In very early stage, invasive cervical carcinoma causes no symptoms & is only discovered accidentally or as a result of routine search. Abnormal vaginal bleeding or discharge are the most common symptoms of invasive carcinoma. First episode of bleeding comm--monly follows coitus, straining at stool or any circumstance which exposes the cervix. Bleeding may be slight in the beginning and become alarmingly heavy later. The discharge is creamy or white at first but subsequently dirty brown and of a particular offensive odor.
advanced stage, patient complains of pelvic pain, frequency of micturation, dysuria, incontinence, rectal pain, low backache, oedema of the leg, weight loss, anorexia. Western countries have seen a dramatic fall in the occurrence of cervical cancer due to widespread conduction of pap smear.

In early stage cervical carcinoma may appear normal, eroded or chronically infected. Infiltrative carcinoma causes enlargement, irregularity and firm consistency of the cervix which eventually involves the adjacent parametrium. The cardinal signs are hardness, friability, fixation & bleeds on touch. When the patient comes with symptoms, diagnosis is usually done by cervical biopsy. About 95% of cervical carcinoma is squamous cell in type.

Cervical carcinoma is a preventable condition. Over 95% of patient with early carcinoma cervix can be cured. Treatment of the carcinoma cervix depends upon the stage. Surgery, Radiotherapy and Chemotherapy can be offered as treatment option.

Aims and Objectives:
The purpose of this study was to determine the sociodemographic characteristics of cervical cancer patients attending tertiary level hospital of Bangladesh as well as to identify the population groups that are more susceptible to develop carcinoma of the cervix so that measures can be taken to prevent the disease by identifying the risk factors.

Methods:
After approval of institutional ethical committee, this prospective study was conducted in Dhaka Medical College Hospital by taking 50 randomly selected patients of carcinoma cervix over a period of one year (January 2003 to December 2003).

After taking informed written consent, these patients were selected from Gynae out patients department, Radiotherapy department and Gynae ward. After taking careful history, indication clinical examination, cervical biopsy was taken from that patient who attended at Gynae OPD and admitted in inpatient department for confirmation. After confirmation staging were done. Intravenous urography, X-ray chest P/A view were done in all cases. Then cases were selected for treatment with surgery, radiotherapy and chemotherapy as suitable for the patients.

The results were calculated and interpreted through appropriate statistical analysis with the help of a statistician and presented with table, pie chart.

Results:
Sixty-two patients of carcinoma cervix were included in the series. But 12 patients were excluded from the study due to absence from regular follow up. Most of the patients (46%) were between 31-40 years age group. Among the patients, 88% were housewives. All patients were married and 56% of patients were from lower socio-economic group.

Table-I

<table>
<thead>
<tr>
<th>Demography of Study Population (n=50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameters</td>
</tr>
<tr>
<td>Age Group:</td>
</tr>
<tr>
<td>21 – 30</td>
</tr>
<tr>
<td>31 – 40</td>
</tr>
<tr>
<td>41 – 50</td>
</tr>
<tr>
<td>51 – 60</td>
</tr>
<tr>
<td>61 - 70</td>
</tr>
<tr>
<td>Occupation:</td>
</tr>
<tr>
<td>House wife</td>
</tr>
<tr>
<td>Service holder</td>
</tr>
<tr>
<td>Marital Status:</td>
</tr>
<tr>
<td>Married</td>
</tr>
<tr>
<td>Unmarried</td>
</tr>
<tr>
<td>Widow</td>
</tr>
<tr>
<td>Socioeconomic Status:</td>
</tr>
<tr>
<td>Lower</td>
</tr>
<tr>
<td>Middle</td>
</tr>
<tr>
<td>High</td>
</tr>
</tbody>
</table>

Table-II

<table>
<thead>
<tr>
<th>Mode of presentations of cases of carcinoma cervix.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation</td>
</tr>
<tr>
<td>Blood stained P/V discharge</td>
</tr>
<tr>
<td>Post coital bleeding</td>
</tr>
<tr>
<td>Foul smelling P/V discharge</td>
</tr>
<tr>
<td>Menorrhagia</td>
</tr>
<tr>
<td>Metrorrhagia</td>
</tr>
<tr>
<td>Spotting</td>
</tr>
<tr>
<td>Backache</td>
</tr>
<tr>
<td>Vulval oedema</td>
</tr>
<tr>
<td>Lower abdominal pain</td>
</tr>
<tr>
<td>Leg oedema</td>
</tr>
<tr>
<td>Frequency of micturation</td>
</tr>
<tr>
<td>Haematuria</td>
</tr>
</tbody>
</table>
Most common presentation was blood stained per-vaginal bleeding (84%) followed by post coital bleeding (80%).

### Table-III

**Risk factors in the study population**

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Number of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early age of first intercourse</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>Multiparity (More than 4)</td>
<td>37</td>
<td>74</td>
</tr>
<tr>
<td>Early marriage</td>
<td>36</td>
<td>72</td>
</tr>
<tr>
<td>Low socio-economic group</td>
<td>28</td>
<td>56</td>
</tr>
<tr>
<td>High risk male partner</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Multiple sex partner</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Oral contraceptive pill</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Early menarche</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Late menopause</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Smoking</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Sexually transmitted disease</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

Regarding identifiable risk factors early age of 1st intercourse was most common (80%) followed by multiparity (74%) and early marriage (72%). 14% patients had early menarche and 6% had late menopause.

### Table-IV

**Status of general physical examination**

<table>
<thead>
<tr>
<th>General physical examination</th>
<th>Number of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia</td>
<td>49</td>
<td>98</td>
</tr>
<tr>
<td>Weight loss</td>
<td>36</td>
<td>72</td>
</tr>
</tbody>
</table>

Ninety eight percent of patients were clinically anaemic with weight loss in 72%.

94% (ninety-four percent) patients had squamous cell carcinoma and the remainder 6% (six percent) has adenocarcinoma.

**Fig.-1: Histological types of carcinoma cervix**

Most of them were in advanced stage. Two patients had liver and lung metastasis and one had metastasis in brain.

**Discussion:**

The primary objectives of this study were to analyze the clinical presentations. In this study most common presentation of ca cervix was blood stained per-vaginal discharge, which is about 84%. It was about 70% in a study done by Banu L. A\(^9\) and 61% in the study by Fauzia.\(^{10}\) Post coital bleeding were also noted in 80% of patients in this series which was about 30% in the study conducted by Banu L. A.\(^9\) Besides these, 56% patients presented with foul smelling per-vaginal discharge, 26% with menorrhagia, In Banu L. A series foul smelling per-vaginal discharge were presenting 40% and menorrhagia were 10%.\(^9\)

Among the 50 patients studied in this series early age of 1st intercourse was the most common identified risk factors. 80% patients had 1st intercourse before 15 years. In Banu L.\(^9\) A series 60% were before 15 years and 40% were between 15 to 20 years. Thirty six patients (72%) had their marriage before 15 years. Twenty-eight patients (56%) came from low socio-economic class. 28% from middle class and 16% from higher class. It was 30% and 60% and 10% respectively in Banu L. A series.\(^9\) High prevalence of carcinoma cervix in lower socio-economic group may be due to less availability of medical facilities to poor patients as well as their ignorance and illiteracy about health. Low socio-
economic condition and poor personal hygiene were also identified as the risk factor by Fauzia. High risk male partner like rickshaw puller, hawkers etc. were recorded in 24% of patients. 18% patients had multiple sexual partner which is also an important risk factor.

Exposure to HPV and HIV were not studied in this series due to lack of facilities. But there is increased risk in patients infected with HPV and HIV. There is a higher rate of persistent HPV infections in HIV positive patients, especially with oncogenic virus subtypes. Persistence of high-risk virus is necessary for the development of dysplastic lesion; therefore, there is a higher incidence of cervical intra-epithelial neoplasias (CIN) and cervical cancers in HIV positive patients.

Age ranged between 25 to 62 years with a mean age of 37.5±8.2 years. Forty six percent patients were between 31-40 years age group and 26% in between 41-50 years age group. In a series by Banu L.A showed 50% patient were between 20-40 years and 40% were between 41-50 years age group. It was 31.5% between 41-50 years age group and 21.9% in 41-50 years age group in BENEDET’s series. In the series reported by Roy. N.N about 65% patients were between 31-40 years.

In the series 98% patients were anemic, which co-relates with Banu L.A series. Significant weight loss were noted in 72% patients which is as usual with other malignancies. Owing to liver metastasis 4% patients had jaundice. One patient had brain metastasis, which is a rare observation in cervical carcinoma.

Fifty percent of patients had vaginal involvement which is about 40% in Banu L. A series. Regarding characteristics of growth 40% were ulcerative, 14% were exophytic and endophytic were 6%. It was 40%, 38% and 18% respectively in the series by Fauzia. Ulcerative lesion was 50% in Banu L. A series. During per vaginal examination bleeding were noted in 84% patients and foul smelling discharge in 56% patients, which were 100% and 50% respectively in Banu L. A series. 76% patients had friable cervical growth with hard consistency in 24% of patients.

Cervical biopsy of the patients showed 94% patients had squamous cell carcinoma of different grades and 6% had adenocarcinoma. Squamous cell carcinoma was 91% in the study conducted by Fauzia. In Banu L. A series of 10 patients 100% were squamous cell carcinoma. But in CCABC and Vancouver series of 241 cases, 185 were squamous cell carcinoma, 28 were adenocarcinoma and 13 were mixed adenosquamous carcinoma. In this series all were invasive carcinoma. None of my patients in this series were micro invasive or occult carcinoma, probably due to unavailability of routine screening program.

Conclusion:
Our study showed that high proportion of cervical cancer patients at tertiary level hospital are late presenters. Among the study population major risk factors for cervical cancer includes, early age at first intercourse, multiple sexual partners, low socio-economic status. Well organized and applied public health education particularly among the low socio-economic group with special attention to risk factors like early marriage, sexual behavior, genital hygiene etc. and mass screening programs can substantially reduce the morbidity and mortality from cervical cancer. Vaccination against HPV for girls of nine years and above can be included in national immunization program.

References:
genotypes, sexual and reproductive risk factors of cervical adenocarcinoma and squamous cell carcinoma: Northeastern United States. Division of cancer Epidemiology and Genetics, National Cancer Institute, Bethesda, Md 20892, USA.


12. BENEDIT’s 30 years study of radical hysterectomy in cancer cervix, Cancer control Agency of British Columbia(CCABC) and Vancouver General Hospital.


14. Cancer Control Agency of British Columbia(CCABC) and Vancouver General Hospital.
Nosocomial Bloodstream Infections in Children in Intensive Care Unit: Organisms, Sources, Their Sensitivity Pattern and Outcome of Treatment

SA TAUHID, MAK CHOWDHURY, MM HOQUE, MA KAMAL, E HAQUE

Summary:
Background: Nosocomial bloodstream infection in paediatric ICU is a leading, preventable infectious complication in critically ill patients and has a negative impact on patient's outcome. This study was done to determine the type of pathogens responsible for nosocomial infections and its sensitivity pattern, to evaluate the probable sources (fomites) of nosocomial infections and also to compare the outcome of treatment between children with and without nosocomial bloodstream infections in terms of length of ICU stay and mortality.

Material and methods: This study was conducted in the intensive care unit of Dhaka Shishu children hospital. Children between 0-5 years of age were included in the study. Blood culture positive case at the time of admission and Children discharged or died within 48 hours of admission were excluded. When children clinically suspected to have nosocomial infections, their blood culture and swab culture of probable sources were done.

Results: Out 110 patients, 23 (20.9%) patients developed nosocomial BSI. Neonates were found to be more susceptible to develop nosocomial BSI. Most of the organisms (86%) were Gram negative bacilli. Klebsiella was the most common pathogens (30.78%) followed by acinetobacter (21.73%), E-coli (13.04%), Pseudomonas (8.7%). Type of micro-organisms and their sensitivity pattern obtained from blood culture and sources culture of corresponding patient were almost similar which indicate the clue for probable source of nosocomial infection. Microorganisms were almost sensitive to Imipenem but there were high resistance to commonly used antibiotics including third generation cephalosporins. ICU acquired infections increase hospital mortality and duration of hospital stay.

Conclusion: Nosocomial bloodstream infections in children in ICU are associated with high mortality rate and prolong hospital stay. Neonates are more susceptible to develop nosocomial BSI than children aged above 28 days. Gram negative organisms are predominant isolates and are developing resistance to commonly used antibiotics including third generation cephalosporin. Imipenem is the most effective and reliable antibiotic option. Fomites especially health care device including IV canula, suction catheter, endotracheal tubes, oxygen mask are the important probable sources of nosocomial infections.

Introduction:
Nosocomial infections (NI) constitute a major health problem associated with high morbidity, mortality and increase of health cost, especially in pediatric intensive care unit (PICU). Nosocomial infections or hospital acquired infections defined as those not present or incubating at the time of hospital admission and developing 48 hours or more after admission. The most NI occurred in pediatric intensive care unit. A majority of it occur in preterm and term infant that require intensive care. Blood stream infections (BSI) is the most common nosocomial infections in PICU. It is independently associated with a three-fold increased risk of death.

Device associated nosocomial infections frequently occur in pediatric and neonatal intensive care unit. The isolation of known pathogens from some of the equipment and other fomites shows that they can be sources of infection to patients. Health care–associated infections are often due to multidrug resistant pathogens and are different from those encountered in community-acquired infections. Empiric antibiotic treatment from...
the first hour reduces mortality in severe sepsis and septic shock.9 But in empiric treatment, Knowledge about local pathogens and their sensitivity is essential. Pourakabari et al5 have shown, Gm negative bacilli are the most frequent pathogen in nosocomial infections in pediatric patients. But according to NNISS (USA) report10, coagulase negative Staphylococcus were the most common isolates. The antibiotic resistance of nosocomial infections is rapidly increasing.11 Nosocomial BSI with multidrug resistant pathogens are difficult to treat and are associated with increased mortality.12 Progressive antimicrobial resistance threatens the previous knowledge of our primary treatment approach against bacterial pathogens.13 To minimize the infection in PICU with optimal cost effective care, every ICU should have its own strategy for prevention and treatment of BSI.14 There is very little data from Bangladesh documenting the prevalence and trend of nosocomial blood stream infections in children in intensive care unit. This study was done to determine the type of pathogens responsible for nosocomial infections and its sensitivity pattern, to evaluate the probable sources (fomites) of nosocomial infections and also to compare the outcome of treatment between children with and without nosocomial bloodstream infections in terms of length of ICU stay and mortality which would serve as a reference based recommendation.

Material and method:
This study was conducted in the intensive care unit of Dhaka Shishu (children) hospital which was a combined ICU for all age group of children during the study period from January 2008 to November 2008. All the children between 0-59 months of age admitted to ICU during the study period were included in the study. Exclusion criteria were (1) blood culture positive case at the time of admission, (2) children discharged or died within 48 hours of admission,(3) attendants of those children not interested to continue participate in the study. Blood samples of all study patients were sent for culture on admission. Patients who had positive blood culture on admission were excluded from the study. Remaining were followed up and examined everyday to observe the development of any sign-symptoms of nosocomial infections. When clinically suspected to have nosocomial infections, their blood sample were taken aseptically and culture and sensitivity was done. Those children who were culture positive, considered development of nosocomial infections. Swab were taken from the probable source such as Endotracheal tube, Suction catheter, I/V canula, oxygen musk from all culture positive cases and their culture and sensitivity test were done. Other investigations also were done as necessary.

PICU acquired nosocomial infections were defined according to the centre for Diseases Control and Prevention (CDC).15 Infections that commenced at or after 48 hrs of admission to the PICU were included as PICU acquired infections. Bloodstream infections were defined as the biological documentation of infection, i.e., the result of a positive blood culture.

Permission of ethical board of Dhaka Shishu Hospital was taken. Informed written consents were taken from the parents/attendance after explanation.

Data were analyzed using SPSS version 12. Association between nosocomial BSI status and socio-demographic factors were sought through cross tabulation and chi square test. Quantitative variables were compared by comparison of mean through independent t test. The association was considered significant at p value < 0.05.

Result:
During the study total 110 patients were enrolled and analyzed for the study. Out of 110 patients, neonates were 67 (60.9%), 31 (28.2%) were aged between 29-365 days 12 (10.9%) aged above 365 days. About two third (67.3%) of the patients were male and rest (32.7%) of the patients were female giving a male-female ratio about 2:1. Out of 110 patients, 73 (66.4%) patients were from urban area and remaining 37 (33.6%) were from rural area. Majority of the patients (71.8%) were belonging to middle income group. Lower income group were 19(17.3%) and upper income group were the least (10.9%). (Table-I)

During study period 23 (20.9%) patients out 110 patients developed nosocomial BSI confirmed by blood culture and rest of 87 (79.1%) were found to be culture negative (Table-II). Out of 23 patients found positive for blood culture, predominate isolates (20, 86.95%) of were Gram negative Bacteria. Klebsiella pneumoniea was the most common pathogens (8, 34.78%) in blood culture followed by acinatobacter spp (5, 21.73%), E-
coli (3, 13.04%), Pseudomonas areuginosa (2, 8.7%), Serratia spp (2, 8.7%), Candida (2, 8.7%) and Staphylococcus spp (1, 4.35%) (Table-II). Swab culture from the probable sources (fomites) used by the children as endotracheal tube, Suction catheter, I/V canula, oxygen musk showed that Gram negative Bacteria were the predominate microorganisms. The most common pathogens in swab culture were Klebseilla pneumoniae (6, 30%) followed by Acinatobacter spp (4, 20%), E.coli (2, 10%), Pseudomonas (2, 10%), Serratia (2, 10%), Staphylococcus spp (15%) and Candida (5%) (Table-IV). Type of organisms obtained from blood culture and swab cultures of probable sources (fomites) of corresponding patient were almost similar. Frequency of microorganisms obtained from blood culture and their sources culture and their sensitivity pattern were also almost similar. Most of the organisms obtained from blood culture and sources culture were almost sensitive to Imipenem but there were high resistance to commonly used antibiotics including Ceftriaxon, Ceftazidim, Amikacin, Gentamycin, Chloramphenicol and Ciprofloxacin. E. Coli, serratia, pseudomonas and Staphylococcus were 100% sensitive to Imipenem but Klebsiella were 87% sensitive to Imipenem in blood culture and 83% sensitive to sources culture. In blood culture, Ceftriaxon, 25% sensitive to Klebsiella, 20% sensitive to Acinatobacter, 50% sensitive to E-colli, 50% sensitive to Serretia, 0% sensitive to Pseudomonas and 33% sensitive to Staphylococcus and in sources culture, Ceftriaxon, 33% sensitive to Klebsiella, 25% sensitive to Acinatobacter, 50% sensitive to E-colli, 50% sensitive to Serretia, 0% sensitive to Pseudomonas and 100% sensitive to Staphylococcus. These organisms were 100% resistant to Amoxicillin, Cotrimoxazol and Cephradin. Ceftazidim and amikacin were relatively better sensitive to Pseudomonas and E.coli than Klebsielle and Acinatobacter. (Table –V).

In the study, 19 (28.35%) children aged 0-28days (neonates) developed nosocomial BSI and 4 (9.3%) children aged above 28 days developed nosocomia BSI indicating that neonates are more susceptible to develop nosocomial BSI than children aged above 28 days (P <0.02) (Table-VI). During the study, out of 110 patients, 6 (5.45%) patients were discharged on risk bond (DORB). Among 104 patients, 90 (86.5%) patients improved and 14 (13.5%) patients died. Among the 23 patients who developed nosocomial bloodstream infections, 6 (26.1%) died and among 81 patients without nosocomial bloodstream infections, 8 (9.9%) died. The difference is statistically significant. The proportion of fatality is significantly higher in children with nosocomial BSI (P<.05) (Table-VII). Length of hospital stay of children with nosocomial BSI in ICU in our study was about four days more than Children without nosocomial BSI (P<.01) (Table -VIII).
**Table-III**

*Pattern of micro-organisms in blood culture positive cases (n=23)*

<table>
<thead>
<tr>
<th>Micro-organisms in blood Culture</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gm(-)ve</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Klebsiella</td>
<td>8</td>
<td>34.78</td>
</tr>
<tr>
<td>Acinetobacter</td>
<td>5</td>
<td>21.73</td>
</tr>
<tr>
<td>E-coli</td>
<td>3</td>
<td>13.04</td>
</tr>
<tr>
<td>Serratia</td>
<td>2</td>
<td>08.70</td>
</tr>
<tr>
<td>Pseudomonas</td>
<td>2</td>
<td>08.70</td>
</tr>
<tr>
<td><strong>Gm (+)ve</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staphylococcus</td>
<td>1</td>
<td>04.35</td>
</tr>
<tr>
<td>Candida</td>
<td>2</td>
<td>08.70</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>23</td>
<td>100</td>
</tr>
</tbody>
</table>

**Table-IV**

*Micro-organisms isolated from probable sources (fomites) culture of the blood culture positive patients*

<table>
<thead>
<tr>
<th>Micro-organisms isolated from sources culture</th>
<th>ET Tube</th>
<th>Suction Cath. Tip</th>
<th>I/V canula</th>
<th>Oxygen mask</th>
<th>Total (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gm (-)ve.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Klebsiella</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>06 (30%)</td>
</tr>
<tr>
<td>Acinetobacter</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>04 (20%)</td>
</tr>
<tr>
<td>E-coli</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>02 (10%)</td>
</tr>
<tr>
<td>Serratia</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>02 (10%)</td>
</tr>
<tr>
<td>Pseudomonas</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>02 10%</td>
</tr>
<tr>
<td><strong>Gm (+)ve.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staphylococcus</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>03 (15%)</td>
</tr>
<tr>
<td>Candida</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>01 (5%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>20</td>
</tr>
</tbody>
</table>

**Table-V**

*Sensitivity pattern of micro-organisms in blood culture and culture of the sources of corresponding patients*

<table>
<thead>
<tr>
<th>Organisms</th>
<th>Culture</th>
<th>Imipenem (%)</th>
<th>Ceftriaxone (%)</th>
<th>Chloramphenicol (%)</th>
<th>Amikacin (%)</th>
<th>Cefazolin (%)</th>
<th>Ciprofloxacin (%)</th>
<th>Gentamycin (%)</th>
<th>Cefradine (%)</th>
<th>Amoxicillin (%)</th>
<th>Cotrimoxazol (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klebsiella</td>
<td>Blood(8)</td>
<td>87</td>
<td>25</td>
<td>25</td>
<td>12.5</td>
<td>12.5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Sources(6)</td>
<td>83</td>
<td>33</td>
<td>33</td>
<td>17</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Acinetobacter</td>
<td>Blood(5)</td>
<td>80</td>
<td>20</td>
<td>0</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Sources(4)</td>
<td>75</td>
<td>25</td>
<td>0</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E-coli</td>
<td>Blood (3)</td>
<td>100</td>
<td>67</td>
<td>33</td>
<td>33</td>
<td>0</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Sources (2)</td>
<td>100</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Serratia</td>
<td>Blood (2)</td>
<td>100</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Sources (2)</td>
<td>100</td>
<td>50</td>
<td>0</td>
<td>00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pseudomonas</td>
<td>Blood (2)</td>
<td>100</td>
<td>0</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Sources (2)</td>
<td>100</td>
<td>0</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Staphylococcus</td>
<td>Blood (1)</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Sources (3)</td>
<td>100</td>
<td>33</td>
<td>0</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

(Candida is not shown in the table)
Discussion:
Nosocomial infections and antimicrobial resistance in the ICU is a major deterrent to patients outcome, increasing duration of patients stay in hospital as well as expense. The risk of nosocomial infections depend on the host characteristics, the number of interventions, invasive procedure, asepsis of techniques, the duration of stay in PICU, and inappropriate use of antimicrobials. First four weeks are the most susceptible period of getting nosocomial infection. In our study showed neonates are more susceptible to develop nosocomial bloodstream infection than children age above 28 days.

Patients in ICU acquire nosocomial bloodstream infection faster than that of non ICU, probably it is due to the fact that patients in ICU are exposed to a greater number of reservoirs and sources of microorganisms. In children those are likely to be more frequent and serious in developing countries. Some of possible factors for this may be malnourished state of patients, delayed presentation to referral centers and multi-organ involvement at admission. The prevalence of nosocomial infections n ICU in our study is higher than the study of Dusgupta et al (11.98%). Our study was comparable with the study with Porto et al (22.1%) and Wahab et al (21.4%).

According to the NNISS report, Gram positive pathogens responsible for majority of the nosocomial bloodstream infections. Common pathogens in pediatric intensive care units are- Coagulase-negative staphylococci followed by Enterococcus, Staphylococcus aureus, Enterobacter spp. Candida

### Table-VI

<table>
<thead>
<tr>
<th>Age of the child</th>
<th>Nosocomial BSI</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>0- 28days (Neonates)</td>
<td>19 (28.36%)</td>
<td>48 (71.64%)</td>
</tr>
<tr>
<td>&gt; 28 days (Non Neonates)</td>
<td>4 (9.3%)</td>
<td>39 (90.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>87</td>
</tr>
</tbody>
</table>

Chi-Square = 5.75  df = 1  P < 0.02

### Table-VII

<table>
<thead>
<tr>
<th>Outcome of treatment</th>
<th>Status of nosocomial BSI</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>Improved</td>
<td>17 (73.9%)</td>
<td>73 (90.1%)</td>
</tr>
<tr>
<td>Deceased</td>
<td>06 (26.1%)</td>
<td>08 (9.9%)</td>
</tr>
<tr>
<td>Total</td>
<td>23 (100.0%)</td>
<td>81 (100.0%)</td>
</tr>
</tbody>
</table>

Chi-Square = 4.014  df = 1  *P* = .044

### Table-VIII

<table>
<thead>
<tr>
<th>Nosocomial BSI</th>
<th>N</th>
<th>Days Mean</th>
<th>SD</th>
<th>T</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>23</td>
<td>12.2</td>
<td>4.24</td>
<td>2.94</td>
<td>0.004</td>
</tr>
<tr>
<td>Negative</td>
<td>87</td>
<td>8.8</td>
<td>5.02</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
negative isolates. Escherichia coli and Acinetobacter are the leading Gm pathogens in nosocomial BSI. Pseudomonas areuginosa, Klebsiella pneumonia, and Serratia, Candida and staphylococcus which has similarity with the result of Chowdhury et al. and Wahab et al. According to WHO antimicrobial resistance global report 2014, antimicrobial resistance to common bacteria has reached alarming levels in many parts of the world. Systematic reviews of the scientific evidence showed that antibacterial resistance had a negative impact on outcomes for patients and health-care expenditures. Most bacteria isolated from ICU of Fatmawati hospital in Indonesia were shown resistant to the third generation cephalosporins and quinolone antibiotics. Ahmed et al showed that BSI was associated with an 18.7% increased mortality and length of stay in hospital. Crude mortality rate of children (median age 2.8 years) in a pediatric ICU was shown 12.9%. Ahmed et al showed, crude mortality rate with bloodstream infections in ICU was 38%. Our study found 26.1% fatal outcome of children from ICU acquired bloodstream infection. The outcome of treatment is significantly better in children without nosocomial infection (9.9%). Mortality rate strongly correlate with nosocomial BSI. Prowly et al showed that BSI was associated with an 18.7% increase in crude hospital mortality which is similar with our study (16.2%). Nosocomial infections leads to extra hospital stay. In patients with nosocomial infection in a tertiary care teaching hospital in India, the mean PICU stay was 17.31 days which was higher than our study. Length of hospital stay of children with nosocomial BSI in ICU in our study was about four days more than Children without nosocomial infection. It increases the treatment cost of patient. The prevention of these infections in ICU through specific intervention may reduce the ICU treatment cost.
Limitations of the study

• Study was done in only one centre for a short period of time.
• Small sample size.
• Randomization in recruitment of subjects could not be achieved.
• Possible confounding factors were not adjusted for the study.

Conclusion:
Nosocomial bloodstream infections in children in ICU are associated with high mortality and hospital stay. Neonates are more susceptible to develop nosocomial BSI than children aged above 28 days. Gram negative Organisms are most common isolates and are developing resistance predominantly to commonly used antibiotics including third generation cephalosporins. Imipenem is the most effective and reliable antibiotic option. Fomites especially health care device including IV canula, suction catheter, endotracheal tubes, oxygen mask are the important probable sources of nosocomial bloodstream infections.

Recommendations

• Standard operating procedure with adequate protective protocol should be maintained in the ICU to reduce nosocomial infection and its consequences.
• The choice of antimicrobial agents in initial empirical treatment should be depend on the knowledge of local pathogens and their susceptibility.
• Large multi centre study can be done for further evaluating of these findings.

References:


Post-spinal Headache after Caesarean Section – Effect of Approach Into Dura-Archnoid Sac

S DHAR, M PAUL, NC SARKAR, M ZEBUNNESA, AKMF HOQUE, GA CHOWDHURY, A KMS ALAM

Summary:
Introduction: Spinal anaesthesia is the technique of choice for caesarean section. But post-spinal headache (PSH) is still a 'headache' for the anaesthesiologist even after using modern spinocaine needles. Objective: This study was performed to compare the incidence of PSH between midline and lateral approach when caesarian sections were done by spinal anaesthesia. Methods: After ethical clearance this study was done in Chittagong Medical College Hospital. Two hundred pregnant women of American Society of Anesthesiologists (ASA) physical status I & II who underwent caesarian section were included and randomized into 2 groups. After informed consent spinal needle were inserted by midline approach in Group A patients and by lateral approach in Group B patients. After appearance of free flow of CSF 0.5% hyperbaric bupivacaine 10mg was injected to each patient. PSH and other complications were evaluated. Results: Incidence of PSH was significantly higher in Group A patients. Conclusion: Lateral approach during spinal anaesthesia is better than midline approach in preventing PSH.

Key words: Lateral approach, Post spinal headache, Spinal anaesthesia.

Introduction
Popularity of spinal anaesthesia for caesarean section is increasing day by day due to better understanding of the physiological changes associated with spinal anaesthesia and proper appreciation of its advantages and limitations.1,2 Spinal anaesthesia has a very rapid onset and provides a dense neural block which can produce highly effective analgesia during operation and may decrease patient morbidity after surgery, moreover, failures are very infrequent.3,4 But it has also some disadvantages and side effects.

Among the side effects post spinal headache (PSH) is most common and also disgusting for the patients and embarrassing for the anaesthesiologists.3,4 It could increase the hospital stay, workload of physicians, warrant additional investigations that required significant financial repercussions potentially.5 Many factors are reported to influence the incidence of PSH were: age, sex, pregnancy, previous history of post spinal headache, needle size, design of the needle tip, bevel orientation to the dural fibres, lumbar puncture attempts, type of local anesthetic agent and clinical experience of the anesthetist.6-12 Actual mechanism of post-spinal headache is unclear but loss of CSF through dural puncture site and lowering of CSF pressure still regarded as the main cause. Dural punctures causes uncontrollable CSF loss until pressure equilibrium develops between the positive subarachnoid and negative epidural compartments. Anesthetists have been active in attempting to reduce the incidence and treat PSH by three ways – either by using a smaller or higher-tech needle, makes a smaller hole and less CSF leaks out, so headache will be milder or less prevalent. Or hydrate the patient after surgery to help production of CSF and thereby re-balance the fluid pressure, relieving headache soon. Lastly by using a ‘blood patch’ to plug the needle hole to prevent CSF leakage.

Reducing the size of spinal needle has a significant impact on the incidence of PSH. The incidence is 40% with 22G needles, 2-12% with 26 G Quincke needle and < 2% with 29G needles. But technical difficulties leading to failure of the spinal anesthesia are common.
with 29G or smaller needle.13 Even with costly pencil-point needle incidence of PSH is 3-4% and paraesthesia has been observed with this needle.14 So, we can say that, with small needle and pencil-point needle the incidence of PSH can be decreased but not to zero.

The importance of needle entry angle has been shown by Ready et. al in 1989.15 In 1995 Bela i.Halfalvi showed that if a beveled needle is inserted by lateral approach(bevel end of needle facing skin 2 cm lateral from the midline, 25-30 degree angle with skin) the bevel end of the needle will cut the dura inward and creates a flap which will close behind the needle as it is withdrawn due to increased pressure on the valvular flap by CSF and or ambulation, cough, stress etc. The dural hole is self-sealing, CSF leakage is minimized and headache is almost prevented.16 This complication needs further research into development of alternative method.

Our clinical study was performed to compare the incidence of post-spinal headache between midline approach and lateral approach when caesarean sections were done by spinal anaesthesia in sitting posture with 25 G Quincke needle, which is cheap, available and commonly used in Bangladesh.

Methods:
After approval of institutional ethical committee this prospective study was conducted in the Chittagong Medical College Hospital from January 2005 to December 2005. Two hundred pregnant women of American Society of Anesthesiologists (ASA) physical status I and II who were undergoing caesarean section under spinal anaesthesia were enrolled in this study after explaining the procedure & complications of spinal anaesthesia and obtaining written consents. Patients with a previous history of any kind of headache were excluded.

Patients were divided into two groups by simple random sampling with lottery method (draw without replacement until desired sample size arrived).17 There were hundred patients in each group. In Group-A (n=100) patients spinal needle were inserted by midline approach and in Group-B (n=100) by lateral approach.

On arrival at operation theatre baseline pre-induction heart rate, blood pressure and oxygen saturation of each patient were recorded. No pre-medication were given. Preload were given to all patients with Ringer’s lactate (10-15 ml/kg) rapidly through an indwelling 18G IV cannula 15 minutes before anesthetic induction. Patients were positioned in sitting position and 25G Quincke needle were inserted at L3-4 inter-space by midline approach (plane of the back of patient is perpendicular to that of the floor and needle was introduced in the midline directed slightly cephalad) or lateral approach (2 cm lateral to midline with bevel end facing skin) with all aseptic precaution.

During insertion of needle followings were observed: Ease of insertion of needle – described as smooth or difficult. Number of attempts required for successful insertion of needle. After appearance of free flow of CSF local anesthetic solution (0.5% hyperbaric bupivacaine 10mg) was injected through spinal needle over a period of 15-20 second. After withdrawal of needle, punctured site was covered by sterile gauze. Then the patient were turned supine position with a wedge under right buttock. After assuming the supine position, level of block was evaluated. Sensory block was evaluated by using pinprick and chlorhexidine soaked swab by wiping it from inguinal region to nipple in mid clavicular line.19 Motor block was assessed by Bromage scale.20

After operation analgesia and oral intake of plenty of water (at least 3 liters per day) was ensured till discharge. Post spinal headache (headache which is throbbing in nature, eases quickly on lying down and returns on standing and is unusual to present more than 48 hours after lumbar puncture) was evaluated by visiting the patient after 12 hours, 24 hours, 48 hours, 72 hours after operation and prior to discharge.21 Each patient was asked a set of predefined questions regarding headache and other complications. Conservative management (bed rest, NSAIDs and fluid) was given to patients with PSH and cured.

Statistical analysis was done by using unpaired ‘t’ test and chi-square test as applicable. P< 0.05 was considered as significant.

Results:
The results of the study are described in terms of demographic characteristics, physical status, performance of procedure, level of sensory and motor block, incidence of post-spinal headache and complications other than PSH.
There was no significant difference between group-A and group-B regarding age and physical status (Table-I).

### Table-I

<table>
<thead>
<tr>
<th>Characteristics of the patients</th>
<th>Group A</th>
<th>Group B</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>24.64 ± 0.35</td>
<td>25.24 ± 0.47</td>
<td>0.311</td>
</tr>
<tr>
<td>ASA I</td>
<td>88</td>
<td>90</td>
<td>0.111</td>
</tr>
<tr>
<td>ASA II</td>
<td>12</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

The performance of procedure was compared in terms of attempts required for insertion of needle (Table-II).

### Table-II

<table>
<thead>
<tr>
<th>Attempts required for insertion of needle</th>
<th>Attempt</th>
<th>Group A</th>
<th>Group B</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>72</td>
<td>58</td>
<td>0.054</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>28</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

Insertion of needle was possible with 1st attempt in 72 cases of group-A and 58 cases of group-B. Insertion with 2nd attempt was possible in 28 cases group-A and 42 cases of group-B. There was no significant difference between two groups (P=0.054).

There was no significant difference between group-A and group-B regarding sensory block (Table-III) and motor block (Table-IV).

### Table-III

<table>
<thead>
<tr>
<th>Level of sensory block</th>
<th>Group A</th>
<th>Group B</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>T 4</td>
<td>3</td>
<td>3</td>
<td>0.097</td>
</tr>
<tr>
<td>T 5</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>T 6</td>
<td>88</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>T 7</td>
<td>8</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>T 8</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

### Table-IV

<table>
<thead>
<tr>
<th>Level of motor block</th>
<th>Group A</th>
<th>Group B</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromage scale</td>
<td>0</td>
<td>0</td>
<td>0.515</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>89</td>
<td>87</td>
</tr>
</tbody>
</table>

Bromage Scale:
0 - No motor block
1 - Inability to move extended leg but able to move knees and feet.
2 - Inability to raise extended leg and move knee but able to move feet.
3 - Complete motor block

Incidence of Post Spinal Headache was found in 6 cases of Group-A and 0 cases in Group-B (Figure-1) which is significant (P=0.029).

**Fig.-1: Incidence of Post Spinal Headache (PSH)**

Mean time of onset of headache in group A patients was 28.00 ± 5.06 hours after operation and headache completely cured 15.00 ± 1.09 hours after onset of headache. Headache was moderate in 4 patients and mild in 2 patients. Headache was throbbing and fronto-occipital in all 6 patients and associated with nausea in 4 patients and with photophobia in 2 patients. Headache aggravated by sitting or standing and relieved by lying flat in all 6 patients.

Complications other than PSH summarized in table – V. There was no significant difference between the two groups. (P=0.541)

### Table-V

<table>
<thead>
<tr>
<th>Complications other than PSH</th>
<th>Group A</th>
<th>Group B</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backache</td>
<td>6</td>
<td>3</td>
<td>0.541</td>
</tr>
<tr>
<td>Headache other than PSH</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

Spinal anesthesia seems to be well suited for patients undergoing caesarian section because of the short
interval from injection to surgical anesthesia. By using spinal anaesthesia it is possible to avoid some complications of general anaesthesia. But PSH is a well-known complication of spinal anaesthesia. Incidence of post-spinal headache is higher in young age, female and pregnancy. So, obstetric patients undergoing caesarian section under spinal anaesthesia are very prone to develop post-spinal headache.

With the invention of modern needles incidence of post spinal headache gradually decreases. But post spinal headache is still a headache for anesthesiologists even after using 25G Quincke needle (incidence of PSH is 7%) and pencil point needle (incidence of PSH is 3-4%). The present work was designated to make a comparison between midline approach and lateral approach by using commonly used 25G Quincke needle in spinal anaesthesia during caesarean section.

There are few studies showing effect of different approaches during anaesthesia. In the present study regarding the performance of different approaches it was found that ease of insertions was smooth in most cases (78%) of group-A subjects but it was 70% in group-B subjects. So it was not significantly different in terms of ease of insertion. Regarding the number of attempts of insertion between two approaches were statistically not significant. We had no failure to puncture the dura in both approach.

In our opinion the difficulty and need for multiple attempt in group-B was due to unfamiliarity with this approach of spinal anaesthesia.

When spinal needle inserted by lateral approach it enters into subarachnoid space by cutting dura matter in a friendly way but mechanism of action, absorption, distribution of local anesthetic agent remain same as in midline approach and thus level of anaesthesia and analgesia is also same. In traditional midline approach during spinal anaesthesia beveled tip of needle makes a perpendicular puncture at dura, then a ‘saloon door’ like opening is created, which can open in either direction and allow spinal fluid to flow out of the subarachnoid space causing post-spinal headache.

The incidence of post-spinal headache was found nil among group-B subjects while 6% was observed in group-A subjects in our study. Almost similar findings were also observed with 20G sharp beveled needles with the lateral approach in 4465 patients. Incidence of PSH in that and our study is same – one possible explanation would be that the paramedian approach decreased the loss of CSF resulting from perforation of the dura matter and the arachnoid at different angles, produced a valve mechanism that prevented a greater CSF flow to the epidural space causing no post-spinal headache. In another investigation by Ali Jabbari et al. a significant association between the angle of approach and incidence of post spinal headache was also found.

**Conclusion and Recommendation:**

The study shows that, lateral approach with 25G Quincke needle for spinal anesthesia was significantly better than midline approach in terms of occurrence of post spinal headache after caesarian section. This also shows the importance of practice and familiarity of the anesthetist with the lateral approach in order to perform it more efficiently. Further studies with lateral approach by using different size and type of needle are recommended.

**References:**


Renal Functional Status of Asphyxiated Babies & its Correlation with Apgar Score

D SAHA\textsuperscript{a}, MAH MOLLAH\textsuperscript{b}, S AFROZ\textsuperscript{c}, M BANERJEE\textsuperscript{d}, TH KHAN\textsuperscript{e}, CK SAHA\textsuperscript{f}

Summary:
Introduction: Kidney is the 2\textsuperscript{nd} commonest affected organ as a consequence of asphyxia\textsuperscript{1}. Most attention is given to prevent CNS damage and neurological sequel but hypoxic renal insult not only influences neonatal morbidity & mortality but may give rise to CKD. to assess the renal functional status of asphyxiated babies.

Material & Methods: This cross sectional study was conducted in the Department of Neonatology & Department of Gynecology and Obstetrics, Dhaka Medical College Hospital during January 2012 to January 2013. A total of 150 inborn, term asphyxiated neonates with e\textsuperscript{w}+ 2.5 kg who had history of delayed or no cry with Apgar score <7 at 5 minutes were enrolled. Then, the cases were grouped into mild (AS: 6-7), moderate (AS: 4-5) and severe asphyxia (AS: 0-3) based on Apgar score. Forty eight neonates were excluded according to exclusion criteria. Finally, the renal functions were assessed among 102 neonates by measuring urine output 8 hourly and estimated creatinine clearance (eCCL) on the 3rd day of life using Schwartz formula (eCCL=Height (cm) × 0.37/S.creatinine). Neonates with impaired renal function were further classified as stage-I (risk), II (injury), III (failure) using pRIFLE criteria. Data were analyzed by Chi-square & Pearson correlation coefficient test to find out correlation between Apgar scores and renal functional status.

Introduction:
Perinatal asphyxia causes damage to almost every tissue and organ of the body, particularly CNS followed by renal, adrenal, cardiovascular, GIT and respiratory system. As kidneys are very sensitive to oxygen deprivation, renal insufficiency may occur promptly even within 24 hours of asphyxia\textsuperscript{3}.

Serum creatinine as a marker of GFR/renal function in neonate is doubtful, because it remains raised and variable during the 1\textsuperscript{st} month of life\textsuperscript{4}. N- Acetyl glucosamine and \textsuperscript{2} micro globulin are good marker for assessment of renal function\textsuperscript{5}. But in Bangladesh these investigations are not widely available even in tertiary level. In 2004, the Acute Dialysis Quality Initiative (ADQI) proposed an acute kidney injury (AKI) classification system called “Risk, Injury, Failure, Loss, End-Stage Kidney Disease (RIFLE)” criteria to promote a consistent and consensus AKI definition\textsuperscript{6}. Subsequently RIFLE criteria were modified for children and RIFLE changed to pediatric RIFLE criteria or pRIFLE\textsuperscript{7}. This classification system is based on calculation of eCCL (using s. creatinine level of patient) and 24 hours urine output. Then acute kidney injuries...
are classified as stage 1 (risk), stage 2 (injury) and, stage 3 (failure) by using any one of the criteria, eCCL or urine output criteria. Risk means eCCL decreased by 25% and urine output <0.5ml/kg/hr for 8 hours, injury means eCCL decreased by 50% and urine output <0.5ml/kg/hr for 16 hours and failure means eCCL decreased by 75% and urine output <0.3ml/kg/hr for 24 hours or anuric for 12 hours. So in this study a correlation was searched between available renal function marker and perinatal asphyxia, so that renal impairment can be predicted early in asphyxiated neonates. Therefore, high index of suspicion, prompt recognition and thorough understanding of impaired renal function are necessary to optimize management.

Materials and method:
This Cross sectional study was carried out in the Department of Neonatology and Department of Gynecology and Obstetrics, Dhaka Medical College Hospital from January 2012 to January 2013. A total of 150 inborn asphyxiated neonates who had history of delayed or no cry with Apgar score (AS) of <7 at 5 minutes, weight e< 2.5 kg, gestational age e< 37 completed weeks were selected by purposive sampling. A written informed consent was taken from parents before enrollment. Relevant perinatal history and examination findings were recorded in a structured questionnaire. Then, the cases were thoroughly assessed and managed following the resuscitation protocol with close monitoring. The respiratory status was assessed by monitoring RR, chest expansion, air entry & O2 saturation, the CVS status by monitoring pulse volume, HR, color, CRT, Pulse oximetry, & temperature. Neurologic status was assessed by Sarnat & Sarnat staging9 for HIE every 12 hourly. Daily weight recordings were taken on an electronic scale. 8hourly urine output measurements were done by applying plastic urine collection bag or by weighing the wet diaper. On the basis of Apgar score at 5 minutes which was written on referral note, asphyxiated babies were further grouped into mild (6-7), moderate (4-5), severe (0-3) asphyxia. Forty eight neonates were excluded due to Sepsis (13), Jaundice (9), DORB (7), congenital renal anomaly (1) and death before 3rd day (18). Finally renal functional status was assessed among 102 patients by performing blood urea, serum creatinine, and Serum electrolytes after 72 hrs of birth. CBC & X-ray chest was done to exclude sepsis. USG of KUB was done to exclude congenital anomaly. By Schwartz formula10 i.e. eCCL=Ht(cm)×.37/S.creatinine eCCL was calculated, and based on pRIFLE criteria, impaired renal function were further classified as stage I (risk) stage II (injury), stage III (failure). Neonate with AKI, renal function parameters were monitored on every alternate day.

Data were analyzed by SPSS version 12. Results on continuous measurements are presented on Mean ±SD (Min-Max) and categorical measurements are presented in number (%). Chi-squre has been used to find the significance on categorical scale between two variables. Pearson correlation coefficient test was done to find out correlation between categorical scale between two variables. Pearson correlation coefficient test was done to find out correlation between renal functional status (according to eCCL) & Apgar score.

Results:
Out of 102 cases, 48% of the cases had moderate asphyxia followed by mild (30.4%) and severe (21.6%) asphyxia (Fig.1). Among the study cases mean s. creatinine was 0.93±0.73mg/dl, blood urea was 75.63±47.65mg/dl, serum K+ was 5.01±0.91mmol/L & serum Na+ was 139.26±6.68mmol/L (table-I). Acute kidney injury was noted among 68.7% of the cases according to pRIFLE criteria. In risk group average eCCL was 26.92±2.13 ml/min/1.73m2 following injury & in failure group it was 13.90±2.4 ml/min/1.73m2 & 8.14±1.32 ml/min/1.73m2 respectively (Table-II). Majority 18 (58.06%) of the patient in the mild asphyxiated group had normal renal function. However, 9 (29.03%) & 4 (12.90%) of them had stage I & stage II renal dysfunction respectively. In Moderately asphyxiated group 13 (26.53%) had normal renal function & the remaining 16 (32.65%), 17 (34.69%),
3 (6.1%) had stage I, II, III renal injury. On the other hand, all the cases in severely asphyxiated group had impaired renal function ranging from Stage I 6 (27.27%), stage II 6 (27.27%) & stage III 3 (40.90%). This association is statistically significant, p 0.001 (Figure 2). eCCL was found positively correlated with Apgar score. \( r^2 = 0.6, p < 0.002 \) (Figure 3). This correlation was statistically significant.

### Table-I

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean ±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. Creatinine (mg/dl)</td>
<td>0.93±0.73</td>
</tr>
<tr>
<td>Urea (mg/dl)</td>
<td>75.63±47.65</td>
</tr>
<tr>
<td>K(^+) (mmol/L)</td>
<td>5.01±0.92</td>
</tr>
<tr>
<td>Na(^+) (mmol/L)</td>
<td>139.26±6.68</td>
</tr>
</tbody>
</table>

### Table-II

<table>
<thead>
<tr>
<th>eCCL (ml/min/1.73m(^2))</th>
<th>Renal functional status based on eCCL</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean± SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.40±5.1 (29.9-46)</td>
<td>Normal</td>
<td>32</td>
</tr>
<tr>
<td>26.92±2.13 (19-29.24)</td>
<td>Risk</td>
<td>31</td>
</tr>
<tr>
<td>13.90±2.4 (10.01-17.43)</td>
<td>Injury</td>
<td>27</td>
</tr>
<tr>
<td>8.14±1.32 (6.10-9.43)</td>
<td>Failure</td>
<td>12</td>
</tr>
</tbody>
</table>

**Discussion:**

Regarding distribution of asphyxiated babies in term of Apgar scoring, majority of them were in moderate Apgar score group (48%) and less in severe group (21.6%). Similarity was found in previous studies, done by Gupta et al 3 and Zulfiquar et al 1. This similarity may reflect same geographical factor, common health problems and common health services sustained in the subcontinent.

In PNA, there is redistribution of blood flow towards brain, heart and adrenal, compromising circulation of kidney, liver, GIT and skin 11, 12. Hypoperfusion with concomitant hypercapnia and acidosis contribute to organ damage 11, 13. The kidneys of neonates are particularly vulnerable to hypoperfusion because of their physiologic characteristics like high renal vascular resistance, high plasma rennin activity, low glomerular filtration rate, decreased intracortical perfusion and decreased reabsorption of sodium in the proximal tubules causes raised urea and creatinine level 14.

In the present study we found that means S. creatinine was 0.93±0.73mg/dl, blood urea was 75.63±47.65mg/dl (Table-I), which increased with the severity of kidney injury. According to pRIFLE criteria in risk group average eCCL was 26.92±2.13 ml/min/1.73m\(^2\) following injury & in failure group it was 13.90±2.4 ml/min/1.73m\(^2\) & 8.14±1.32 ml/min/1.73m\(^2\) respectively (Table-II). The percentages of ARF are varies in different studies. In most of the studies the percentage was >40% while in present study it was 11.8% (Table-II).

Gupta et al 3 in his study showed that the frequency of ARF in asphyxiated neonate was 47.14%. Zulfiquar et al 1 had found ARF in 46% of low Apgar scored asphyxiated baby. Aggarwal et al 15 showed that ARF...
was 56%. Pammi V Mohan\textsuperscript{16} showed that the incidence of ARF were 72%. Sarafidis et al\textsuperscript{17} in his study showed that 8 cases with AKI among 35 neonates. Present study defined acute renal failure by pRIFLE criteria as stage 3 of acute kidney injury. In this study percentage of renal failure was 11.8% (Table-II) which is far less than other studies. This mismatch is possibly due to difference of adopted criteria for defining renal failure. In this study total number of patient with renal impairment was 68.7%, Stage 1(30.39%), stage 2(26.47%) & in stage 3(11.8%). In previous studies there was no such type of categorization and all were considered as renal failure, hence percentage of renal failure was more in previous study.

Mild ischemia results in transient loss of renal concentrating capacity, owing to the extreme sensitivity of the medullary thick ascending limb to tissue hypoxia\textsuperscript{18}. More prolonged injury produces wide spread tubular dysfunction, with significant impairment in sodium and water reabsorption and decreases in GFR. Lubis et al\textsuperscript{18} showed in their study that more number of babies with severe asphyxia suffered renal dysfunction. While present study showed 40.90% babies of severe asphyxia group suffered stage III renal dysfunction (Figure 2) & had positive correlation between impaired renal functional status & low Apgar scores. So the result is quite similar. The significance of the similarity is more important here as estimated renal clearance was taken as the tool for defining renal failure in both the study. The only difference was that renal dysfunction was categorized in the present study by pRIFLE criteria.

Different studies correlated renal functional status using pRIFLE criteria with renal biomarker (uCysC and uIL-18)\textsuperscript{19,20}. As this biomarker are not widely available and costly, this study correlated renal impairment using pRIFLE criteria with Apgar score in asphyxiated neonate, so that renal impairment can be predicted early by low Apgar score in perinatal asphyxia.

Conclusion:
Variable renal functional impairment of asphyxiated newborns can be co-related with Apgar score and the severity is directly proportional to the lower Apgar score. Recommendation: All neonates with birth asphyxia admitted in neonatal intensive care units should be screened for acute kidney injury by pRIFLE criteria. Multicentre study with large sample is also recommended.

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Competing interests: None stated.

References:
REVIEW ARTICLES

Management of Temporomandibular Joint Dysfunction Syndrome: An Overview

SMA SADAT\textsuperscript{a}, NM CHOWDHURY\textsuperscript{b}, RBA BATEN\textsuperscript{c}, ABMF UDDIN\textsuperscript{d}, SN RITA\textsuperscript{e}

Summary:
Temporomandibular joint dysfunction is a complex and multifactorial disorder of oro-facial region. It is one of the most common disorders in maxillofacial region. The usual complaint of the patients with this syndrome are pain in the area of the jaw and associated muscles, eating problem, chewing and locking of the jaw. It is more common in female than male. It's etiology is not yet well established. However it's successful management depends on identification and controlling of the etiological factors.

(J Bangladesh Coll Phys Surg 2017; 35: 133-141)

Introduction:
The American Dental Association (ADA) presidents’ conference on temporomandibular disorder defined TMD as “A group of oro-facial disorder characterized by pain in the pre-auricular area, TMJ or muscles of mastication, limitations & deviation in mandibular range of motion, TMJ sounds during jaw function.”\textsuperscript{1} It is the most common and the third most chronic pain condition worldwide in maxillo-facial region after tension headache and back pain.\textsuperscript{2,3} The causes of this condition are numerous and include trauma, systemic, iatrogenic, occlusal and mental health disorder.\textsuperscript{4-9} Today mental health plays a dominating role in the pathogenesis of TMD.\textsuperscript{10,11} Like other musculoskeletal disorders pain during function and/or at rest is the main reason patients seek treatment, and pain reduction is the primary goal of treatment for these patients.\textsuperscript{12,13}

Epidemiology:
The signs and symptoms of temporomandibular disorders appear in about 60-70\% of the general population but only a few people are actually aware of or report any symptoms.\textsuperscript{14} Population based studies shows that TMD affects 10-15\% of adults, but only 5\% seek treatment.\textsuperscript{15,16} Approximately 33\% of the population has at least one TMD symptom and 3.6-7\% of the population are aware and come to get treatment.\textsuperscript{17} Severity of TMD problems are much more common in women and the ratio between women and men who seeks treatment for TMJ disorder is 8:1.\textsuperscript{18} Temporomandibular dysfunction syndrome occurs usually within the reproductive age between the age of 20 and 40.\textsuperscript{12,13,19,20} Although a few patients are seeking treatment, but the prevalence of TMD is high in developed societies.\textsuperscript{21,22}

Etiology:
The etiology of TMJ disorders remains unclear, but it is mostly multifactorial. Capsule inflammation or damage and muscle pain or spasm may be caused by abnormal occlusion, para-functional habits (e.g., bruxism, teeth clenching, lip biting), stress, anxiety, or abnormalities of the intra-articular disk.\textsuperscript{23,24} Parafuncional habits have been thought to cause TMJ microtrauma or masticatory muscle hyperactivity.\textsuperscript{25} Associated factors include other pain conditions (e.g., chronic head-aches), fibromyalgia, autoimmune disorder, sleep apnea, and psychiatric illness.\textsuperscript{26,27} The factors that causes TMD are classified as:

- Predisposing factors as structural, metabolic and/or psychologic conditions
- Initiating factors as trauma or repetitive adverse loading of the masticatory system
• Aggravating factors as parafunction, hormonal or psychosocial. [28-34]

Factors that interfere with healing or enhance the progression of temporomandibular disorder are called "Perpetuating factors." The following may be included in the perpetuating factors: [35]

- Behavioral factors: grinding, clenching and abnormal head posture
- Social factors: could effect perception and influence of learned response to pain
- Emotional factors: depression and anxiety
- Cognitive factors: negative thoughts and attitudes.

The following occlusal factors had a slight relation in patient with TMD symptoms: [35]

- Open bite
- Overjet greater than 6-7 mm
- Retruded contact position/intercuspal position with sliding greater than 4 mm
- Unilateral lingual cross-bite
- Five or more missing posterior teeth
- Faulty restorations and ill-fitting prosthesis.

Aplasia, hypoplasia, hyperplasia, dysplasia, neoplasia can lead to TMJ problems and trauma, anatomic, systemic, pathophysiological and emotional causes can make the disorder more severe. [26, 36, 37]

Classification:
Classification of TMD is very important for proper diagnosis of the disease because of similarities with numerous diseases and pain in the head and neck region. Following are the differential diagnosis of TMD: [36]

1. Deviation in form
2. Disc displacement with reduction
3. Disc displacement without reduction
4. Dislocation
5. Inflammatory conditions:
   a. Synovitis
   b. Capsulitis
6. Arthritis:
   a. Osteoarthritis
   b. Osteoarthritis
   c. Polyarthritis
7. Ankylosis:
   a. Fibrosis
   b. Bony

The International Research Diagnostic Criteria for Temporomandibular Dysfunction Consortium Network published an updated classification for TMD in 2013 and that is shown below. [38, 39]

Articular disorders (intra-articular):

A. Congenital or developmental disorders
   a. Condylar hyperplasia
   b. First and second branchial arch disorders
   c. Idiopathic condylar resorption
B. Degenerative joint disorders
   a. Inflammatory: capsulitis, synovitis, polyarthritis (rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, Reiter syndrome, gout)
   b. Noninflammatory: osteoarthritis
C. Disk derangement disorders
   a. Displacement with reduction
   b. Displacement without reduction (closed lock)
   c. Perforation
D. Infection
E. Neoplasia
F. Temporomandibular hypermobility
   a. Dislocation
   b. Joint laxity
   c. Subluxation
G. Temporomandibular hypomobility
   a. Ankylosis: true ankylosis (bony or fibrous) or pseudoankylosis
   b. Postradiation fibrosis
   c. Trismus
H. Trauma
   a. Contusion
   b. Fracture
   c. Intracapsular hemorrhage

Masticatory muscle disorders (extra-articular)
A. Local myalgia
B. Myofascial pain disorder
C. Myofibrotic contracture
D. Myositis
E. Myospasm
F. Neoplasia

Clinical Presentation:
TMD has many similarities to musculoskeletal disorders of other parts of the body and therapeutic approaches for other musculoskeletal disorders generally apply to
this disorder as well. The typical signs and symptoms of TMD are—pain in the joint (preauricular region), headaches behind and around the eyes, and pain radiating from the joint to the temple, ears, side of neck and upper shoulder. The pain is typically aggravated by wide opening, chewing, or other joint activities, such as clenching and bruxism. There are clicking, popping or “locking” because of disc interference, which results in reflex masticatory muscle spasm. Symptoms of TMD are also associated with jaw movement (e.g., opening and closing the mouth, chewing) and pain in the preauricular, masseter, or temple region. Another cause of oro-facial pain should be identified if pain is not associated with jaw movement. Patients with TMD symptoms usually report that their pain is aggravated by stress, clenching, and eating, while it is relieved by relaxing, applying heat to the painful area, and taking analgesics.

**Differential Diagnosis:**

For proper diagnosis of TMD some another cause for oro-facial pain should carefully excluded as dental caries or abscess, oral lesions (e.g., herpes zoster, herpes simplex-oral ulcerations, lichen planus), conditions resulting from muscle overuse (e.g., clenching, bruxism, excessive chewing, spasm), trauma or dislocation, maxillary sinusitis, salivary gland disorders, Neuropathic pain (e.g., trigeminal neuralgia, postherpetic neuralgia, glossopharyngeal neuralgia, giant cell arteritis, primary headache syndrome, and pain associated with cancer) autoimmune diseases (e.g., systemic lupus erythematosus, Sjögren syndrome, and rheumatoid arthritis). The differential diagno-sis and associated clinical findings are presented in Table-1.

### Table-I

<table>
<thead>
<tr>
<th>Condition</th>
<th>Location</th>
<th>Pain characteristics</th>
<th>Aggravating factors</th>
<th>Typical findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caries</td>
<td>Affected tooth</td>
<td>Intermittent to continuous dull pain</td>
<td>Hot or cold stimuli</td>
<td>Visible decay</td>
</tr>
<tr>
<td>Cracked tooth</td>
<td>Affected tooth</td>
<td>Intermittent dull or sharp pain</td>
<td>Biting, eating</td>
<td>Often difficult to visualize crack</td>
</tr>
<tr>
<td>Dry socket</td>
<td>Affected tooth</td>
<td>Continuous, deep, sharp pain</td>
<td>Hot or cold stimuli</td>
<td>Loss of clot, exposed bone</td>
</tr>
<tr>
<td>Giant Cell arteritis</td>
<td>Temporal region</td>
<td>Sudden onset of continuous dull pain</td>
<td>Visual disturbance, loss of vision</td>
<td>Scalp tenderness, absence of temporal artery pulse</td>
</tr>
<tr>
<td>Migraine headache</td>
<td>Temporal region, behind the eye, cutaneous alldynia</td>
<td>Acute throbbing, occasionally with aura</td>
<td>Activity, nausea, phonophobia, photophobia</td>
<td>Often normal, aversion during ophthalmoscopic examination, normal cranial nerve findings</td>
</tr>
<tr>
<td>Neuropathic conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glossopharyngeal neuralgia</td>
<td>Most often ear, occasionally neck or tongue</td>
<td>Paroxysmal attacks of electrical or sharp pain</td>
<td>Coughing, swallowing, touching the ear</td>
<td>Pain with light touch</td>
</tr>
<tr>
<td>Postherpetic neuralgia</td>
<td>Site of dermatomal nerve and its distribution</td>
<td>Continuous, burning, sharp pain</td>
<td>Eating, light touch</td>
<td>Hyperalgesia</td>
</tr>
<tr>
<td>Trigeminal neuralgia</td>
<td>Unilateral trigeminal nerve</td>
<td>Paroxysmal attacks of sharp pain</td>
<td>Cold or hot stimuli, eating, light touch, washing</td>
<td>Pain with light touch</td>
</tr>
<tr>
<td>Salivary stone</td>
<td>Submandibular or parotid region</td>
<td>Intermittent dull pain</td>
<td>Eating</td>
<td>Tenderness at gland, palpable stone, no salivary flow</td>
</tr>
<tr>
<td>Sinusitis</td>
<td>Maxillary sinus, intraoral upper quadrant</td>
<td>Continuous dull ache</td>
<td>Headache, nasal discharge, recent upper respiratory infection</td>
<td>Tenderness over maxillary sinus or upper posterior teeth</td>
</tr>
</tbody>
</table>
In differential diagnosis of TMJ disorders and pains, problems such as neoplasms, migraine, neuralgia and mental disorders should be considered. Practitioners must be alert for unusual pain locations, pain qualities, pain-aggravating and pain-relieving events, and other factors (e.g., unexplained fever) suggestive of disorders that may mimic TMD symptoms (e.g., infection, giant cell arteritis, meningitis, etc.).

**Investigations:**

Imaging plays an important role in the diagnosis of TMD when history and physical examination findings are equivocal. The usual radiographs are plain radiograph, panoramic view, and tomograms (frontal and lateral). Magnetic resonance imaging (MRI) or arthrography can be done for evaluation of the disc and associated soft tissue structures. Other radiological studies may also be done if necessary. The importance of different imaging study are given below:

A. **Plain radiograph:** Evaluation of plain radiography (trans-cranial and trans-maxillary views) or panoramic radiography should be done first. Acute fractures, dislocations, and severe degenerative articular disease are often visible in these radiographs.

B. **Computed Tomography:** To assess bone abnormalities such as ankylosis, dysplasias, growth abnormalities, fractures, and osseous tumors.

C. **Magnetic resonance imaging:** Is useful to analyze soft tissues, bone marrow changes, disc position, morphology, mobility, and joint effusion.

D. **Ultrasoundography:** Ultrasoundography is a noninvasive, dynamic, low-cost technique to diagnose internal derangement of the TMJ when magnetic resonance imaging is not readily available.

E. **Arthrography:** For primary imaging study of disc pathology, arthrography can be done as the replacement of MRI.

F. **Isotope bone scan:** For detecting metabolic activity and inflammation.

G. **Diagnostic Injections:** Injections of local anesthetic at trigger points involving the muscles of mastication can be a diagnostic adjunct to distinguish the source of jaw pain.

**Diagnostic injections include:**

1. Nerve block (auriculotemporal nerve)
2. Trigger points injection
3. TMJ injections

**Treatment:**

Spontaneous resolution of symptoms occurs in 40% of the patients and only 5% to 10% of patients require treatment for TMD. A study shows that 50% to 90% of patients get relief from pain after conservative therapy. Successful management of TMD can be done with multidisciplinary approach. Initial treatment goals should focus on resolving pain and dysfunction.

**Non-Pharmacological Management:**

Selective treatments include:

1. Patient education and stress control
2. Mental therapy
3. Pharmacotherapy
4. Physiotherapy
5. Splint therapy
6. Occlusal correction
7. Surgery

A. **Patient education:** Patient education is the basic treatment for TMD. Associated measures include jaw rest, soft diet, moist warm compresses, and passive stretching exercises. TMJ immobilization is not beneficial and may worsen symptoms as a result of muscle contractions, muscle fatigue, and reduced synovial fluid production. Necessary instructions should include in patient education:

1. Muscle relaxant by voluntary limitation in mandibular function
2. Parafuncional habits modification
3. Physiotherapy at home

B. **Psychotherapy:** It prevents relapses that may occur with conventional therapy alone.

C. **Physiotherapy:** Active and passive oral exercises and exercises to improve posture are effective interventions to reduce symptoms associated with TMD. Specialized physical therapy such as ultrasound, iontophoresis, electrotherapy, or low-level laser therapy have been used in the...
management of TMD, despite the lack of evidence that support their use.\textsuperscript{(70)}

D. \textit{Splint Therapy:} Occlusal splints may be used to pre­vent degenerative forces placed on the TMJ, articular disk, and dentition.\textsuperscript{(71)}The usual maxillo­mandibular appliances used are:

1. Flat plane stabilization appliance: The flat plane stabilization appliance (also known as the Michigan splint, muscle relaxation appliance, or gnathologic splint) is generally fabricated for the maxillary arch. This is the most commonly used type of intraoral appliance.\textsuperscript{(72)}

2. Traditional anterior bite plane: It is a horseshoe shape appliance with an occlusal platform covering six or eight maxillary anterior teeth to prevent clenching (e.g., Hawley, Sved, Shore).

3. Mini anterior appliances: It engage only a small number of maxillary anterior teeth (usually two­four incisors)

4. Anterior repositioning appliance: This is used to treat the patients with internal derangements (usually anterior disk displacements with reduction).\textsuperscript{(73)}

5. Neuromuscular appliances: Jaw muscle stimulators and jaw­tracking machines are used to maintain the ideal vertical and horizontal position of the mandible relative to the cranium.\textsuperscript{(74)}

6. Posterior bite plane appliances: It is fabricated for the mandibular arch to maintain vertical and horizontal maxillomandibular relationship

7. Pivot appliances: This is constructed with hard acrylic resin that covers either the maxillary or mandibular arch and is recommended for patients with internal derangements and/or osteoarthritis.

8. Hydrostatic appliance: It consists of bilateral water­filled plastic chambers attached to an acrylic palatal appliance to occlude patient’s posterior teeth on the plastic chambers

E. \textit{Occlusal Adjustment:} It is the selective removal of enamel from the occlusal contacts of teeth to maintain the maximum number of teeth in the intercuspal position.

F. \textit{Acupuncture:} Acupuncture may be an adjunctive treatment, producing a short­term analgesic effect in patients with painful TMJ symptoms.\textsuperscript{(75)} It’s sessions typically last 15 to 30 minutes, and the mean number of sessions is six to eight.\textsuperscript{(76)}

**Pharmacological Management:**

Drug management is only used when other somatic symptoms, such as sleep disorders, chronic pain, arthralgias, inflammatory diseases, myalgias or neuropathies are associated with TMD.\textsuperscript{(77)} Varieties of medications are used to treat the pain associated with TMD. The most commonly used medications are muscle relaxants, non-steroidal anti-inflammatory drugs (NSAIDs), analgesics, tricyclic antidepressants, benzodiazepines and corticosteroids.\textsuperscript{(77)} NSAIDs are first­line management given for 10 to 14 days for initial treatment of acute pain.\textsuperscript{(78­80)} Despite the multiple choices of NSAIDs available, only naproxen has proven beneficial in reduction of pain.\textsuperscript{(79)} Muscle relaxants can be prescribed with NSAIDs if there is evidence of a muscular cause of TMD.\textsuperscript{(80)} Tricyclic antidepressants most commonly amitriptyline, desipramine, doxepin, and nortriptyline are used for the management of chronic TMD pain.\textsuperscript{81} Benzodiazepines are also used for two to four weeks in the initial phase of treatment.\textsuperscript{(78, 82)} Ibuprofen is effective in skeletomuscular pains (dosage: 600 – 800 mg three times daily).\textsuperscript{(36)} Opioids should be used cautiously because of the potential for dependence.\textsuperscript{80} Injections of tender muscles, trigger areas, and/or joint spaces with local anesthetic solution is used for diagnosis and relief of symptoms. Corticosteroid injection can be effective in reducing capsulitis.\textsuperscript{83} It appears to be an effective method for treating severe bruxism and masseteric hypertrophy when traditional methods fail.\textsuperscript{(84­87)} Muscle relaxants (baclofen, tizanidin, cyclobenzaprine), opioids (morphine), anticonvulsants (e.g., gabapentin), ketamine, and TCA (e.g., amitriptyline) are also used clinically for TMJ management, but there is no strong evidence for their efficacy.\textsuperscript{88, 89}

**Surgical Management:**

Surgery is seldom needed for TMD patients. A study over 2,000 TMD patients from many practices found that only 2.5% needed TMJ surgery (1.4% arthrocentesis, 1.0% arthroscopy, and 0.1% open joint procedures).\textsuperscript{(90)} The common TMJ surgeries are:...
1. Arthrocentesis
2. Arthroscopy
3. Disc – repositioning surgery
4. Condylotomy
5. Arthroplasty
6. Total joint displacement
7. Prosthetic joint replacement: It may be indicated in patients with severe joint degeneration, destruction, or ankylosis. But this should be used when their safety and efficacy has been recognized by the FDA.

8. Other Procedures:
   a. Coronoidotomy/coronoidectomy
   b. Styloidectomy (Eagle’s Syndrome)

Conclusion:
TMD should be treated with multidisciplinary approach as other musculoskeletal complaint. It is important to note that treating TMD only from the dental perspective may fail, as many of these anomalies are caused by somatic diseases. If TMD is left untreated, symptoms can worsen and extend far beyond the jaw and mouth area. Conservative therapy is best as a first-line approach for treating the patient. Treatment goals in patients with TMD are pain relief and return of function. These goals will be achieved only if diagnosed properly and the treatment plan is taken with consideration of mental and physical problems with predisposing factors.

Reference:


Management of Temporomandibular Joint Dysfunction Syndrome

SMA Sadat et al.


83. Wenneberg B, Kopp S, Grondahl HG: Long-term effect of intraarticular injection of a glucocorticosteroid into the TMJ.


CASE REPORTS

Micro Preemie with the Earliest Gestational Age and the Lowest Birth Weight that Survived in ICU, Dhaka Shishu (Children) Hospital, Bangladesh

MS HOQUEa, M RAHMANb, M HUSSAINc, ASMNU AHMEDd

Introduction:
Prematurity and low birth weight (LBW) are significant risk factors for survival of the neonate and are associated with high perinatal mortality. The latest regional estimates of LBW range from 25% in South Asia, where more than half of the world’s LBW infants are born, to 10% and 12% in Sub-Saharan Africa and Latin America, respectively. Low birth weight (LBW) is one of the major health issues of children in developing countries, and also one of the most important challenges in maternal and child health. Its significance may be ascribed to numerous factors – high incidence, association with physical and mental retardation, high risk of perinatal and infant mortality and morbidity, the excessive cost of intensive care units and its association with socio economic impact and under development. Low birth weight infants are those born weighing less than 2500 gm. These are further subdivided into Very Low Birth Weight (VLBW): birth weight <1,500 gm; Extremely Low Birth Weight (ELBW): birth weight <1,000 gm, Incredibly Low Birth Weight (ILBW): birth weight <750 gm.

Obstetrical history (LMP, sonographic dating) and newborn physical examination for maturational age by Ballard or Dubowitz score are critical data to differentiate premature LBW from more mature intra-uterine growth-restricted LBW infants (IUGR). This may be crucial as infants who are IUGR, seem to have a survival advantage.

The prognosis of low birth weight (LBW) infants in developing countries has improved dramatically over the last decades with advances in perinatal medicine, albeit the outcomes of ELBW and ILBW still remain disappointing. There have been reports of up to 80% survival rate of babies born at 24 weeks in developed countries (e.g., Japan), the rate is much lower in Southeast Asia. There is, in fact no reports of survival of any infant born at 24 weeks or earlier, weighing 500 grams or less in Bangladesh.

Summary:
Prematurity is a common neonatal problem in developing countries and is associated with high mortality and both immediate and long-term morbidities. More a baby is premature more is the chance of mortality. With the advent of modern supportive care favorable outcome has been observed in extremely premature babies in developed countries, but the outcome is not satisfactory in developing countries. Recently, an incredibly low birth weight (456 grams) micro preemie was successfully managed in Dhaka Shishu Hospital. With round the clock care at the hospital’s Neonatal Intensive Care Unit she was tipping the scales and discharged at the age of three months, weighing 1128 grams. To the best of our knowledge, this is the lowest birth weight baby survived in our country, an exceptional achievement and a milestone in newborn care in Bangladesh.

Key words: Prematurity, Incredibly Low Birth Weight, Neonatal Intensive Care Unit, Outcome.

(J Bangladesh Coll Phys Surg 2017; 35: 142-146)
Here we report a case of preterm ILBW baby who was successfully managed in the NICU of Dhaka Shishu (children) Hospital (DSH), Bangladesh. This outstanding achievement is a milestone in newborn care in our country.

**Case summary:**
A female baby was delivered in a clinic by normal vaginal delivery on 24-02-2013 at 11:00 AM at 24 weeks of gestational age (by date) due to premature rupture of membrane followed by premature labor. Birth weight of the baby was 480 grams. Mother was 24 years old and this was her first pregnancy. She was not known to have hypertension, diabetes mellitus or any other illness.

The baby received routine delivery room care including initial resuscitation by oropharyngeal suction and oxygen inhalation. Then she was shifted to NICU of that clinic. During the 6-day stay at that clinic, she did not receive surfactant, mechanical ventilator care or CPAP. Parents transferred the baby to DSH ICU on 6th day of her life, hoping for better care at a much substantiated cost.

Her weight was 456 gm, occipito-frontal circumference 21.8 cm and length 30 cm. She was icteric (serum bilirubin 8.33 mg/dL) and received phototherapy while being cared for in a closed incubator. Baby’s parents were appropriately counseled regarding the poor outcome of a 24-weeker baby weighing less than 500 grams and they opted for not ventilating the baby mechanically if her condition ever worsened to the point of requiring it.

On admission in DSH NICU, the baby was conscious, mildly dyspnoeic with respiratory rate of 64 breaths/min, moderate air entry in both lung fields and heart rate of 160 beats/min. She maintained a SPO2 of 96% with 4 L/min supplemental O2 delivered by face mask.
She received injections ceftazidime and Amikacin since Day1 and was replaced with Meropenem Day 8 and continued for 21 days till D 27 (weight 508gm) of her age, when it was changed to Tazobactum and Piperacillin as her condition worsened with an episode of prolonged apnea requiring resuscitation with bag and mask ventilation. Her condition further deteriorated on Day 40 (weight 622gm) and she had an episode of apnea followed by hypoxemia (SPO$_2$ 40%). This episode also required CPR using Ambu bag. Her antibiotic was then changed to Cefepime and Netromycin. Nasogastric feeding was stopped on Day 41 as she had frequent apneas. She was not mechanically ventilated according to her parents’ will. She was gasping and we did not quite expect her to survive. Her condition however, improved the next day and NG feeding was restarted. Netromycin was omitted after 14 days and Cefepime was continued for 21 days till Day 62 (weight 710gm) of her age, then it was changed to Cefotaxime which was continued for another 21 days.

**Fig.-4:** *At the age of 153 days (weight 2811 gm)*

The infant was handled very minimally and blood tests were done only on several very urgent occasions. She initially had altered renal function (blood urea 22.5mmol/L and S. creatinine 157.3µmol/L on day 6) which improved with conservative management (blood urea and S. creatinine level was 16.1mmol/L and 97.0µmol/L respectively on day 9, 1.4mmol/L, 36.5µmol/L on day 9).

She received pentaglobulin, fresh frozen plasma (FFP) and small volume blood transfusions in several times. She was oxygen dependent till D 77 (weight 914gm) of her age. Although there had been suspicions of bronchopulmonary dysplasia, no medical treatment was instituted. Supplemental oxygen could finally be stopped on 78th day of age. The damage however was done already. She had stage III retinopathy of prematurity (ROP) detected on screening and immediate treatment with laser augmentation was initiated while still in ICU. A cranial ultrasound was done on D79 that revealed mild cerebral edema, but no evidence of intraventricular hemorrhage.

The baby was transferred at the age of 97 days from NICU to cabin when her weight was 1128 gm, length 34 cm and head circumference 27.8cm.Finally she was discharged after three days. At the time of discharge, her echocardiography revealed a *patent foramen ovale* (PFO) and good biventricular function, her cranial ultrasound revealed normal findings (previous cerebral edema had resolved). Her thyroid function tests were normal. However, she still had ROP stage III (under treatment).

She was being followed up weekly after discharge and was found to have gaining appropriate growth and development. On last follow-up visit at the age of 153 days, her weight, length and OFC was 2811 gm, 42 cm and 32.7 cm respectively and was on exclusive breast-feeding. Ophthalmological evaluation revealed no signs of ROP.

**Fig.-5:** *Weight chart of the baby (gm) during hospital stay (A) and after discharge (B)*
Discussion:
The likelihood of survival of premature infants often depends on gestational age and birth weight.\(^7\) For any given duration of gestation, the birth weight is inversely related to the neonatal mortality; for any given weight the shorter the gestational age the higher the neonatal mortality.\(^6\) However, many other perinatal factors also play vital roles in influencing the outcome of ELBW infants such as race,\(^8\) level of neonatal care,\(^9\) antenatal steroid injections,\(^5,10\) and mode of delivery.\(^11\) It has been well known that antenatal steroid administration improves the prognosis as well as survival,\(^10\) whereas vaginal delivery in nonvertex presentation is an adverse factor.\(^11,12\)

According to the National Institute of Child Health and Human Development (NICHD) National Research Network (NRN): Extremely Low Birth Weight outcome data, the probability of survival of a baby in NICU may be positively influenced by genetic sex of the baby (females have a better outcome), exposure to antenatal corticosteroids, singleton pregnancy, intensive care and higher birth weight (per each 100g increment). These factors are also associated with reductions in the risk of profound or any neurodevelopmental impairment.\(^13\) Another important observation was that majority of the delivery room and NICU survivors at birth weights less than 500 grams were SGA/IUGR females.\(^5\) This infant had some of the good prognostic factors like being a female, born as singleton and being SGA. She had some adverse prognostic factors as well e.g., she was not exposed to antenatal steroids and was delivered vaginally.\(^12\)

Complications of ELBW infants are numerous. Important short term problems are respiratory distress syndrome, necrotizing enterocolitis, nosocomial infection, intraventricular hemorrhage, ROP, patent ductus arteriosus etc. Long term effects include chronic lung disease, failure to thrive, cerebral palsy, visual and hearing impairment etc.\(^14\)

Minimal handling and intervention done in this remarkable female infant probably made a huge difference. The intensive medical care, including excellent nursing care available in NICU, contributed to minimal complications experienced in this infant. It was in fact a miracle that this 24 week old infant, in spite of not being exposed to antenatal corticosteroids and postnatal surfactant, did not show signs of severe RDS (clinically and radiologically). Ventilator care was withheld, although it would normally have been given to other neonates in similar respiratory condition.

The question of providing life support or not for premature infants at the threshold of viability is still a matter of controversy. During the past two decades, survival rates have increased substantially because of advances in knowledge, medical technology and therapeutic option but long-term morbidity rates continue to be high.\(^15,16\) Indeed, several studies have suggested that the incidences of long-term sequelae including neurodevelopmental disabilities may not have decreased among survivors.\(^15,16\) With respect to offering life support, various authors and societies conclude differently, on the basis of their interpretations of available data concerning cost of care, burdens to the patient, family and society, and long-term outcomes. The American Academy of Pediatrics suggests that parental choice based on thorough information should be respected within the limits of what is medically feasible and appropriate, but definitions of those limits are vague, except that non-initiation of resuscitation is considered appropriate for newborns of <23 weeks of gestation and/or birth weight (BW) of <400 g.\(^17\)

Until now, there is no report on the lowest birth weight baby survived in Bangladesh. The lowest birth weight baby survived in KSA was a 26 weeker weighing 520 grams.\(^18\) The scenario in the developed countries is different where lowest birth weight babies that survived weighing less than 300 grams.\(^19\)

This infant will need to be followed up over years to see whether or not she develops severe long term consequences and becomes neurodevelopmentally handicapped. Only then can the efforts of trying and saving a 24-week-old infant weighing 456 grams can be justified.

Acknowledgements:
We thank the NICU physicians and nurses for their constant supervision and relentless endeavor in caring the baby. We would also like to express our gratitude to the parents of the child for their patience and wholehearted cooperation over a long period, and allowing us to publish the case report.

Reference:


Endometriosis at Cesarean Section Scar
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Summary:
Endometriosis may be defined as presence of functioning endometrium (glands and stroma) in sites other than uterine mucosa. The prevalence of endometriosis is about 10%. According to Nominato, cesarean section remains the most common surgical procedure related to the development of abdominal wall scar endometriosis\textsuperscript{1}. But endometriosis sometimes presented to general surgeons as a lump in the abdomen. It can pose a diagnostic dilemma and should be in the differential diagnosis of lumps in the abdomen in females. Diagnosis is usually made following histological examination. This is a case report of abdominal wall endometriosis following cesarean section. This report discusses and evaluates the incidence, course, diagnosis, treatment and prevention of this condition.

Introduction:
Endometriosis was first described by Rokitansky in 1860 and was defined as the presence and proliferation of the endometrium outside the uterine cavity, commonest site being the pelvis. The actual incidence of abdominal wall endometriosis is unknown but one series reported that only 6% of cases were related to scars. In another series, the prevalence of surgically proven endometriosis in scars was 1.6% \textsuperscript{2}. The most common site is at a cesarean section scar. But there are case reports of involvement of the rectus abdominis muscle in a virgin abdomen \textsuperscript{3}.

Endometriosis, in patients with scars, is more common in the abdominal skin and subcutaneous tissue compared to muscle and fascia. Endometriosis involving only the rectus muscle and sheath is very rare \textsuperscript{4}. The simultaneous occurrence of pelvic endometriosis with scar endometriosis has been found to be infrequent. Scar endometriosis is rare and difficult to diagnose, often confused with other surgical conditions.

Case Report:
A 32 years old female patient presented with a painful lump on the lateral aspect of a pfannensteil incision 2 years after a cesarean section (Fig 1). The lump was associated with pain and no history of any discharge. The pain was stabbing in nature and was increased during menstruation. Pain was not associated with fever, vomiting or any other associated symptoms. Abdominal examination revealed a lump about 3×3 cm, firm, tender and bluish in color. Ultrasound of the abdomen was performed and revealed a bright heteroechoic mass about 3×3 cm at lateral aspect of the abdominal wall scar. This was initially thought to be a stitch granuloma. It was initially conservatively treated by oral contraceptive pill and pain killer like NSAID; however, the abdominal lump (Fig 2, 3) persisted and gradually enlarged in size. The patient was posted for a wide local excision of the abdominal wall lump. The lump was 3×3 cm, firm at the external oblique aponeurosis and extending to the abdominal wall muscle, wide excision with clear margins were performed. Post operative period was uneventful. Histopathology showed fibro adipose tissues with interspersed glands and stroma of endometriosis which confirmed the diagnosis of endometriosis of abdominal wall scar.

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Fig.-1: Pre operative image of scar endometriosis
Discussion:
Endometriosis is the presence of functioning endometrial tissue outside the uterine cavity, whereas endometrioma is a well-circumscribed mass. The various sites of extra pelvic endometriosis are bladder, kidney, bowel, omentum, lymph, nodes, lungs, pleura, extremities, umbilicus, hernial sacs, and abdominal wall. Endometriosis involving the abdominal wall is an unusual phenomenon which should be considered in the differential diagnosis of abdominal wall masses in women. The usual clinic presentation is a painful nodule in a parous woman with a history of gynecological or obstetrical surgery. The intensity of pain and size of nodule vary with menstrual cycle.

The development of intrapelvic endometriosis may involve retrograde menstruation, maturation of extraterine primordial cell remnants of embryogenesis and hematologic or lymphatic spread of endometrial cells. Extrapelvic endometriosis in the lung, skin and extremities not associated with surgical violation of the uterus is believed to be the result of hematogenous or lymphatic spread of endometrial tissue.

Scar endometriomas are believed to be the result of direct inoculation of the abdominal fascia or subcutaneous tissue with endometrial cells during surgical intervention and subsequently stimulated by estrogen to produce endometriomas. This theory is convincingly demonstrated by experiments in which normal menstrual effulent transplanted to the abdominal wall resulted in subcutaneous endometriosis. In clinical practice, its occurrence has been well documented in incisions of any type where there has been possible contact with endometrial tissue, including episiotomy, hysterotomy, ectopic pregnancy, laparoscopy, tubal ligation, and cesarean section. Time interval between operation and presentation has found to vary from 3 months to 10 years in different series. In a study by Celik et al. a case was reported with a two year time interval.

Diagnosis
Scar endometriosis is rare and difficult to diagnose. It is often misdiagnosed as stitch granuloma, inguinal hernia, lipoma, abscess, cyst, incisional hernia, desmoid tumor, sarcoma, lymphoma, or primary and metastatic cancer. Diagnosis is confirmed only by histopathology (Fig4). A high index of suspicion is recommended when a woman is presented with a post operative abdominal lump. Good surgical and gynecological histories, as well as a thorough examination with appropriate imaging techniques (ultrasound, CT and MRI) usually lead to the correct diagnosis. With regard to imaging, ultrasound is the most accessible, reliable, and cost-effective imaging technique for the diagnosis of cesarean scar endometriosis (CSE) according to Hensen. CT usually shows a solid, well-circumscribed mass whereas MRI may be more helpful when the lesion is small because of its high spatial resolution, furthermore it is better than CT scan in detecting the planes between muscles and abdominal subcutaneous tissue.
Management
Therapeutic management is essentially based on large surgical excision, with clear margins and reconstruction of damaged tissue. Medical treatment involving hormone suppression has been suggested to relieve clinical symptoms. Most authors agreed that surgery is effective in preventing recurrence, as well as conversion to malignancy, which although quite rare—has been described in a few sporadic cases. Medical treatment with the use of progestogens, oral contraceptive pills, and danazol is not effective and gives only partial relief in symptoms and does not ablate the lesion. Moreover due to side effects such as amenorrhea, weight gain, hirsutism, and acne, compliance is unlikely. Recently, there have been reports of the use of the gonadotrophin agonist (Leuprolide acetate), but it has been found to provide only prompt improvement in symptoms with no change in the lesion size.

Malignant Risk
Malignant change of endometriosis in a cesarean scar is rare. Long-standing recurrent scar endometriosis could undergo malignant changes and clinicians should be aware. Only 21.3% of cases of malignant transformation of endometriosis occur at extragonadal pelvic sites and 4% of cases in scars after laparotomy.

Follow Up and Prevention
Follow up of endometriosis patients is important because of the chances of recurrence, which may require re-excision. So wide excision of the lump with clear margins should be done for prevention of further recurrence. In cases of continual recurrence, possibility of malignancy should be ruled out. Hence, good technique and proper care during cesarean section may help in preventing scar endometriosis.

Conclusion:
We conclude that abdominal wall endometriosis, although a rare entity, can lead to significant morbidity and many diagnostic pitfalls. Like any other chronic disease, long-term misdiagnosis can lead to significant impairment of the quality of life, not only social and professional part, but psychosocial as well. Hence, one should consider it in all cases with unexplained pain, especially after previous cesarean delivery or history of endometriosis surgery.

Reference:
Earlier Development of Limb Ulcers, Digital Bone Infarction and Pulmonary Hypertension in a Patient with SLE- A Rare Case Report

M HEZBULLAH a, SR CHAKRABARTY b, S SULTANA c, MH TOHIN d, K NAHAR e

Summary:
Systemic lupus erythematosus (SLE) is a multiorgan autoimmune disease in which skin is involved in up to 85% of cases. Lower extremity ulcers are an infrequent but disabling complication of SLE. Critical peripheral ischemia (CPI) is also an uncommon but potentially devastating feature of SLE. We reported a case of SLE who presented with multiple ulcers along with digital infarcts of upper and lower limbs. She had features of digital bone infarct of left hand and right foot. She also had features of pulmonary interstitial involvement with pulmonary hypertension. All of these features were found within three months of disease onset which is very rare. She was treated with intravenous Methylprednisolone followed by oral Prednisolone, Hydroxychloroquine, Azathioprine, Diuretic, Bosentan, Aspirin and Nifedipine in combination. Later warfarin was added after one month. She showed significant improvement after three months of treatment.

Key words: Limb ulcer, bone infarct, pulmonary hypertension, Systemic lupus erythematosus.

Introduction:
Connective tissue disorders (CTD), often termed collagen vascular diseases includes a number of related inflammatory conditions like Rheumatoid arthritis, Systemic lupus erythematosus, Systemic sclerosis, Localized scleroderma, Sjogren’s syndrome, Dermatomyositis, Polymyositis and Mixed connective tissue disease. Systemic lupus erythematosus (SLE) is a multiorgan autoimmune disease of unknown etiology that may have many clinical manifestations. The skin is involved in up to 85% of Systemic lupus erythematosus cases and may be the only organ involved in Cutaneous lupus erythematosus (CLE). Lower extremity ulcers are an infrequent but disabling complication of long-standing connective tissue diseases. Critical peripheral ischemia (CPI) is an uncommon but potentially devastating feature of SLE although little is published as to its prevalence and management. The pathogenesis of critical ischemia in SLE is complex and multifactorial, involving capillary and arteriolar vasospasm associated with Raynaud’s phenomenon, active large and small vessel vasculitis, micro-vascular thrombosis and emboli associated with antiphospholipid and accelerated atherosclerosis. Raynaud’s phenomenon describes temperature-sensitive, digital vasospasm leading to pale and consecutively cyanotic skin mostly limited to the digits, occurring in 3% to 5% in the general population. Besides the uncomplicated primary Raynaud’s phenomenon, the secondary form occurring in connective tissue disease presents more severely, with potentially disabling ulceration or tissue necrosis. Although Raynaud’s phenomenon is fairly common in patients with SLE, digital ulcers are quite rare.

Case Report:
A 24 yrs old female normotensive, non-diabetic patient hailing from Sunamgonj, Sylhet was admitted in medicine department of Sylhet MAG Osmani medical college hospital on 3rd March, 2016 with the complaints of multiple ulcers in both upper and lower limbs for 3 months, pain in multiple joints for 3 months, weakness and generalized muscular pain for 2 months. At first she noticed few blisters on her right leg which ruptured and turned into an ulcer. Gradually she developed
She also noticed gradual blackening of tips of her toes and fingers with pain which used to increase on cold water exposure. Her joint pain involved both small and large joints of upper and lower limbs with swelling persisting throughout the day with morning stiffness. She also complained of gradual loss of scalp hair, anorexia and weight loss for the last 3 months. On query, the patient told that she developed cough for the last 2 months which is dry, not associated with any blood and not related with any posture. She gave no history of fever, shortness of breath, oral ulcer, photosensitivity, convulsion, abdominal pain, dry mouth, dry eye, dysphagia, tightening of hand and foot. She gave no history of spontaneous abortion. She took some painkiller and antibiotics during her period of illness. She is nonsmoker, nonalcoholic and came from a poor family with none of her family member having similar type of illness. On general examination patient was ill-looking, emaciated with hyper pigmented area over the forehead, cheek and nasal bridge sparing the nasolabial folds. Mild anemia, alopecia, edema were found with pulse-90/min, BP-100/70 mm of Hg and temperature-98.8°F. Multiple ulcers were present over the skin of tibia, medial malleolus, lateral malleolus, dorsum of foot, index and ring fingers of both hands. The ulcers were variable in size, shape and depth with largest one measuring about 7cmx4cmx3cm and smallest one measuring 2.5cmx1cmx2cm, muscle depth, margin is sloping, floor covered with granulation tissue with scanty serous discharge, slightly tender and surrounding skin is normal. On musculoskeletal system examination interphalangeal joints, metacarpophalangeal joints of both hands were tender, mildly swollen with tapering of fingers, necrosis and ulceration, gangrenous changes of finger tips with atrophy of pulp and loss distal phalanx of little finger of left hand (Figure 2).

There was dorsal gutting with mild wasting of both thenar and hypothenar muscles of both hands. All the metatarsophalangeal and interphalangeal joints are tender and mildly swollen. There were gangrenous changes of the toes of both feet. Both wrists, ankle and knee joints were tender and mildly swollen. On examination of precordium palpable P2, left parasternal heave and loud pulmonary component of 2nd heart sound were found. On abdominal examination mild tender hepatomegaly was found. On examination of chest, crepitations were found in both apical areas and left base. Other system examinations were unremarkable. Investigations revealed following findings: Hb%- 9.7 gm/dL, ESR- 80 mm in 1st hour, Urine R/M/E- protein+ pus cell 7-8/HPF, 24 hrs total urinary protein-.28gm/24 hrs, serum creatinine-.63 mg/dL, RA test-Positive(20.7 iu/ml), serum ANA- strongly positive(116.9 iu/ml), serum anti-ds DNA-positive(94.50 iu/ml), serum c-ANCA-negative(<1.47 U/ml), serum p-ANCA-negative(<1.47U/ml), serum anti RNP- negative, antiphospholipid antibody-negative, anticardiolipin antibody-negative, lupus anticoagulant- negative, ECG- right axis deviation, CXR P/A view- RV type cardiomegaly with fullness of pulmonary conus, colour doppler echocardiography-right sided pressure overload with moderate pulmonary hypertension(PASP-58 mm Hg) and mild pericardial effusion, X-ray hand- periarticular osteopenia and loss of terminal phalanx of little finger of left hand (Figure 3), X-ray of foot- periarticular osteopenia with tapering of terminal phalanx of right great toe.
Biopsy of leg ulcer- Non specific inflammation, HRCT of chest- parenchymal scarring with fibrotic strands of upper lobes, left basal pneumonitis and pericardial effusion. Duplex study of both upper limb vessels showed no significant obstruction in radial, ulnar, brachial and axillary arteries. Duplex study of both lower limb vessels showed mild (<20%) luminal narrowing at posterior tibial and dorsalis pedis arteries. Small digital arteries could not be evaluated by duplex study. Finally the case was diagnosed as “Systemic Lupus Erythematosus (SLE) with pulmonary hypertension and Raynaud’s phenomenon” depending on diagnostic criteria of SLE. The patient was treated initially with intravenous Methylprednisolone 1 gm/day for 3 days, followed by daily 100 mg IV infusions for two weeks. Then oral Prednisolone 1 mg/kg/day was given with reduction of dose by 10% every two weeks until 20 mg/day which was maintained. In addition Hydroxychloroquine 200 mg 12 hourly and Azathioprine 50 mg 12 hourly was also given. Cyclophosphamide was avoided because the patient is married for one year and yet to conceive. Diuretic and Bosentan was given orally for pulmonary hypertension. Aspirin and Nifedipine was given for Raynaud’s phenomenon. Amoxycillin and paracetamol was given for ulcer infection along with daily dressing of ulcers and digital gangrene. Orthopedics and plastic surgery consultation was taken about the management of ulcers and digital gangrene. Patient was discharged with oral medication and follow up after one month. On follow up visit patients joint manifestations subsided and ulcers were found to almost healing, alopecia reversed but digital gangrene was not improving. Then we started warfarin 5 mg daily orally after performing baseline prothombin time along with running medications with advice to come back again after one month. After one month of starting warfarin digital infarcts were found to be healing and improved a lot.

**Discussion:**

Despite being a common occurrence in connective tissue diseases, digital ulcer and gangrene development is only occasionally seen in patients with SLE. The most common cause of digital gangrene associated with SLE is antiphospholipid antibody syndrome (AAS) and SLE is the leading cause of secondary AAS. The prevalence of AAS in SLE is reported to be 30% to 50%. Some patients with AAS develop digital ischemic symptoms resulting in gangrene of digits. The prevalence is reported to be 3.3-7.5% of AAS patients. Skin ulcers are also common and are often seen on the pretibial and ankles. Cutaneous gangrene was found in 19% of AAS patients and cutaneous necrosis in 3%. Similar involvement of digital gangrene and skin ulcers in typical site was found in our patient. But antiphospholipid antibody, anticardiolipin antibody and lupus anticoagulant were negative in our patient. These antibodies were also found negative in 3 out of 7 patients with critical peripheral ischemia in diagnosed SLE patient. Another contributing factor to digital gangrene in SLE could be atherosclerotic changes in the arteries. Increasing attention has been drawn to late complications of lupus-like atherosclerotic vascular disease. But our patient did show only minor (<20%) obstruction in her dorsalis pedis and posterior tibial arteries by duplex study. This may be due to the fact that the disease in our patient started only three months back. Liu et al. demonstrated that duration of disease, the presence of Raynaud’s phenomenon and high serum CRP levels were determinants of digital ulcer development in a cohort of 2600 lupus patients. But our patient presented with a short history though she had Raynaud’s phenomenon and high CRP. Jeffery et al. reviewed the records of a cohort of 485
patients with SLE and found the mean duration of disease before onset of critical ischemia was 9.4 yrs with mean age at onset 31.5 yrs. But our patient presented with digital ischemic symptoms at diagnosis and patient is only 24 yrs of age.

Pulmonary arterial hypertension (PAH) is defined as a mean pulmonary artery pressure ≥25 mm Hg and pulmonary capillary wedge pressure of ≤15 mm Hg. PAH is a severe manifestation of many of the sero-positive connective tissue diseases. It has long been recognized as a manifestation of systemic sclerosis and systemic lupus erythematosus. PAH may be an under-recognized manifestation of SLE. Vascular pathologic findings in patients with SLE associated PAH include plexiform lesions, muscular hypertrophy and intimal proliferation. Systematic review of patients with SLE indicate that the incidence of pulmonary hypertension is 0.5% to 23.3% and that the diagnosis of pulmonary hypertension occurs 4.9 years to 10.7 years after the initial diagnosis of SLE. Maehara et al. reported a case in which pulmonary hypertension was diagnosed 18 years after the diagnosis of SLE. But when we look at our case the patient presented with manifestations of pulmonary hypertension at the time of initial diagnosis of SLE. Osteonecrosis or bone death caused by ischemia, in SLE is not uncommon. Osteonecrosis occurs with prominent symptoms at a rate of 3% to 30%. Osteonecrosis in SLE is largely secondary to avascular necrosis which by definition occurs in the epiphysis or subarticular bone. Osteonecrosis of the metaphysis or diaphysis of the bone is referred to as bone infarction and is rarely seen in SLE. In our patient bone infarction was found in tip of great toe of right foot and distal phalanx of left little finger.

The treatment of digital ulcers in patients with SLE includes Epoprostenol(Iloprost) infusion, bosentan and immunosuppressive therapy (Cyclophosphamide and pulse Methylprednisolone). Unfortunately Epoprostenol(Iloprost) was not available, so could not be given to our patient. Cyclophosphamide was avoided intentionally because patient is married for one year and yet to conceive. Instead pulse Methylprednisolone followed by oral Prednisolone, Aspirin, Hydroxychloroquine, Azathioprine, Nifedipine and Bosentan was used in combination which was later added with warfarin. Bosentan’s efficacy for digital ulcers in Systemic sclerosis has been well recognized. It might be an alternative treatment for refractory digital ulcers in SLE. Our patient’s limb ulcers was found to be healed almost completely after 3 months of above therapy. Her digital gangrene was also improving after adding of Warfarin.

Conclusion:
We have reported this case because the patient presented with Raynaud’s phenomenon along with digital gangrene, limb ulcers, bone infarction and pulmonary hypertension in combination at the time initial diagnosis. These types of presentation at diagnosis of SLE are very rare.

Acknowledgement:
Dr. Shaek Aziz chowdhury, Managing director, Popular medical centre, Sylhet.

References:


Acute Acalculus Cholecystitis in Dengue Hemorrhagic Fever-A Case Report

MAA MIA, M MOSTAFI, S PERVEEN, NG CHOWDHURY, M A AHMED, SMM RAHMAN

Summary:
Presently Dengue appears with its varied features of presentation and progression. We report a case of acalculus cholecystitis in DHF from department of medicine, Combined Military Hospital, Dhaka. The patient presented with fever and diarrhea later developing abdominal pain. Her platelet counts were low and Dengue antibody test (Ig M) was positive with altered liver enzymes. Ultrasound showed thick walled gall bladder with clear lumen without stone or sludge, a feature of acute acalculous cholecystitis. The patient was successfully managed conservatively.

Key words and abbreviations: Dengue hemorrhagic fever, Combined military hospital, Acute acalculous cholecystitis.

Introduction:
Dengue Fever (DF) is caused by single stranded RNA flavivirus that is transmitted by the bite of female Aedes aegypti mosquito.\(^1\) Dengue fever is usually a non-specific and self-limiting biphasic febrile illness but the presentation may range from asymptomatic to Dengue fever, Dengue hemorrhagic fever, Dengue shock syndrome and recently, Expanded dengue syndrome or Isolated organopathy with unusual manifestations. Typical Dengue fever is characterized by high-grade fever, musculoskeletal pain, retrobulbar pain, headache, joint pain, nausea, vomiting and morbilliform rash. Fever, headache and abdominal pain are common manifestations.\(^2,3\) Atypical presentations like DF complicated by acute acalculous cholecystitis are rare.\(^4\) Acute acalculous cholecystitis has been described in the course of various diseases and conditions. Occasionally rapid progression to gangrene and gallbladder wall perforation occurs. Therefore, prompt surgical intervention are warranted. Acalculous cholecystitis in the course of dengue is usually a self-limiting disease and surgery if undertaken without proper diagnosis then chances of complication rise as it may be associated with thrombocytopenia, shock and hemorrhage. In these cases, a high clinical suspicion is required to make an early diagnosis and initiate prompt treatment. If unrecognized, the delay in treatment may lead to serious complications. This report describes an unusual manifestation of Dengue fever developing acute acalculous cholecystitis.

Case Report:
A 38 year old female presented with fever and diarrhea with headache, bodyache and severe weakness for 10 days followed by acute onset of abdominal pain and vomiting for 2 days. She was non-diabetic and non-hypertensive but suffering from hypothyroidism for 10 years and getting 50 micrograms of thyroxine daily. On physical examination, she was pale and ill. Her temperature was 39.5°C, pulse 100/minute and blood pressure 100/60 mm Hg. There was no jaundice or rash on general examination. Abdominal examination revealed diffuse tenderness. Laboratory findings showed hemoglobin level of 10.4 g/dl with hematocrit of 32%, TLC was 4.5x10^9 /l with 87% neutrophils and 10% lymphocytes. Platelet count was 70x10^9 /l. Peripheral film showed pancytopenia. Dengue IgM antibodies came out positive. Malarial Parasite was negative and blood culture showed no growth. A clinical diagnosis of Dengue fever with diarrhoea was made. She was admitted and given a standard diet. The patient’s condition deteriorated progressively with continued fever, vomiting, increasing abdominal pain and diarrhea with greenish stool in spite of multiple broad spectrum antibiotics. Abdominal tenderness was more marked in right hypochondrium associated with positive Murphy’s sign. The ultrasound examination of upper abdomen showed thick walled gallbladder measuring 9 mm without calculi, mass or sludge in the lumen suggestive of acute acalculous cholecystitis. There was minimal
free fluid around liver. Serum biochemistry showed total bilirubin of 0.7 mg/dl with serum alkaline phosphatase of 232 U/L rising to 920, serum ALT 289 U/L and serum amylase 122 U/L. Her creatinine and electrolytes were within normal limits. She was managed conservatively with multiple antibiotics (Meropenem, Linezolid and Metronidazole) and special attention given to her volume status and platelet counts. She was maintained with liquid diet. Her condition stabilized on the 9th day of hospitalization with cessation of fever and regression of right hypochondrial pain. The platelet count rose to 104x10^9/L and she could tolerate normal diet without pain. She was discharged on 11th day. After a week, she was fine and only complained of weakness. Abdominal ultrasound showed resolution of the peri-hepatic fluid collection and a decrease in gall bladder wall thickness.

Discussion:

Nowadays clinical features of dengue viral infection have been recognized to take aggressive forms that include atypical diseases like encephalopathy, meningitis, encephalitis, polynuropathy, Guillain-Barre syndrome, hepatitis including its fulminant form, myocarditis, acalculous cholecystitis, acute pancreatitis, peritonitis, rhabdomyolysis, pulmonary haemorrhage, acute respiratory distress syndrome (ARDS), Macrophage activation syndrome, acute renal injury (AKI), haemolytic-uremic syndrome, disseminated intravascular coagulation (DIC). So some experts have proposed to use Expanded Dengue syndrome / isolated organopathy to incorporate these uncommon clinical symptoms. 

In most of the cases Dengue presents with features common to any viral infection. Occasionally it may even present with features typical of cholecystitis. Abdominal pain and vomiting are prominent symptoms in dengue and dengue haemorrhagic fever but associated acalculous cholecystitis is an under reported condition. In a series of 131 patients with dengue reported from Taiwan, 10 patients (7.63%) had acute acalculous cholecystitis. Two of these patients underwent cholecystectomy and one underwent percutaneous transhepatic gallbladder drainage due to poor resolution. In another series of 27 dengue patients presenting with fever and abdominal pain in a Northern Indian tertiary care hospital, 17 were found to have acalculus cholecystitis.

Pathophysiology of acute acalculous cholecystitis is bile stasis due to gall bladder dyskinesia and ischemia which results in local inflammation in the gall bladder wall. In severe cases, necrosis of the gall bladder tissue and perforation occurs. In Dengue fever, the main pathophysiological changes are due to increased vascular permeability causing plasma leakage and serous effusion with high protein content that causes thickening of gall bladder wall and gall bladder stasis. Criteria for the diagnosis of acalculous cholecystitis are both clinical and sonographic findings. The clinical manifestations are fever, right upper quadrant pain with tenderness and a positive Murphy’s sign. Further evaluation with USG reveal a positive sonographic murphy’s sign defined as maximum tenderness at sonographically localized gallbladder, pericholecystic fluid collection and no stone in the gallbladder. The thickness of gallbladder wall in dengue patients exceeds 3 mm in ultrasonography while thickness exceeding 5 mm indicates a severe course of the disease. Abdominal sonographic findings in DF are a thickened gallbladder wall, ascites, splenomegaly and pleural effusion.

Contrary to this, some authors have described a typical reticular pattern of gall bladder wall thickness that can be used to diagnose and follow up patients with severe DF but should not be considered as an acalculus cholecystitis.

Acalculous cholecystitis should be suspected in patients infected with dengue complaining of abdominal pain. The sonographic examination in these patients may reveal free fluid around the gallbladder, sonographic Murphy’s sign, striations of gallbladder wall indicating its oedema, presence of intraparietal gas and mucosal sloughing. The reported mortality range in acute acalculous cholecystitis accompanying various diseases may reach upto 50% as compared to 1% for calculus cholecystitis. Acute acalculous cholecystitis has been described in the course of various diseases and conditions. A study by Gu et al found rapid progression to gangrene and gallbladder wall perforation. Therefore, strict observation of the patient for prompt surgical intervention are warranted.

Patients in the acute stage of acalculous cholecystitis should receive nothing by mouth. Hydration with intravenous fluids and other supports should be provided. Broad-spectrum antibiotics for enteric and
biliary pathogen coverage should be administered. The current recommendations include piperacillin/tazobactam, ampicillin/sulbactam or meropenem (1 gm IV 8h). In severe life-threatening cases, imipenem/cilastatin. Alternative regimens include a third-generation cephalosporin plus metronidazole (Flagyl, 1 gm IV loading dose followed by 500 mg IV 6h).

Conclusion:
Acalculous cholecystitis constitutes 10% (2-15%) of all acute cholecystitis cases of various aetiology and 40% of cases are complicated by a gallbladder perforation. Acalculous cholecystitis in the course of dengue is usually a self-limiting disease and cholecystectomy is usually not indicated in these patients. If surgery is undertaken without proper diagnosis then chances of complication rise as DF can be associated with thrombocytopenia, shock and hemorrhage. Acalculous cholecystitis should be considered in the differential diagnosis of abdominal pain in patients with dengue and close observation is recommended for avoiding complications.

References:
To
Editor-in-chief
Bangladesh College of Physicians and Surgeons

Sir,

I would like to thank you for publishing the article ‘Prevention of Postoperative Adhesions of Caesarean Section in your prestigious journal (Vol. 35, No 2, April 2017). I have gone through the article. The article is very nice, content are full of information and well presented.

Adhesion formation starts immediately after surgery. After tissue trauma, inflammation brings macrophage, fibroblasts, and a fibrin matrix to the wound surface of the wound. Postoperative adhesions also develop as a response to hypoxia, the body tries to reestablish oxygen and nutrient supply to tissues that have been injured by surgery or previous pathology.1 During normal healing without adhesions, the fibrinous mass is removed by fibrinolysis, before fibroblast in growth and deposition of ECM (Extracellular matrix) between injured tissues has been achieved. Theoretically, optimal prevention of adhesion formation requires intervention throughout the critical 7-day period of peritoneal healing. No new adhesion formation occurs after day 7.2 One of the highly debated and contentious issues regarding adhesion development following lower segment C/S is the closure or non closure of the visceral and parietal peritoneum. Historically, peritoneal closure has been performed to reduce postoperative complications, including adhesions. Review of the literature does not support that the closure of peritoneum prevents adhesions formation.3 Antiadhesion barriers like Seprafilm, Oxidized-regenerated cellulose (Interceed) are helpful. NSAIDs have also been recommended to prevent postoperative pelvic adhesions by blocking the production of thromboxanes, which are known to be involved in the biochemical pathways leading to adhesion formation.4 Good surgical technique, minimal tissue handling and proper haemostasis is very important.

Finally, I Thank the authors again for highlighting such an important issue and writing the review article.

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Dhaka Medical College

References:

To
Editor-in-Chief
Journal of Bangladesh College of Physicians & Surgeons
Mohakhali, Dhaka.

Sub: Prevention of Postoperative adhesions of Caesarean Section.

Dear Madam,

Thanks for your appreciation and at the same time raising the issue of peritoneal closure by tulandi etal in 2003. But after 2003 several studies & researches were carried out. Latest by Z.Shi, L ma young, etal had a huge meta-analysis & systemic review, published in
BJOG in 2011, which showed that closure of peritoneum during c/s significantly reduces the risk of adhesion formation.

Moreover meta-analysis by CHEONG & et al in 2009 & Big study by HAMEL et al in 2007 reported closure of peritoneum results significantly fewer adhesion formation.

Finally peritoneal closure is a safe surgical technique which carries no significant short term hazard & there is no significant disadvantage over non-closure of peritoneum. Therefore, we need to wait for more studies to say in favor of non-closure of peritoneum.

Appreciating your all the comments.

Regards

Professor Shaikh Zinnatara Nasreen
Professor and Head, Dept. of Obst. & Gynea
ZH Sikder Womens Medical College & Hospital
Dhanmondi, Dhaka.
Greetings for Eid ul Ajha.

We have successfully organized one workshop for peer reviewers on 16th September. I hope this will help our fellows to review articles in a better way.

I seek co-operation from all my stakeholders to improve the quality of the journal. I invite our fellows specially juniors to contribute more in the field of research and submit their articles in the BCPS journal.

Prof. Dr. Ferdousi Islam