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Emerging Horizons in Cancer Immunotherapy: A Rising Hope to Survive

Masud ZM

The fields of immunology and oncology have been linked since the late 19th century, when surgeon William Coley reported that an injection of killed bacteria into sites of sarcoma could lead to tumor shrinkage.¹ Since that time, exponential advances in the intersection between immune surveillance and tumor growth & development led to broad therapeutic advances that are now being studied in all cancer types.

An efficient and specific cytotoxic immune response against a tumor requires a complex, rapidly evolving interaction between various immune cell types in adaptive & innate immune system. The most widely studied phenomenon is the ability of T lymphocytes to distinguish self- versus non-self-antigens, which are presented by antigen-presenting cells (APCs) such as dendritic cells. Overall, the cytotoxic activity of a CD8+T cell is regulated by the presence & spatial orientation of a set of stimulatory & inhibitory receptors whose expression is regulated by a myriad of cytokines. Together, this configuration is often referred as "immune synapse". The prevailing theory of the immune system's influence on neoplastic progression is termed "cancer immunoediting" which proceeds in three phases.²

The elimination phase consists of innate & adaptive immune responses to specific tumor-associated antigens and is characterized by T, B & NK cell effector function, which is mediated by cytokines such as IFN alpha, IFN gamma, and IL-12.³ Immunologic escape describes the phase where malignant clones have acquired the ability to evade the adaptive immune system. Established mechanisms include:

- a. Loss or alteration of specific antigens or antigenic machinery.⁴ Tumors can lose major MHC (Major histocompatibility complex) class I expression or the intracellular machinery required to transport tumor antigens to the tumor surface for T cell recognition.⁵
- b. Tumors can promote an immune-tolerant microenvironment by manipulation of cytokines that encourage infiltration of Treg cells, myeloid derived suppressor cells (MDSCs) and other cell types that inhibit cytotoxic T cell function.⁶ These cells can then actively suppress proliferation of CD4+ & CD8+ T lymphocytes that would otherwise recognize tumor antigens.
- c. Tumors can upregulate the expression of immune checkpoint molecules such as PD-1 and PD ligand 1 (PD-L1) that promote peripheral T cell exhaustion.⁷

Understanding these mechanisms of immunologic escape, immune based therapies may be broadly applicable across cancer types.

A number of therapeutic approaches are being studied to unleash the immune system & control malignancy. These approaches include cytokines, T cells (checkpoint inhibitors, agonism of costimulatory receptors), manipulation of T cells, oncolytic viruses, therapies directed at other cell types & vaccines.

Cytokines: Initial approaches to immunotherapy harnessed the numerous downstream effects of cytokines & other substances that influence immune cell activity. Examples include: Interleukin (IL)-2, Interferon (IFN) alfa-2b.

Checkpoint inhibitors: PD-1 and PD ligand 1/2-Programmed cell death 1 (PD-1) is a transmembrane protein expressed on T cells, B cells and NK cells. It is an inhibitory molecule that binds to the PD-1 ligand (PD-L1; also known as B7-H1) and PD-L2 (B7-H2). Based upon prolonged overall survival in phase III trials and durable responses in phase II studies, antibodies inhibiting PD-1 (pembrolizumab, nivolumab) and PD-L1 (atezolizumab, avelumab, durvalumab) have been approved for a number of clinical indications and are being evaluated in multiple other malignancies.

CTLA-4: CTLA-4 was discovered in 1987 & implicated as a negative regulator of T cell activation in the mid-1990s.^{8,9} CTLA-4 exerts its effect when it is present on the cell surface of CD4+ & CD8+ T lymphocytes. CTLA-4 was initially implicated in immune surveillance of cancer when inhibition of CTLA-4 in mouse models of sarcoma and colon adenocarcinoma led to tumor shrinkage.¹⁰ The anti-CTLA-4 antibody ipilimumab was the first immune checkpoint inhibitor to be approved based upon its ability to prolong survival in patients with metastatic melanoma.¹¹

Oncolytic viruses: Viruses can be engineered to efficiently infect cancer cells preferentially over normal cells, to promote presentation of tumor-associated antigens, to activate "danger signals" that promote a less immune-tolerant tumor microenvironment and to serve as transduction vehicles for expression of immune modulatory cytokines.¹²

As immune checkpoint blockade & other immune-based therapy approaches lead to broad treatment advances among patients with advanced cancer; but an important consideration is how to best select patients whose tumors will respond to these therapies. Additional gene-expression-based signatures for immune response are also under active investigation. Checkpoint inhibition has already become a primary treatment modality for patients with a broad diversity of cancers, resulting in significantly prolonged survival in some patients.

The pace of discovery in the fields of immunology and cancer biology is accelerating due to the foundation laid decades ago. As our understanding of the role of the immune system in tumor initiation, progression and metastasis evolves, continued progress is likely in the treatment of malignancy.

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Prophylaxis for Postoperative Nausea and Vomiting- A Comparative Study of Ondansetron versus Granisetron

Aleem M A^a, Haque M M^b, Chowdhury A I^c

Abstract

Background: Post-operative nausea and vomiting (PONV) continue to be frequent occurrences, even when conventional anti-emetics are prophylactically used. Laparoscopic surgeries are associated with an appreciably high rate of post-operative nausea and vomiting (PONV).

Objective: The objective of this study was to compare the antiemetic effects of intravenous ondansetron 8mg (4ml) and granisetron 2mg (2ml) for prevention of nausea and vomiting after laparoscopic surgeries.

Methods: Seventy patients (ASA I and II) undergoing various laparoscopic surgeries (Inguinal hernia, Appendectomy, Ovarian cystectomy, Dye tests for infertility, Cholecystectomy etc.) under general anesthesia were randomly allocated into two equal groups. Group O (n=35) received 8mg (4ml) ondansetron intravenously, group G (n=35) received 2 mg (2 ml) granisetron intravenously 2 minutes before induction of general anesthesia. Standardized anesthetic technique was used and data were collected. Incidence of PONV was assessed and the number of patients suffering from nausea and vomiting during 24 hours post-operatively were recorded and compared between two groups. The need for rescue antiemetic also noted.

Results: Eighty percent of patients in Group G and 42.86 % patients in Group O did not experience PONV; the difference was statistically highly significant ($p < 0.001$). Four patients (11.43%) in Group G and 11 patients (31.43%) in Group O required rescue antiemetic medication during the 24-hour study period. The difference was found to be highly significant ($p < 0.001$).

Conclusion: It was concluded that prophylactic administration of Granisetron is more effective than Ondansetron, in reducing in incidence of PONV with prolonged effects.

Keywords: Granisetron, laparoscopic surgeries, Ondansetron, Post-operative nausea, Vomiting.

Introduction:

Despite continuing advances in anesthetic and surgical techniques, both the incidence and severity of post-operative nausea and vomiting have remained relatively unchanged. Post-operative nausea and vomiting are the most common distressing symptoms occurring after surgery.¹ Post-operative nausea and vomiting (PONV) can occur after general, regional or local anesthesia. An overall estimate of PONV is approximately 20–30 % of all adult surgical patients. Most investigators have reported a significantly higher incidence of nausea and vomiting after surgery in female adults compared to male adults.²

Laparoscopic surgeries have become common and popular surgical technique now a day's worldwide. But it is often associated with PONV with a high incidence of 70-85%.³ High rate of PONV in laparoscopy may be due to gas insufflation of the abdomen to create space for the manipulation of instruments. This puts pressure on the vagus nerve, which has a connection to the brain's emetic center.⁴

PONV is multifactorial in etiology. Different kinds of drugs, regimens, and techniques were evolved from time to time in the prevention and treatment of PONV, antiemetics being the main stay of therapy. The main pharmacological classes of drugs used in the treatment are anti-cholinergic (scopolamine), anti-histaminic (diphenhydramine, cyclizine, promethazine, prochlorperazine), butyrophenones (droperidol), benzamide (metoclopramide), Neurokinin receptor antagonists (NK-1 antagonists) and Glucocorticoids. Each drug used has its own merits and demerits like dry mouth, extrapyramidal signs, hallucinations, excessive sedation, headache and hypotension.^{5,6}

The introduction of 5-hydroxytryptamine (5-HT₃) receptor antagonist was a major advancement in the treatment of postoperative nausea and vomiting because of the less adverse effects that were observed than commonly used traditional anti-emetics.⁷ Ondansetron is selective 5-HT₃

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receptor antagonist possess property of superior antiemetic prophylaxis and is widely used for treatment of postoperative nausea and vomiting.^{8,9} It has been postulated that antiemetic and anti-nauseating effect of ondansetron is exerted by blockade of serotonin induced depolarization of vagal afferent nerves. It may also involve 5-HT₃ binding sites in the chemoreceptor trigger zone and nucleus tractus solitarius in the brain stem. Emetogenic action of chemotherapeutic agents and radiotherapy as well as PONV may involve activation of 5-HT₃ receptors in vagal afferents in the small intestine as well as central neurons in the area postrema near the fourth ventricles. These actions are effectively blocked by ondansetron. It has a half-life of 3 hr.¹⁰

Granisetron is a new 5-HT₃ receptor antagonist more selective than ondansetron. Granisetron is highly selective, potent, serotonin 5-hydroxytryptamine type 3 (5-HT₃) receptor antagonist which, blocks the 5-HT₃ receptors at both the central and the peripheral sites and produces irreversible block of 5-HT₃ receptors. It acts on the vagal efferent nerves of the gut and produces blockade of 5-HT₃ receptors. It is effective orally as well as intravenous (i.v), with a half-life of 8-9 hr.¹¹ Peri-operative prophylactic antiemetics are commonly used parenterally because of the fasting protocols, rapid onset of action, people intolerable to oral intake due to nausea (PONV), pain and sedation.¹² The present study was done to compare the antiemetic effects of optimal intravenous ondansetron (8mg) and granisetron (2mg) to prevent PONV following laparoscopic surgeries.

Material and Methods:

This study was conducted in the Department of Anaesthesia, Analgesia and Critical Care of Combined Military Hospital (CMH) Chittagong from October 2016 to June 2017. After taking proper approval 70 adult patients of ASA grade I and II, of either sex in age group of 18-50yrs, weighing 45 to 75 kgs, scheduled for various Laparoscopic surgeries were included. The patients were randomly divided into two groups of 35 each, Group 'O' (Ondansetron group, n=35), Group 'G' (Granisetron group, n=35). Patients belonging to ASA III and ASA IV, history of drug allergy, extremes of ages, obesity, history of motion sickness, emergency surgeries, full stomach, respiratory diseases, uraemia and diabetes mellitus were excluded.

Informed written consent was taken from all patients in both groups. The patients were premedicated with 0.2mg/kg -1 diazepam orally 12 hours before giving general anaesthesia. Patients were kept NPO for 8 hours before surgery. In the preoperative room, iv line was secured. In the operation theatre routine monitoring devices, like pulse oximetry, NIBP, ECG monitors were attached and baseline blood pressure, heart rate and O₂ saturation values were recorded. The study medication was administered one minute prior to induction of anaesthesia. Group 'O' (Ondansetron group) received 8mg (4ml) of ondansetron and group 'G' (Granisetron group) received

2mg (2ml) of granisetron intravenously. General anaesthesia was induced with 5mg/kg of 2.5% thiopentone sodium, vecuronium 0.1 mg/kg and fentanyl 1.5-2 µg/kg. Anaesthesia were maintained with nitrous oxide 66% in oxygen and supplemented with 0.5-0.8% halothane and vecuronium 0.01-0.15 mg/kg. Ventilation was controlled mechanically and adjusted so as to keep the end tidal carbon dioxide 35-40 mm of Hg.

After tracheal intubation, a nasogastric tube was placed to promote baseline emptying of stomach of air and gastric contents, which was removed at the end of surgery before tracheal extubation. During surgery the patients were placed in trendelenburg position wherever required and the abdomen was insufflated with carbon dioxide with an intra-abdominal pressure of 12-15 mm of Hg. Intraoperative monitoring included ECG, pulse oximetry, non-invasive blood pressure monitoring, which recorded systolic, diastolic and mean arterial blood pressure every 5 minutes. Duration of anaesthesia, surgery and CO₂ insufflation were also recorded in each patient. Ketorolac 60 mg i/v was given towards the end of surgery. At the end of surgery neuromuscular block was reversed with neostigmine and atropine. After surgery patients were observed for a period of 24 hours. Injection ketorolac 30 mg iv with injection Ranitidine 50 mg intravenously were given 12 hourly and injection Pethedine 75 mg intramuscularly applied as rescue analgesic if patient complained of pain at night. In post-anaesthesia care unit blood pressure and heart rate was recorded hourly and episodes of nausea and vomiting experienced by each patient were recorded 6 hours for 24 hours. No distinction was made between vomiting and retching (retching event was considered as vomiting event). Nausea and vomiting was evaluated on a three-point scale (0= none, 1= nausea and 2= vomiting). Rescue antiemetic medication was given in the form of injection Ondansetron 0.1 mg/kg body weight and Granisetron 0.02- 0.03 mg/kg for respective study group and repeated if the patient experienced severe nausea or if there were more than 3 emetic episodes with in a period of 15 minutes or if patient asked for it. Pain intensity was assessed using a 10 cm visual analogue (VAS 0= no pain to 10= severe pain). Pain intensity was classified into 3 categories for easy statistical analysis. Severe= if VAS score is >7, moderate= if VAS score is 3 -7, mild= if VAS score is <3.

Collected data were statistically evaluated and analyzed. Parametric data was expressed as mean ± SD, thereby the inter group comparisons were made by student's t-test. The test was two sided and referred for p-value for its significance. p-value less than 0.05 (p<0.05) was taken to be statistically significant. The analysis was performed on SSPS version 11.3.

Results:

Table 1: Comparison of demographic data and other characteristic in two groups

Characteristics	Group-“O” (Ondansetron) Mean ± SD, n=35	Group-“G” (Granisetron) Mean ± SD, n=35	p-value	Remarks
Age (Year)	30.5 ± 10.5	27.3 ± 9.2	0.133	NS
Weight (Kgs)	58.2 ± 7.2	56.4 ± 8.4	0.654	NS
Sex (Male:Female)	19:16	18:17	0.902	NS
ASA Physical Status (I/II)	22:13	23:12	0.771	NS
Duration of Anaesthesia (min)	96 ± 7.8	94.2 ± 9.6	0.32	NS
Duration of Surgery (min)	74.5 ± 7.4	76.9 ± 9.2	0.315	NS
Duration of CO ₂ insufflation (min)	68.7 ± 7.1	70.1 ± 9.5	0.19	NS

NS= Not significant

Total 70 adult patients were included in the study for assessment of postoperative nausea and vomiting (PONV). All the patients completed the study successfully. There were no statistically significant differences between the two groups in terms of demographic characteristics namely age, body weight, Sex, ASA physical status, duration of anaesthesia, duration of surgery, duration of CO₂ insufflation (Table 1).

Table 2: VAS score at various stages in two groups

VAS score (time)	Group-“O” (Ondansetron) Mean ± SD, n=35	Group-“G” (Granisetron) Mean ± SD, n=35	p-value	Remarks
0-4 hour	4.28 ± 1.67	4.57 ± 2.19	0.345	NS
4-8 hour	4.24 ± 1.17	4.55 ± 1.15	0.358	NS
8-12 hour	4.57 ± 0.75	4.21 ± 0.58	0.327	NS
12-16 hour	4.07 ± 0.82	3.80 ± 0.59	0.233	NS
16-20 hour	3.09 ± 0.78	2.88 ± 0.54	0.135	NS
20-24 hour	2.43 ± 0.57	2.29 ± 0.41	0.479	NS

NS= Not significant

The variation of VAS score between the two groups at 0 to 4 hours, 4 to 8 hours was statistically insignificant (p=0.345 and 0.358 respectively). The variation in VAS score at 8 to 12 hours, 12 to 16 hours, 16 to 20 hours and 20 to 24 hours were again statistically insignificant (Table 2).

Table 3: PONV scores at different time intervals in group-“O” (Ondansetron)

PONV score	Time interval			
	0-6 hours No (%)	6-12 hours No (%)	12-18 hours No (%)	18-24 hours No (%)
0 (No nausea/vomiting)	24 (68.57)	23 (65.71)	16 (45.71)	15 (42.86)
1 (Nausea)	7 (20)	7 (20)	17 (48.57)	14 (40)
2 (Vomiting)	4 (11.43)	5 (14.29)	2 (5.71)	6 (17.14)
Emetic episode	11 (31.43)	12 (34.29)	19 (54.29)	20 (57.14)

In Group 'O' (Ondansetron group), no nausea/vomiting (PNOV score 0) was observed in 24 patients (68.57%) during 0 to 6 hours after anaesthesia, 23 patients (65.71%) during 6 to 12 hours and the number decreased to 15 patients (42.86%) in 18 to 24 hours. Similarly, during 0-6 hours of study period 7 patients (20%) had nausea (PONV score 1),

4 patients (11.43%) had vomiting (PONV score 2) and overall incidence of emetic episode in 11 patients (31.43%). The incidence of nausea, vomiting and emetic episode had increased during next study period intervals and were 14 (40%), 6 (17.14%), 20 (57.14%) respectively during 18 to 24 hours post operatively (Table 3).

Table 4: PONV scores at different time intervals in group-“G” (Granisetron)

PONV score	Time interval			
	0-6 hours No (%)	6-12 hours No (%)	12-18 hours No (%)	18-24 hours No (%)
0 (No nausea/vomiting)	27 (77.14)	28 (80)	29 (82.86)	28 (80)
1 (Nausea)	5 (14.29)	3 (8.57)	4 (11.43)	5 (14.29)
2 (Vomiting)	3 (8.57)	4 (11.43)	2 (5.71)	2 (5.71)
Emetic episode	8 (22.86)	7 (20)	6 (17.14)	7 (20)

In group 'G' (Granisetron group), during 0-6 hours after anaesthesia no nausea/vomiting (PONV score 0) was observed in 27 patients (77.14%), during further study intervals which was remained more or less same and at 18 to 24 hours postoperatively was seen also in 28 patients (80%). During 0-6 hours of study period 5 patients

(14.29%) had nausea (PONV score 1), 3 patients (8.57%) had vomiting (PONV score 2) and overall incidence of emetic episode in 8 patients (22.86%). The incidence of nausea, vomiting and emetic episode were 5 (14.29%), 2 (5.71%), 7 (20%) respectively during 18 to 24 hours post operatively (Table 4).

Table 5: Comparison between incidence of nausea and vomiting between two groups at various time intervals during 24 hours of study period

Time interval		Group-“O” (Ondansetron) No. (%)	Group-“G” (Ondansetron) No. (%)	p-value	Remarks
0-6 hour	Nausea	7 (20)	5 (14.29)	0.078	NS
	Vomiting	4 (11.43)	3 (8.57)		
	Total	11 (31.43)	8 (22.86)		
6-12 hour	Nausea	7 (20)	3 (8.57)	0.041	S
	Vomiting	5 (14.29)	4 (11.43)		
	Total	12 (34.29)	7 (20)		
12-18 hour	Nausea	17 (48.57)	4 (11.43)	0.002	HS
	Vomiting	2 (5.71)	2 (5.71)		
	Total	19 (54.29)	6 (17.14)		
18-24 hour	Nausea	14 (40)	5 (14.29)	0.001	HS
	Vomiting	6 (17.14)	2 (5.71)		
	Total	20 (57.14)	7 (20)		

NS = Not significant, S = Significant, HS = High significant

Table 6: Comparison of incidence of PONV during 0 to 24 hours between two groups

Groups	PONV		p-value	Remarks
	Yes Number (%)	No Number (%)		
Group-“O” (Ondansetron)	20 (57.14)	15 (42.86)	<0.001HS	HS
Group-“G” (Granisetron)	7 (20)	28 (80)		
Group-“G” (Granisetron)	18 (51.42)	17 (48.57)		

HS = High significant

During 0-6 hours after anaesthesia, 11 patients (31.43%) in group 'O' and 8 patients (22.86%) in group 'G' reported nausea and vomiting which was statistically not significant, whereas at 6-12 hours after anaesthesia, the variation in the incidence was significant (p=0.041) with 12 (34.29%) patients in group 'O' reporting nausea and vomiting as compared to 7 (20%) patients in group 'G'. Similarly, the incidence of nausea and vomiting was found to be highly

significant between the groups during 12-18 and 18-24 hours, with 19 (54.29%) and 20 (57.14%) patients in group 'O' as compared to 6 (17.14%) and 7 (20%) patients respectively in group 'G' (Table 5 & 6).

Table 7: Rescue antiemetic use

Groups	Rescue antiemetic		p-value	Remarks
	Used Number (%)	No Number (%)		
Group-“O” (Ondansetron)	11 (31.43)	24 (68.57)	<0.001	HS
Group-“G” (Granisetron)	4 (11.43)	31 (88.57)		

HS = High significant

In group 'O' (Ondansetron) 11 patients (31.43%) asked for rescue anti-emetic where as in group 'G' (Granisetron) only 4 patients (11.43%) respectively required rescue anti-emetic. Requirement for rescue antiemetic medication in the two groups showed a statistically highly significant difference (p<0.001) (Table 7).

Table 8: Rescue analgesic use

Groups	Rescue antiemetic		<i>p</i> -value	Remarks
	Used Number (%)	No Number (%)		
Group-“O” (Ondansetron)	16 (45.71)	19 (54.29)	>0.05	NS
Group-“G” (Granisetron)	18 (51.42)	17 (48.57)		

NS = Not significant

In group 'O' (Ondansetron) 16 patients (45.71%) asked for rescue anti-emetic where as in group 'G' (Granisetron) 18 patients (51.42%) respectively required rescue analgesic. Requirement for rescue analgesics in the two groups was statistically insignificant ($p > 0.05$) as shown in Table 8.

Discussion:

Postoperative nausea and vomiting is one of the most distressing experiences associated with surgery, and many patients find it troublesome than post-operative pain itself. The occurrence of intractable vomiting can prolong the hospital stay and hence the economic implications also assume greater significance.¹³

Postoperative nausea and vomiting (PONV) is of multifactorial origin. The complex act of vomiting involves coordination of the respiratory, gastrointestinal, and abdominal musculature and is controlled by the emetic center.¹⁴ The area situated in the lateral reticular formation close to the tractus solitarius in the brain stem is thought to be the emetic center.¹⁵ Stimuli from several areas within the central nervous system can affect the emetic center. These include afferents from the pharynx, gastrointestinal tract and mediastinum, as well as afferents from the higher cortical centers (including the visual center and the vestibular portion of the eighth cranial nerve) and the chemoreceptor trigger zone (CTZ) in the area postrema. The area postrema of the brain is rich in dopamine, opioid, and serotonin or 5hydroxytryptamine (5HT₃) receptors.¹⁶ Four major neuro transmitter systems appear to play important roles in mediating the emetic response viz. dopaminergic, histaminic (H₁), cholinergic, muscarinic and 5HT. As there are four different types of receptors, there are at least four sites of action of the antiemetic drugs. Antiemetic agents may have actions at more than one receptor, but they tend to have a more prominent action at one or two receptors.¹⁷

Comparison of single dose oral granisetron versus i.v. ondansetron in prevention of nausea and vomiting induced by moderately emetogenic chemotherapy has been done. A single oral dose of granisetron (2 mg) resulted in equivalent levels of antiemetic protection as IV ondansetron (8 mg).¹⁸ Gigilo et al in their study to prevent nausea and vomiting following cancer chemotherapy concluded that both ondansetron and granisetron have similar antiemetic

efficacy but dose of granisetron is much less than ondansetron. 2 mg of granisetron IV is equivalent to 8-16 mg of ondansetron IV.¹⁹

We have therefore studied the effects of granisetron 2 mg IV versus ondansetron 8 mg IV administered before induction of anaesthesia in patients who were to undergo laparoscopic surgeries under general anaesthesia.

The incidence of PONV after anaesthesia, despite the advances in antiemetic therapy in the last decades is still found to be relatively high. Factors affecting PONV include patient related factors (age, sex, phase of the menstrual cycle), anaesthesia related factors (use of volatile anesthetic agents, N₂O, Opioid) and surgery related factors.²⁰ Female gender has been associated with higher incidence of PONV compared to male patients.²¹

Our study was aimed at comparing the antiemetic efficacy of ondansetron and granisetron in preventing PONV in laparoscopic surgery. In our study the factors that would have contributed to nausea and vomiting may be laparoscopic surgery, use of halothane, use of fentanyl etc. Use of facemask, use of nitrous oxide may or may not have contributed to nausea and vomiting. Avoidance of pethidine towards the end of surgery must have helped in preventing PONV.²² Laparoscopic surgery was chosen because of high incidence of PONV associated with it. Naguib et al demonstrated that the incidence of PONV after laparoscopic surgeries in their placebo group was remarkably high (72%).²³

We conducted study on 70 ASA grade I and ASA grade II patients with demographic data in terms of age, weight, sex, ASA physical status, duration of anaesthesia, duration of surgery which were similar in the two groups. There was no significant difference in the Ondansetron and Granisetron Groups ($p < 0.05$).

In our study, a complete response (no nausea and vomiting) was observed in 80 % patients in granisetron group as compared to 42.86 % in ondansetron group, the difference was statistically highly significant. A statistically highly significant reduction ($p = 0.002$) in the incidence of PONV was observed in group 'G' when compared with group 'O' at 12 to 18 hours after surgery.

According to Raphael²⁴ optimal dose of Ondansetron for preventing post-operative nausea and vomiting is 4mg and half-life is 3 hours. While optimal dose of Granisetron is 2 mg and half-life is 8-9 hours. So it is concluded that after 6 hours granisetron is more effective than ondansetron for preventing PONV. Present study showed that Granisetron is better than Ondansetron for preventing PONV. Bhattacharya²⁵ in his study showed same results. Mikawa K et al²⁶ reported the elimination half-life of granisetron is 9 hours which is 2.5 hours longer than ondansetron, so it requires less frequent dosing which is in agreement with

our study as shown be the usage of more rescue antiemetics in ondansetron group as compared with the granisetron group. Our results are in congruence with the study of B.B. Kushwaha et al²⁷ who concluded that the incidence of PONV were maximum during 12-18 hours, which observed in ondansetron group.

Y. Fujii et al²⁸ reported that the effective dose of granisetron for prophylaxis of prevention of postoperative nausea and vomiting after laparoscopic cholecystectomy, the incidence of emesis free period was 60% with granisetron 1mg, 83% with 2mg and also 83% with 4mg granisetron dose ($p < 0.01$) compared with placebo 53%.

Preoperatively granisetron dose of 2 mg was effective for prevention of postoperative nausea and vomiting after laparoscopic cholecystectomy. It is comparable with our study where our efficacy was 80% with granisetron using a dose of 2mg. In our study 51.42% patient of ondansetron group and 45.71% of granisetron group has a required rescue analgesic which was statistically insignificant ($p > 0.05$). The use of rescue antiemetic in ondansetron group which was about 11(31.43%) whereas in Granisetron group about 4(11.43%) which was statistically highly significant ($p < 0.001$). Stewart²⁹ in his study also has same result. Updated guidelines for managing postoperative nausea and vomiting were recently announced at the 2006 Annual Meeting of American Society of Anaesthesiologists in Chicago, Illinois, USA. Evaluating the current medical literature, they recommended the use of anti-emetics, with an emphasis on the use of the 5HT3 receptor antagonists.

Conclusion:

We observed minimal emetic and nausea episodes in postoperative period in patients who had received intravenous granisetron in comparison to intravenous ondansetron, undergoing laparoscopic surgery under general anaesthesia. Our study concludes that the prophylactic intravenous administration of granisetron is more effective drug than ondansetron for controlling postoperative nausea and vomiting.

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Pattern of Vitriolage: An Experience of 100 Cases

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Abstract

Background: Vitriolage or acid throwing is an extreme form of violence against woman in Bangladesh. For the last few years, this crime is on the rise in both urban and rural areas of Bangladesh. Vitriolage was once rampant especially upon young girls and women. Fortunately, the incidence has decreased considerably after imposing the death sentence for this crime. But, recent rise on the incidence of vitriolage is again noticed and pattern has been changed.

Objective: This study was carried out to find out the causes behind the acid throwing in response of age and sex of the victim in order to make effective preventive measures to stop this barbaric form of violence in our country.

Methods: This cross sectional study was done at One Stop Crisis Centre (OCC) at Dhaka Medical College Hospital and also at the rehabilitation and treatment centers of Acid Survivors Foundation (ASF) by maintaining ethical issues from July 2011 to June 2012. Data were collected by interviewing victims and their family members. Collected data were then analyzed by SPSS version 12 and presented in tables.

Results: Among 100 cases, majority of the victims (92%) were female and only 8% were male. Among the victims the married and unmarried were 34% and 60% respectively. According to the age variation, 30% belongs to 41-50 years of age followed by 25% and 21% of 21-30 years and 31-40 years respectively. Causes behind the attack are failure of marriage 22% followed by refusal of making sexual relation 17% and love affairs 13%.

Conclusion: The consequence of acid attacks on survivors are miserable in all aspects. Most of the victims had to give up their education or work. Social isolation, fear of further attacks and insecurity damage their self-esteem and confidence. This crime can be minimized by creating social awareness and strict legislation.

Keywords: Vitriolage, Violence against women, Acid survivors, Legislation.

Introduction:

Acid attacks are reported in many parts of the world. In our country, earliest record of acid attack was in 1983.¹ Since the 1990 AD, Bangladesh has been reporting the highest number of attacks and highest incidence rates for women.^{2,3}

Total 3662 Bangladeshi people were victimized due to acid attacks occurred between 1999 to 2015.⁴ The term vitriolage means throwing of the oil of vitriol (concentrated sulphuric acid) on the body of a person with the intention to cause bodily injury causing permanent disfigurement, intense pain, scarring and sometimes blindness. All of these injuries are considered as "Grievous hurt" under section 320 of B.P.C (Bangladesh Penal Code). But for practical purpose, this term is used in all cases of throwing of any corrosive agent on the body of a person.⁵ A corrosive poison fixes, destroys and erodes the surface with which it comes in contact. They act by extracting water from the tissues and coagulate cellular proteins and convert haemoglobin into hematin.⁶ As it damages the nerve endings so these lesions are comparatively painless.⁷ Moreover, it causes permanent disfigurement, scarring and contracture of the affected area. This is why injuries by acid throwing also termed as grievous hurt.⁸ The perpetrators are mostly men and adolescent boys. Vitriolage is considered as one of the extreme forms of repression women rights violation.

Materials and Methods:

This cross sectional study was done at One Stop Crisis Centre (OCC) at Dhaka Medical College and also at the rehabilitation and treatment centers of Acid Survivors Foundation (ASF) by maintaining ethical issues from July

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2011 to June 2012. Data were collected from hospital data and by interviewing victims and their family members. Collected data were then analyzed by SPSS version 12 and were presented in tables.

Results:

Table 1: Gender distribution of victims of vitriolage (n=100)

Total victims	Gender	No. of victims	Percentage
100	Male	8	8
	Female	92	92

Table 1 shows that among 100 victims of acid throwing, male and female were 8% and 92% respectively. It indicates that females are highly prone as victim to vitriolage.

Table 2: Age group of victims of vitriolage (n= 100)

Age group (in years)	No. of victims	Percentage
1-10	5	5
11-20	9	9
21-30	25	25
31-40	21	21
41-50	30	30
>50 years	10	10

Table 2 shows that 30% of the victims were of 41-50 years of age followed by 21-30 years 25% and 31-40 years were 21%.

Table 3: Distribution of cases as per causes (n =100)

Causes	No. of victims	Percentage
Refusal of marriage	22	22
Failure of Sexual relation	17	17
Fail in love affairs	13	13
Family problems	11	11
Property & monetary matter	8	8
Dowry	8	8
Attack by husband	6	6
Multiple marriage by husband	5	5
Failure in kidnapping	3	3
Other causes	7	7

Table 3 shows that causes behind vitriolage were multifactorial. Of them, refusal for marriage was in peak that accounts for 22% and refusal of sexual relation and love affairs were 17% and 13%. Family problems, disputes of land and monetary affairs, failure of kidnapping, dowry etc were other causes responsible for throwing of acid to the victims.

Discussion:

Severity of the damage due to throwing of corrosives depends upon the concentration of the acid, the period of time before the acid is thoroughly washed of with eater or neutralized with a neutralizing agent.⁵ So, rapid dilution and washing will greatly reduce the damage whether internally or externally. If used in a very concentrated form, the damage is almost instantaneous and is likely to be very severe.⁹

Violence against women, particularly intimate partner violence and sexual violence are major public health problems. Recent global prevalence figures indicate that about 1 in 3 (35%) of women worldwide have experienced either physical and /or sexual intimate partner violence or non-partner sexual violence in their lifetime.^{10,11} High incidence of acid attacks are reported in many countries in Africa and South East Asia.

In South East Asia if we consider Bangladesh and India, we found that acid attacks in these countries are gender biased. Analysis of acid attack reports revealed at least 72% of reported cases were female victims. However, unlike Bangladesh, India's incidence rate of chemical assault has been increasing in the past decade, with a high 27 reported cases in 2010¹² while 174 judicial cases were reported for the year of 2000.¹³ A significant portion of attacks in India and Bangladesh occur when a woman exercises decision making power by rejecting a suitor's marriage or love proposal.¹²

In our study, victims of female were 92% that reflects the gender biasness in Bangladesh and the leading cause of acid throwing is due to refusal of marriage that belongs to 22% followed by refusal of sexual relation and love affairs which combined account for 30%. High incidences of acid assaults have been reported in some African countries including Nigeria and Uganda. But they show less gender discrimination like Bangladesh and India. In Uganda, 57% of acid assault victims were female and 43% male and cause behind acid attacks account for 35% in relation conflict.¹⁴ In Nigeria, reversal findings were found that revealed 60% of male and 40% female.¹⁵ In both nations younger individuals were more likely to suffer from an acid attack. In Uganda 19-34 years of age group are almost 60% of the attacks¹⁴ while in Nigeria average age of the survivors was 20.6 years.¹⁵ In our study we found that almost 30% of victims belong to 41-50 years of age followed by 25% of 21-30 years and 21% of 31-40 years of age.

According to Acid Survivors' Foundation in Bangladesh, almost 82% of victims in our country are female. But, the highest incidence was 494 victims in 2002.⁴ Rates have been steadily decreasing in Bangladesh by 15 to 20% since 2002 after introduction of the death penalty for acid attacks and laws strictly controlling the sale, use, storage, and international trade of acids in 2002.¹²

The acid attacks are now not only limited to third world country but also increasing in developed world. Statistics obtained by the Guardian from the Health and Social Care Information Centre (HSCIC) showed that in 2004-05 there were 55 stays in hospital caused by acid attacks in England. But provisional data in 2014-15 showed this was raised to 106 admissions which are almost doubled in last 10 years. Of them 60% were male and 71% described their ethnic origin as white British.¹⁶ The resultant social isolation, ostracism and associated loss of self-esteem can seriously undermine the victim's professional and personal futures, and often leads to suicide.¹⁷ So, we have no way to be satisfied though incidents of acid attacks are decreasing in our country. As global trend of acid attacks is increasing day by day even in Developed country like England.

This small study does not depict in depth scenario of individual districts, villages or urban areas of our country. Social, educational and economical status of individual survivors need to find out for taking effective action plan in order to combat the situation. So large scale study in our country should be carried out to set up treatment plan, preventive measures, legal and advocacy support according to our need. Moreover, rehabilitation should be adopted with a holistic approach according to age, sex and social status of the survivors of acid attack that the victims can lead potential lives and can contribute to the society.

Conclusion:

Vitriolage is considered as one of the extreme forms of repression women right violation. The consequence of acid attacks on survivors brings dramatic change in their lifestyle. Most of the victims have to give up their education or work. Social isolation, fear of further attacks and insecurity damage their self-esteem and confidence. Illiteracy, poverty threats to further retribution and ignorance about legal support increase their miseries. This crime can be minimized by creating social awareness on the issue by tightly regulating the selling of acid in open market as well as enacting harsher penalties for perpetrators.

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Study of Fingertip Patterns as a Tool for the Identification of the Dermatoglyphic Trait in Carcinoma Cervix

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Abstract

Background: Different configurations of epidermal ridges on palms, fingers and soles are known as dermatoglyphics. Once established, dermatoglyphic patterns remain unchanged throughout life. Carcinoma of cervix is the second most common cancer among women worldwide. As carcinoma cervix and dermatoglyphic patterns of an individual both are genetically determined, the dermatoglyphic patterns can play an important role in early prediction of patients suffering from carcinoma cervix.

Objectives: The present study was done to compare different fingertip patterns between patients suffering from carcinoma cervix and healthy individuals and to determine whether the dermatoglyphic patterns between two groups differ or not.

Methods: This cross-sectional, analytical type of study was performed on 150 individuals. Among them 100 were patients suffering from carcinoma cervix and 50 were healthy individuals. For statistical analysis Chi-square test was carried out.

Results: Statistical analysis of data showed significant increase in frequency of whorls in patient with carcinoma cervix in their both hands as compared to controls. On the other hand, ulnar loop pattern was significantly reduced in both hands of carcinoma cervix patients as compared to control group. While there was statistically non-significant difference observed in frequency of radial loop & arch pattern.

Conclusion: In present study dermatoglyphic findings have shown association with the carcinoma of cervix. But it is to be done on large number of subjects.

Keywords: Dermatoglyphics, Trait, Fingertip, Carcinoma cervix.

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Introduction:

Dermatoglyphics is the scientific study of the pattern configurations of the palmar surface of hands, fingers and plantar surface of feet and toes. In 1926 Cummin first time coined the term dermatoglyphic in the field of science. The typical patterns of epidermal ridges begin to develop during 13th to 14th weeks of intrauterine life and completed by 19th to 21st weeks.¹ The fingers are the earliest sites of ridge formation. Once established, dermatoglyphic patterns remain unchanged throughout life.² Dermatoglyphics as a diagnostic aid is now well established in a number of diseases, which have a strong hereditary basis. Carcinoma of cervix is the second most common cancer among women worldwide and has genetic background.³ Dermatoglyphic patterns in female with cervical cancer can be used as risk indicator. This may be used as a preliminary screening to determine those at risk of developing cervical cancer and proper monitoring can be instituted to prevent morbidity and mortality associated with this condition. Thus it will be helpful to take a protective measure against carcinoma cervix and reduce the incidence and human suffering and socioeconomic burden.

Materials and Methods:

This Cross Sectional, Analytical type of study was carried out in the Department of Anatomy, Dhaka Medical College (DMC), Dhaka from July 2013 to June 2014. The sample constituted on 150 individuals. Among them 100 were patients suffering from carcinoma cervix who served as case and 50 were healthy individual who served as control group. Age of both groups was ranged from 30 to 65 years.

Patients suffering from carcinoma cervix were histopathologically diagnosed & surgically treated by gynaecologist and took radiotherapy in DMCH. The control group was selected from gynaecology outpatient department of DMCH whose screening test was negative & had apparently healthy cervix which was assessed by gynaecologist. While selecting study population care was taken to rule out any other associated genetic disorder.

Dermatoglyphic prints were taken by the "Ink & paper Method" as described by "Cummin (1936)" and "Cummin and Midlo (1961)".

At first the individual (patient or control) was informed by explaining about the nature of the work. Then informed written consent was taken from the individual.

Hands of the individual were washed with liquid soap before inking to remove oily or greasy substance and then hands were wiped with a towel. The requisite amount of ink was poured into a clean and dry flat bottom container. Hand roller was moved in the ink until the ink spread thinly and homogenously in the roller. Both hands were painted uniformly with the help of the roller. After ensuring that fingers and palm inked properly, hand print was taken on the white paper fixed on clip board.

First of all, the palmer aspect of the wrist was placed on the paper. Then slowly the palm was placed on the paper from proximal to distal end. Fingers were rolled from radial to ulnar side. The palm was then lifted from the paper in reverse order, from distal to proximal end. Then both hands of the individual were cleaned with turpentine oil & liquid soap and wiped with towel.

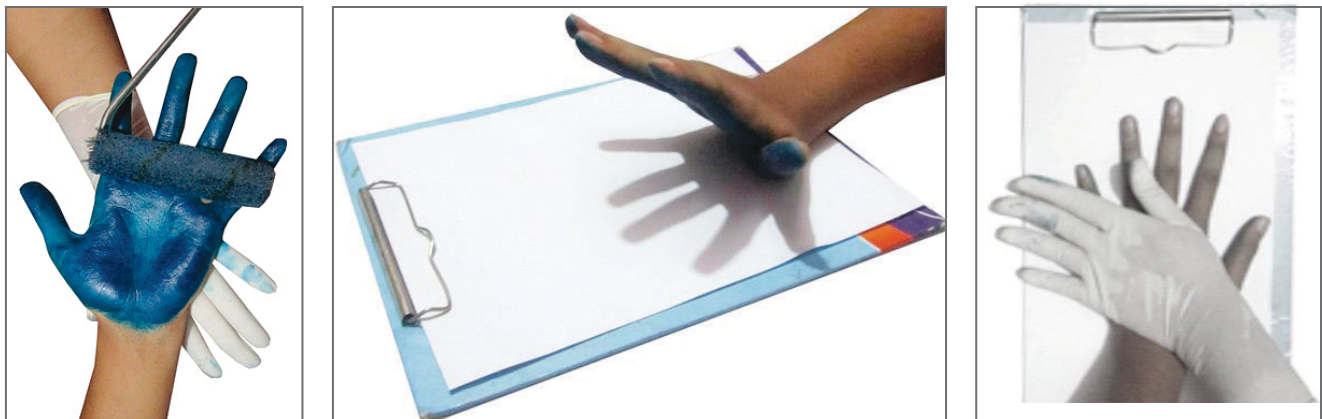


Fig 1: Showing technique of taking hand print

Hand lens with light source on 4X & 6X magnification was used to identify the finger ridges for determination of different dermatoglyphic patterns. For statistical analysis Chi-square test (χ^2) was applied.

Ethical Clearance: This study was carried out after the approval by the Ethical review committee of Dhaka Medical College, Dhaka.

Operational definitions: The epidermal ridges form definite local design on the distal phalanges of digit and other sites on the palm. To describe the dermatoglyphic pattern, there are some fixed points. The fixed points are:

1. Triradius or delta or Outer terminus or outer points of count,
2. Core or inner terminus or inner points of count.

Triradius: It is located at the meeting point of three opposing ridge systems. Triradius is formed where three ridges radiating from a common point.⁴ According to Francis Galton, a whorl pattern has two triradius, a loop has one triradius and an arch has no triradius.

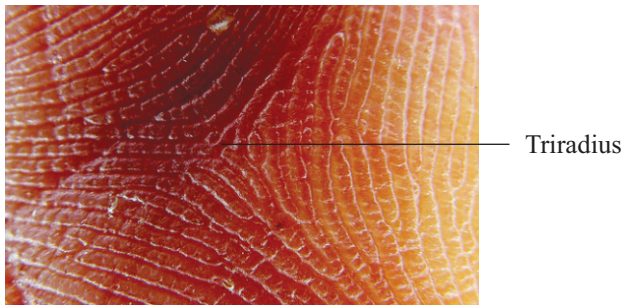


Fig 2: Showing triradius

Core: It forms the center of the pattern area & is described as internal terminus⁴

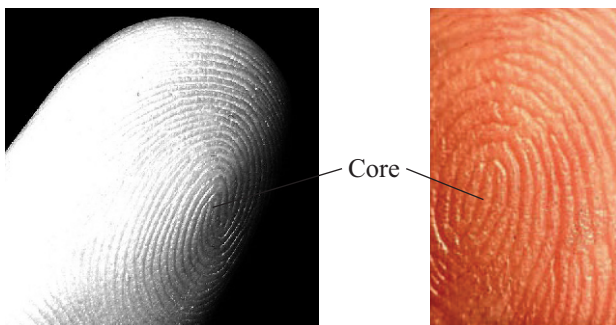


Fig 3: Showing core or center of a pattern area

Dermatoglyphic patterns in distal phalange: Sir Francis Galton, in 1892, classified the dermatoglyphic patterns of a normal individual into:

1. Whorl pattern; 2. Loop pattern; 3. Arch pattern

1. Whorl pattern: These patterns are constructed by concentric ridges circuits around the core. The shape may be either circular or elliptical.

-Whorls usually have two triradii.⁵

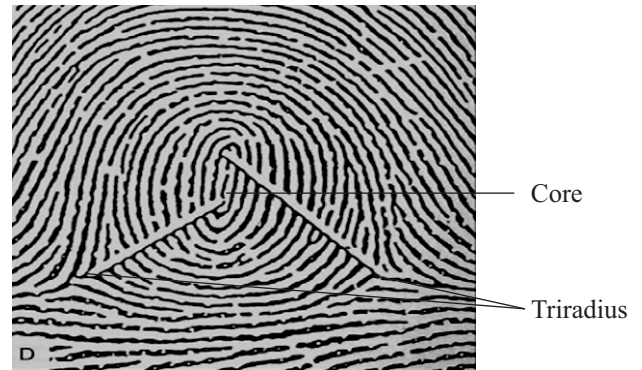


Fig 4: Whorl pattern of finger

2. Loop pattern: In loop pattern ridges enter on one side, recurved and exit on the same side of the finger. Loops usually have one triradius.⁵

Types of loop

1. Ulnar loop- loop opens to ulnar margin of the hand.
2. Radial loop- loop opens to radial margin of the hand.

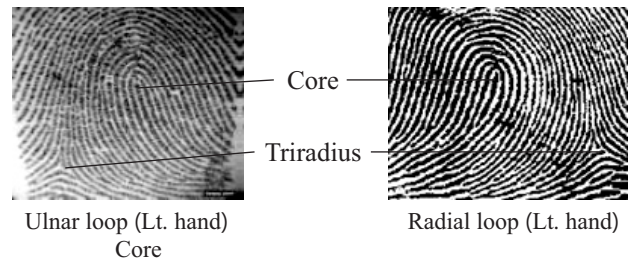


Fig 5: Different types of loop pattern

3. Arch pattern: In this pattern, dermal ridges pass from one margin of the digit to the other with a gentle, distally bowed sweep. Arch pattern has no triradius.



Fig 6: Showing an arch pattern has no triradial point

Results:

Percentage of whorl pattern in patient with carcinoma cervix (36.4%) was more as compared to controls (15.8%) in their both hands. Statistically it was highly significant ($p < 0.001$). On the other hand, ulnar loop pattern was significantly reduced ($p < 0.001$) in both hands of carcinoma cervix patients (54.3%) as compared to control (73.4%) group. While there was statistically non-significant difference observed in frequency of radial loop & arch pattern.

Table 1: Comparison of finger ridge pattern in distal phalanges of hands in case & control group

Hands in different group	Pattern in distal phalanges (%)			
	Radial loop	Ulnar loop	Whorl	Arch
Rightt hand				
A (n=50)	3.2	73.6	16.0	7.2
B (n=100)	2.8	55.0	37.0	5.2
<i>p value</i>	0.939 ^{ns}	0.0001 ^{***}	0.0001 ^{***}	0.350 ^{ns}
Left hand				
A (n=50)	4.0	73.2	15.6	7.2
B (n=100)	3.2	55.6	35.8	7.4
<i>p value</i>	0.724 ^{ns}	0.0001 ^{***}	0.0001 ^{***}	0.921 ^{ns}
Both hand				
A (n=50)	3.6	73.4	15.8	7.2
B (n=100)	3.0	54.3	36.4	6.3
<i>p value</i>	0.103 ^{ns}	0.0001 ^{***}	0.0001 ^{***}	0.581 ^{ns}

Group A: Control subjects

Group B: Case (Carcinoma cervix patients)

Comparison of finger ridge pattern between study groups done by Chi-square test, ns= not significant, *** = significant at $p < 0.001$. n = number of study subjects.

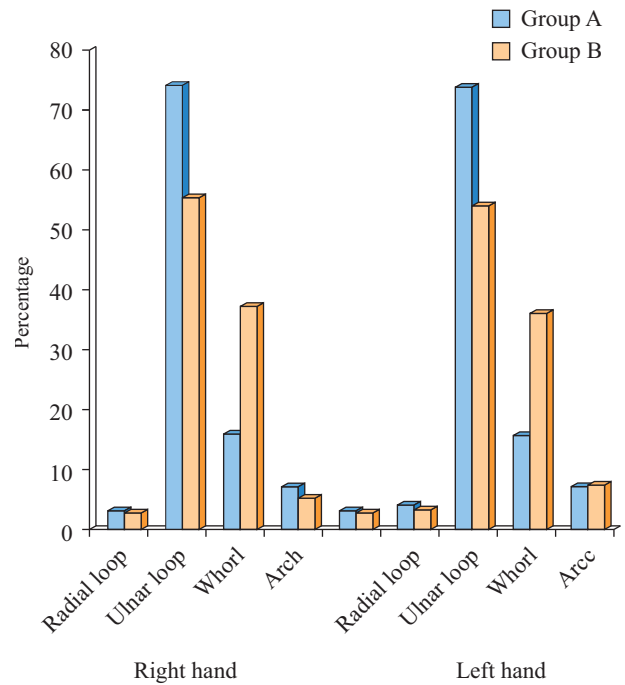


Fig 7: Distribution of finger ridge pattern in distal phalanges of right and left hand in group A & B

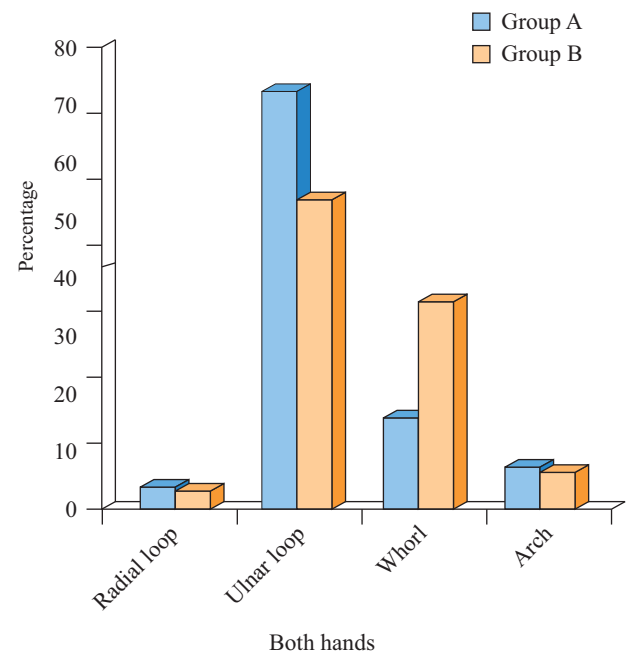


Fig 8: Distribution of finger ridge pattern in distal phalanges of both hands in group A & B

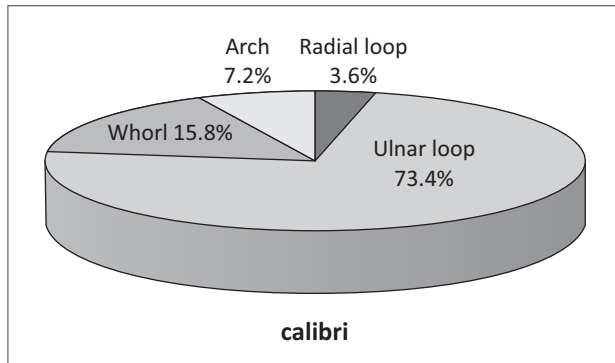


Fig 9: Pie chart showing finger ridge pattern in distal phalanges of both hands in group A & B

Group A : Control subjects

Group B : Case (Carcinoma cervix patients)

Discussion:

Different finger ridge patterns (loop, whorl and arch) in distal phalanges of hands were studied in this work. It was noticed that in both hands percentage of whorl pattern was significantly higher ($p < 0.001$) in carcinoma cervix patients than control group followed by ulnar loop which was significantly lower ($p < 0.001$) in case group & there was non-significant difference in radial loop ($p > 0.05$) & arch pattern ($p > 0.05$) between two groups. This result is similar with the findings of Kashinathappa B. S. and Lata K.⁶ They conducted a study on palmar dermatoglyphic pattern of 110 histopathologically confirmed cases of carcinoma cervix and 110 healthy individuals. Another study was conducted by Inamdar V. V. et al.⁷ They worked on dermatoglyphic pattern of 90 histopathologically established patients of carcinoma cervix & 90 normal healthy female in 2006, in Government Medical College, Nanded, India. They found higher percentage of whorl pattern ($p < 0.001$) in carcinoma cervix patient & ulnar loop pattern ($p < 0.001$) in control group and non-significant difference in radial loop ($p > 0.05$) in right & left hand. This result is similar with the present study. In addition, they also observed significantly higher ($p < 0.001$) percentage of arch pattern in carcinoma cervix patient only in left hand which was dissimilar with the present study that could not be explained.

In 1985 Pal G. P. et al.⁸ observed significantly higher percentage of arch pattern & lower percentage of ulnar loop in both hands of patients suffering from carcinoma cervix. This dissimilar finding with the finding of the present study could not be explained. In 1977 Reddy S.S. et al.⁹ noticed significant high frequency of whorls in cervical cancer patient as compared to control. This result was similar with the present study. Umana U. et al.¹⁰ in 2013 carried out a study on dermatoglyphic pattern on 47 patients of carcinoma cervix & 50 normal healthy female in Ahmadu Bellu University Teaching Hospital (ABUTH). They reported lower percentage of arch in both hands & higher percentage of loop pattern in right hand of patients suffering from carcinoma cervix as compared to control

group ($p < 0.001$). In whorl pattern difference was non-significant in both hands between two groups ($p > 0.05$). This dissimilar finding with the finding of the present study could not be explained.

Conclusion:

The dermatoglyphic pattern in patient with carcinoma cervix can represent an anatomical, non-invasive, inexpensive tool for screening high-risk population and facilitates early prediction of disease. Thus it will be helpful to take a protective measure against carcinoma cervix and reduce the incidence and human suffering and socioeconomic burden.

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Effect of Diabetes Mellitus on Short Term Outcome of Hemorrhagic Stroke

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Abstract

Background: Intracerebral hemorrhage (ICH) accounts for about 7-15% of all strokes and is the most devastating type of stroke with mortality rate of 34%-51%. Diabetes is an established risk factor for occurrence of both types of stroke and its outcome in ischemic stroke is well established. But its association with hemorrhagic stroke severity and outcome is not well established.

Objectives: The study was done to analyze relation of diabetes with initial presenting symptoms of ICH and short term mortality in comparison to non-diabetics.

Methods: This cross-sectional comparative study was conducted over 100 admitted patients with ICH and out of them 50 were diabetic, 50 were non-diabetic. It was done in a selected Govt. medical college hospital for a duration of one year from 01.07.2010 to 30.06.2011. Result was calculated using Chi-square test.

Results: In this study mean age for diabetics was 60.60 ± 9.25 years. Initial clinical presentations were more marked in diabetic patients in comparison to non-diabetic group. Low GCS, larger size of hematoma, presence of ventricular extension all these bad prognostic features were more in diabetic patients. Mortality of hemorrhagic stroke patients was 40% in first month. Out of total 40 dead patients 22(44%) were diabetic and 18(36%) non-diabetic (p=0.414). Most of the death occurred in first 7 days.

Conclusion: Diabetes was not significantly associated with worse presentation and prognosis in hemorrhagic stroke. However, more and larger study is needed with greater matched variables and risk factors to make a concrete comment.

Keywords: Hemorrhage, Hypertension, Stroke, Diabetes

Introduction:

Stroke is defined by the World Health Organization as a condition characterized by rapidly developing symptoms and signs of a focal brain lesion, with symptoms lasting for more than 24 hours or leading to death, with no apparent

cause other than that of vascular origin.¹ Intracerebral hemorrhage(ICH) is characterized by non traumatic abrupt onset of severe headache, an altered level of consciousness and focal neurological deficit secondary to focal collection of blood within the brain parenchyma. An ICH accounts for approximately 7-15% of all strokes and is the most common devastating type of stroke. It carries a high early mortality rate of 34-51% with half of the fatalities occurring within the first 2 days of ictus.²⁻⁵ Multivariate studies have shown that level of consciousness, hematoma size and ventricular extension are the most important risk factors at presentation in patients of ICH which determine outcome and mortality in first month.⁵⁻⁸ A recent study suggests age of patient and amount of alcohol consumed within a week of ICH as independent determinant of outcome after hemorrhagic stroke.⁹

Diabetes mellitus is a disease which involves almost all organs of the body and associated with poorer outcome in diseases of other organs in comparison to patients without diabetes mellitus. In all emergency presentations of diabetes mellitus is associated with higher mortality. It has been recognized for many years that disease of the cardiovascular system is the predominant long-term cause of morbidity and mortality in patients with diabetes mellitus. In particular, these patients are at an increased risk

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of dying from heart disease.¹⁰ Mortality from cerebrovascular disease has been studied less frequently in patients with diabetes. Cerebrovascular mortality rates have been shown to be raised in patients with type-II diabetes relative to the general population.^{11,12} The Diabetes UK (Previously British Diabetic Association) Cohort has >23000 patients with Type-I diabetes, is of sufficient size and has sufficient follow-up to report cerebrovascular mortality rates by age and sex. The results are compared with rates in the general population and with previous data from studies of patients with type II diabetes. Overall, the rates were significantly raised compared with the general population, though not significantly so at ages 1 to 19 years based on small numbers or in the men aged 60 to 84 years. In the 20- to 39-year age group, the risk of cerebrovascular mortality was increased >5-fold in men and >7-fold in women.¹³

Diabetes mellitus is a well-established independent risk factor for stroke and is associated with high mortality.¹⁴⁻¹⁷ But in all of these studies majority of the patients were of ischemic stroke and in one study diabetics have two fold higher 30 days' mortality in patients with ischemic stroke in comparison to nondiabetics.¹⁸ The proposed mechanism by which diabetes and hyperglycaemia worsens outcome and increase mortality are-

1. Poorer reperfusion due to vascular injury
2. Increased acidosis perhaps from lactic acid leading to further tissue injury.

Very few studies have analyzed the influence of pre-ictal factors such as diabetes in outcome of haemorrhagic stroke only. It is not clear whether diabetes influences outcome of ICH patients and its relation with consciousness level, haematoma size and ventricular extension is not well defined. Following haemorrhage a zone of ischemia surrounds the lesion.¹⁸ Because both acute & chronic hyperglycaemic state can expand oedema and increase ischemic damage by reduction of cerebral blood flow, diabetes may emerge as an important predictor of outcome among patients with ICH. In a study it is evident that diabetic patients with haemorrhagic stroke have a larger hematoma size than patients without diabetes.¹⁹ In a different study, hemorrhagic volume was the best predictor of mortality for all locations of spontaneous ICH.²⁰ A 10-year duration study done in acute stroke unit in Spain showed a clear link between diabetes and in hospital mortality among ICH patients.²¹ But in the study of Thurim et al,²² the presence of diabetes did not influence outcome of ICH.

The current study proposal attempts to explore relation between diabetes & initial presentation of ICH and its outcome in first month.

Materials and Methods:

This cross-sectional comparative study was carried out in the department of Medicine, Sher-E-Bangla Medical

College Hospital, Barisal, Bangladesh. The duration of the study was from 01.07.2010 to 30.06.2011. The study comprises 100 patients with intracranial hemorrhage (ICH). Out of 100 patients 50 had diabetes mellitus. Following patients were excluded from the study- ICH patient who were referred for interventional therapy, patients were taking antiplatelet or anticoagulant therapy, patients with blood dyscrasia, subarachnoid hemorrhage, hemorrhagic stroke due to trauma. All hemorrhagic stroke patients admitted in medicine unit were divided into 2 groups according to patient or their attendant recall or medical records: (1) patients with no past history of diabetes and (2) patients with known diabetes, treated with either insulin therapy or oral hypoglycemic therapy or not treated, whatever the plasma glucose level at stroke onset. Acute stress induced hyperglycemia were differentiated by using HbA_{1c} and standard method of diagnosis of Diabetes. Baseline characteristics included age, sex, living conditions, medication before stroke (antihypertensive, antiplatelet, and anticoagulant therapy), vascular risk factors and comorbid conditions included hypertension (previous diagnosis, current treatment), previous myocardial infarct or ischemic heart diseases, valvular heart diseases, transient ischemic attack (TIA) or stroke, smoking (current or former habit). Patients of both groups were matched according to their age, sex, presence of other risk factors, examination findings like GCS, volume and site of hemorrhage as much as possible. Initial presentation of both groups was recorded and appropriate investigation was advised. Consciousness level was assessed by Glasgow comma scale. Systemic complications associated with stroke were searched and recorded. From CT scan volume of hematoma was calculated using the formula ABC/2, site of hemorrhage & ventricular extension was recorded. From day 2 to day 7 all patients were followed up twice daily and any change in status were recorded. As shortage of bed in hospital did not allow long duration stay, these patients were discharged on seventh day and followed up on 15th and 30th day. Patients who could not attend this follow up, their information were collected over telephone. Result was calculated using Chi-square test.

Results:

Table 1: Age distribution of the patients ($n=100$)

Age of the patients	Diabetic	Non-diabetic
40-50 years	12(24%)	16(32%)
50-60 years	16(32%)	18(36%)
>60 years	22(44%)	16(32%)
Total	50(100%)	50(100%)

A total of 100 patients of hemorrhagic stroke (50 diabetic) were incorporated in this study. Among these 50 diabetic patients, 22(44%) were above 60 years of age and 18(36%) were in age group 50-60 years of age among non-diabetic patients (Table-1).

Table 2: Presenting complaints of the patients ($n=100$)

presenting complaints	Diabetic (50)	Non-diabetic (50)
Loss of consciousness	34 (68%)	24 (48%)
Vomiting	34 (68%)	24 (48%)
Hemiparesis/Hemiplegia	30 (60%)	26 (52%)
Aphasia	12 (24%)	08 (16%)
Headache	06 (12%)	06 (12%)

Table-2 shows presenting complaints of the patients; majority of patients 34 (68%) and 24 (48%) of diabetic and non- diabetic respectively presents with loss of consciousness and vomiting.

Among the unconscious patients, 26(77%) diabetic and 20(83%) non- diabetic patients' level of consciousness was below 8 Glasgow Comma Scale (GCS).

Table 3: CT revealed intracerebral hemorrhage (ICH) size of patients ($n=100$)

Size of hemorrhage	Diabetic (50)	Non-diabetic (50)	p-Value= 0.23
≤ 30 ml	22(44%)	28(56%)	
>30 ml	28(56%)	22(44%)	

CT scan evaluation of all patients revealed Intracerebral hemorrhage (ICH) size > 30 ml in 28(56%) diabetic and 22(44%) non- diabetic patients (Table-3). 18(36%) diabetic and 16 (32%) non- diabetic patients had ventricular extension along with hemorrhage.

Table 4: Outcome of patients ($n=100$)

Outcome	Diabetic(50)	Non-diabetic (50)	p-Value= 0.414
Death	22(44%)	18(36%)	
Improved	28(56%)	32(64%)	
Total	50(100%)	50(100%)	

Table 4 shows that 22(44%) diabetic and 18(36%) non-diabetic patients {total 40(40%)} died within 15 days of stroke, remaining patients improved gradually.

Table 5: List of patients according to day of death ($n= 40$)

Death in day	Diabetic (50)	Non-diabetic (50)	p-Value= 0.414
<5	20(90.9%)	18(100%)	
6-10	02(9.1%)	00(00%)	
Total	22(100%)	18(100%)	

Most of death in this study, all non- diabetic (100%) and 20(90.9%) diabetic patients occurred within first 5 days and 2 death occurred in 6th and 10th day (Table-5). Hemorrhage was identified as cause of death in total

28(70%) patients; 16(72.7%) diabetic and 12(66.7%) non-diabetic, followed by aspiration pneumonia in 12(30%) cases (6 in each group).

Discussion:

Hemorrhagic stroke is the most common devastating type of stroke. It carries a high early mortality and half of the fatalities occur within the first 2 days of attack. This study comprised the effect of diabetes mellitus on outcome of hemorrhagic stroke in one tertiary level medical institute in Bangladesh.

In this study, most of the diabetic patient's 38(76%) age were above 50 years, this is almost same as non- diabetics 34(68%). This co-relates with two studies abroad and explained by the fact that atheroma of cerebral vessels induced by diabetes occurs at the same rate as other vascular risk factors.^{21,23}

Most of patients in this study were male, 34(68%) and 40(80%) respectively. But in many studies, hemorrhagic stroke almost equally affected male and female both in diabetics and non-diabetics, suggesting that diabetes has the same impact on cerebral vessels in both sexes.²³ This discrepancy suggest the social factors in our country where male is more privileged over female in getting higher level health services.

Hypertension was more frequent in diabetic patients and antihypertensive therapy was prescribed in a greater proportion of diabetic hypertensive patients than in non-diabetic patients, corresponds to few foreign studies,²³⁻²⁵ emphasizing the fact that diabetes and hypertension are often associated together.²⁵ But dyslipidaemia which is an established risk factor for stroke was not well established in this study. As most of the lipid values used in this study were revealed after stroke event which does not represent usual lipid status.

Unconsciousness or history of loss of consciousness, Motor weakness, Headache and Aphasia in initial presentation were more marked in diabetic patients in comparison to non-diabetic group, matched with two European studies.²²

GCS ≤ 8 was more prevalent in diabetic 26(77%) than non-diabetic 20(83%) group. Hematoma size >30 ml was more prevalent in diabetic group in comparison to non-diabetic patients (n=28 vs 22) with (n=18 vs 16) had ventricular extension in present study.

While comparing patients presenting status in term of low GCS, size of hematoma, presence of ventricular extension, all these bad prognostic features were more in diabetic patients but none were statistically significant; this result did not coincide with study hypothesis and result of a study in Spain.^{1,8,19} In this study mortality rate of hemorrhagic stroke was 40% where in other parts of world it is 34%-51%.^{20,23-25}

During one month follow up total 40 patient died out of which 22 were diabetic and 18 non diabetic with P-value=0.414. Death among diabetic group was not statistically significant as hypothesis was. In several studies abroad diabetes was associated with increased mortality and worse neurological outcome in stroke patients.^{14,22,26} But these studies included both ICH and Infarcts, so likely to be biased by overestimation or underestimation.

One study in Spain²¹ and a prospective study in Asia with 783 patients with ICH diabetes was identified as a risk factor for early death.¹⁰ But in the study of Thurim et al,²² the presence of diabetes did not influence outcome of ICH.

Conclusion:

Diabetes mellitus is not an independent risk factor for initial bad presentation (low GCS, larger size hemorrhage and ventricular extension) and outcome in term of mortality in first month following hemorrhagic stroke. In this study bad presenting features and death were higher in diabetic patients in proportion to non-diabetics, but it is statistically insignificant. This is a small sample size study so difficult to draw inference from it. A large sized study with greater matched variables and risk factors can be done in this matter to make a concrete comment.

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Knowledge and Practice of Personal Hygiene among a Selected Primary School Children in Dhaka City

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Abstract

Background: Majority of health problems associated with school children are preventable by promoting hygiene practices. The best way to learn personal hygiene is to introduce it to children at grass root level that is from primary school. School settings provide a strategic point of entry for improving child's health, self esteem, life skills, behavior and will help them maintain adult hygiene routine later on in life.

Objective: The study was conducted to assess the knowledge and practice regarding personal hygiene among primary school children.

Methods: This cross sectional study was done at One Stop Crisis Centre (OCC) at Dhaka Medical College and also at the rehabilitation and treatment centers of Acid Survivors Foundation (ASF) by maintaining ethical issues from July 2011 to June 2012. Data were collected by interviewing victims and their family members. Collected data were then analyzed by SPSS version 12 and presented in tables.

Results: Among 203 respondents, the mean age was 8.25±2.200 years; about 62.6% were male and 37.4% were female. Among them 85.7% knew how to wash hand, 78.8% knew health hazards if hands were not washed before meals, 76.4% knew health problems of not washing hands after toilet use and 41.4% knew the seven steps of hand washing. Simultaneously 64.5% respondents had knowledge regarding daily bathing and 64% and 83.7% were aware of health problems for not brushing teeth and proper time to brush teeth respectively. Of the respondents 82.3% knew how to take care of nails and only 50.2% knew the health problems associated with improper nail care. Knowledge on hair care was found in 85.2% of the participants. Importance of wearing sandals/shoes were acknowledged by 71.4%. Most common hygiene practice was bathing with soap (94.1%), hand wash after toilet use (93.1%), regular hair care (87.7%), wearing shoes/sandals at home (79.8%) and brushing teeth (74.9% twice daily brushed). Knowledge on personal hygiene was found to be significantly associated with the practices of personal hygiene ($p < 0.05$). In the study, 11.8% had poor knowledge on personal hygiene and simultaneously had a poor level of hygiene practice of only 4.9%. While 35% with excellent level of knowledge on personal hygiene of had a higher level of hygiene practices which was 31.5%.

Conclusion: There is need for promotion of proper hygiene practices and behavioral changes through conduction of school based health education program which in turn will lead to tackle the common communicable diseases spreading through unsafe hygiene practices.

Keywords: Knowledge, Practice, Personal hygiene, Primary school children.

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Introduction:

Hygiene is a set of practices performed for the preservation of health. Hygiene practices prevent or minimize disease and the spreading of disease.¹ The difference between health and sickness sometimes depends on simple habits such as washing hands, proper food hygiene or prompt dressing of a superficial scratch.

The incidence of illness relating to areas of personal hygiene is more apparent in children as they are learning to take care of themselves and are exposed to many germs while in the school environment or in a playground.

In the developing countries like Bangladesh due to lack of private and decent sanitation facilities of schools, many children often experience increased burden of communicable diseases that decreases their ability to attend school regularly and to learn their full potential. In

Bangladesh, the biggest killers of young children, namely respiratory tract infections (RTI) and diarrhoeal diseases both are preventable by promotion of hygiene practices through proper health education by the teachers, who are the first contacts. Habits that are generally considered under proper hygiene practices include regular bathing, hand washing specially before handling food and after using the toilet, washing scalp hair, brushing teeth regularly, trimming nails etc.

Personal hygiene is important in every stage of life but good cleanliness habits starts from early child hood.^{1, 2} Educating children on good hygiene is the best way to avoid the spread of infection and disorders and not just for children complaints, teaching principles of correct hygiene at an early age can help keeping individuals healthy in later life and be taught to future generations.

In our day to day life role of school is important for cognitive, creative and social development of children.^{3,4,5} School health services are very much necessary in assessing the state of personal hygiene, which is directly or indirectly related to the above mentioned factors, especially in a developing country like Bangladesh. School based hygiene and water treatment programs increase students' knowledge, improve hygiene and decrease absenteeism, however health impact studies of these programs are lacking.^{6,7}

Materials and Methods:

A cross sectional descriptive type of study was conducted among 203 primary school children of grade 1-5, aged between 6-13 years at a primary school in Dhaka city from December 2015 to March 2016. Formal permission from the primary school authority was taken to conduct this survey and informed consent was taken from the respondents prior to collect data. In compliance with the study objectives, the samples were selected by purposive sampling method and data collection was done by face to face interview adopted through semi structured questionnaire.

After collecting, all questionnaires were checked for its completeness and correctness. Coding and classification were done. Correct answers of the knowledge and practice related questions were scored which carried "1" mark and each wrong answer and non responded answer carried "0" mark and aggregated. These scores were then transformed into percentage. Then the percentage of the knowledge and practices were arbitrarily categorized into 4 groups as poor (0-40%), satisfactory (41- 60%), good (61- 80%) and excellent (above 80%). Collected data were analyzed by using SPSS version 16.

Results:

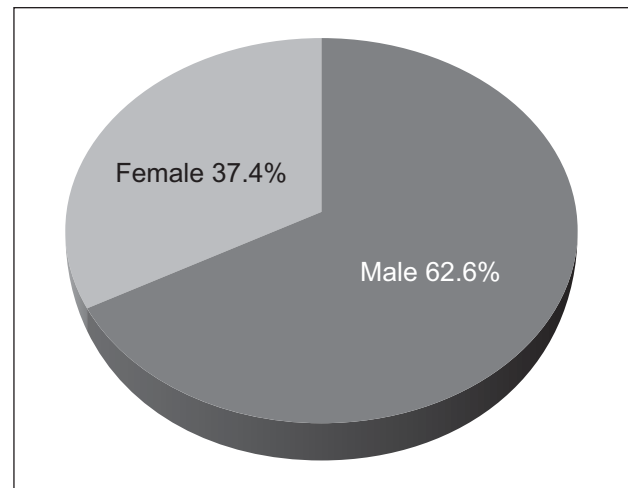


Figure 1: Distribution of respondents by sex

Among 203 respondents 62.6% were male and 37.4% were female.

Table 1: Distribution of respondents by level of knowledge on personal hygiene

Knowledge level	Frequency	Percent
Poor	24	11.8
Satisfactory	19	9.4
Good	89	43.8
Excellent	71	35.0
Total	203	100.0

Table 1 shows that among the respondents, 11.8% had poor level of knowledge on personal hygiene, 9.4% had satisfactory level of knowledge, 43.8% (n=89) had good level and 35% had excellent level of knowledge on personal hygiene.

Table 2: Distribution of respondents by level of practice on personal hygiene

Practice level	Frequency	Percent
Poor	10	4.9
Satisfactory	13	6.4
Good	116	57.1
Excellent	64	31.5
Total	203	100.0

Table 2 shows that among the respondents, 4.9% had poor level of practice on personal hygiene, 6.4% had satisfactory level, 57.1% (n=116) had good level and 31.5% had excellent level of practice on personal hygiene.

Table 3: Association between levels of knowledge on personal hygiene by sex

Knowledge level	Sex		Total No. (%)
	Male No. (%)	Female No. (%)	
Poor	19 (15.0)	5 (6.6)	24 (11.8)
Satisfactory	8 (6.3)	11 (14.5)	19 (9.4)
Good	48 (37.8)	41 (53.9)	89 (43.8)
Excellent	52 (40.9)	19 (25.0)	71 (35.0)
Total	127(62.6%) (100.0)	76(37.4%) (100.0)	203(100%) (100.0)

Table 3 shows that among the male respondents, majority 40.9% (n=52) had excellent level of knowledge followed by 37.8% had good, 6.3% had satisfactory and 15% had poor level of knowledge regarding personal hygiene. On the other hand, among the female respondents, 53.9% (n=41) had good level of knowledge followed by 25% had excellent level, 14.5% had satisfactory level and rest 6.6% had poor level of knowledge regarding personal hygiene.

Table 4: Levels of practice on personal hygiene by sex

Practical level	Sex		Total
	Male	Female	
Poor	9 (7.1)	1 (1.3)	10 (4.9)
Satisfactory	7 (5.5)	6 (7.9)	13 (6.4)
Good	76 (59.8)	40 (52.6)	116 (57.1)
Excellent	35 (27.6)	29 (38.2)	64 (31.5)
Total	127 (100.0)	76 (100.0)	203 (100.0)

Table 4 shows that among the male respondents, majority 59.8% (n=76) had good level of practice on personal hygiene, 27.6% had excellent level, 5.5% had satisfactory level and 7.1% had poor level of practice on personal hygiene. Among the female respondents, majority 52.6% (n=40) had good level of practice on personal hygiene, 38.2% had excellent level, 7.9% had satisfactory level and 1.3% had poor level of practice on personal hygiene.

Table 5: Levels of knowledge and practice on personal hygiene

Knowledge level	Practical level				Total
	Poor	Satisfactory	Good	Excellent	
Poor	9 (37.5%)	4 (16.7%)	11 (45.8%)	0 (0.0%)	24 (100%)
Satisfactory	0 (0.0%)	0 (0.0%)	13 (68.4%)	6 (31.6%)	19 (100%)
Good	1 (1.1%)	9 (10.1%)	52 (58.4%)	27 (30.3%)	89 (100%)
Excellent	0 (0.0%)	0 (0.0%)	40 (56.3%)	31 (43.7%)	71 (100%)
Total	10 (4.9%)	13 (6.4%)	116 (57.1%)	64 (31.5%)	203 (100%)

$\chi^2=82.279; p=0.000$

Table 5 shows that those who had excellent knowledge on personal hygiene, 56.3% had good level of practice and 43.7% had excellent level of practice on personal hygiene. Among the respondents who had good level of knowledge 58.4% had good level, 30.3% had excellent level and 10% had satisfactory level of practice. Those who had satisfactory level of knowledge among them 68.4% had good level and 31.6% had excellent level of practice while who had poor level of knowledge among them 37.5% had poor level, 16.7% had satisfactory level, 45.8% had good level and none had excellent level of practice on personal hygiene. Statistically it was found highly significant (p<0.05). That means level of practice is related with level of knowledge.

Discussion:

Among total 203 school children 11.8% had poor level of knowledge on personal hygiene, 9.4% had satisfactory level of knowledge, 43.8% had good level and 35% had excellent level of knowledge on personal hygiene (Table-1). On the other hand, 4.9% had poor level of practice on personal hygiene, 6.4% had satisfactory level, 57.1% had good level and 31.5% had excellent level of practice on personal hygiene (Table 2). One study conducted among high school students in a district town of Bangladesh found 45% respondents had satisfactory level of knowledge followed by 34.6 % had moderate knowledge, 13.7% had excellent and rest 6.6% had poor level of knowledge on personal hygiene.⁸ Another study conducted on a primary school students of Tehran, found that 21.18% had good, 54.23% had fair and 20.39 had poor knowledge on personal hygiene.⁹ A similar study in secondary school students in Bardwan district of West Bengal was done and found that knowledge regarding personal hygiene among secondary school students was relatively poor.¹⁰

In this study of school children grades 1-5, we assessed the knowledge and practices of personal hygiene. Of the students surveyed, 74.4% were in age group of 6-10 years

followed by 15.3% were in age group of 11 - 13 years and 10.3% were in age group of 4 - 5 years (mean 8.25±2.200 years). Respondents were predominantly male (62.6%) and 37.4% were female (Fig-1).

Overall, the majority of students (78.8%) reported washing hands before meals. Notably, the self-reported frequency of hand washing before meals among children in our study is substantially higher than frequencies reported from studies of children in other countries. For instance, studies from the Philippines, Ethiopia and Colombia indicated that 75.9%, 63.8% and 46.9% of students respectively, reported washing hands before meals.^{11,12} However, only 27.6% respondents wash their hand before meal with only water and 72.4% with soap water. These findings were found quite different with the study findings of Philippines and Turkey studies where an average of 37.7% and 42.4% of children, respectively, washed their hands with soap.

While 85.7% of students reported that they knew how to wash hand, 78.8% knew the health problem if no hand wash before meal, 76.4% knew the health problem if they do not wash hands after toilet and 41.4% knew the seven steps of hand washing.

Fecal-oral contamination is a major cause of transmissible diseases such as gastrointestinal infections. Washing hands after defecation is one of the most effective ways to prevent gastrointestinal parasitic infections.^{13,4} Washing hands after toilet use is important; In this study 93.1% wash their hand after toilet use and of them 17.2% wash their hand with only water and 82.8% with soap water. This may be due to in part, to the attitudes of the school children. Those who do not wash their hands properly after toilet may be negatively influenced by factors such as laziness, the rush to play with friends, or even the lack of hand washing facilities close to the latrines.¹³ Studies conducted in Colombia and India reported that 82.5% and 86.4% of students respectively, wash their hands after using the toilet.^{14,12}

For brushing teeth, this study found that 16.70% brush their teeth once a day, 74.9% twice daily and 8.4% don't brush their teeth. By the timing of tooth brushing, it was learned that among the respondents 48.3% brush their teeth only at morning after awakening, 48.8% both morning and night and only 3.0% at night after dinner. Study conducted in Bangladesh found that 34.2%, 57.5% and 8.2% boys brushed teeth one, two and three times daily respectively, whereas 21.6%, 56.8% and 21.6% girls brushed teeth one, two and three times daily respectively.¹⁵

This study also observed that those who had excellent knowledge on personal hygiene, 56.3% had good level of practice and 43.7% had excellent level of practice on personal hygiene. Among the respondents who had good level of knowledge 58.4% had good level, 30.3% had excellent level and 10% had satisfactory level of practice. Those who had satisfactory level of knowledge among them 68.4% had good level and 31.6% had excellent level

of practice while who had poor level of knowledge among them 37.5% had poor level, 16.7% had satisfactory level, 45.8% had good level and none had excellent level of practice on personal hygiene. Statistically it was found highly significant ($p < 0.05$). That means level of practice is related with level of knowledge. Study conducted by Farah et al.¹⁵ found that education and knowledge about hygiene is intimately and significantly associated with practice of personal hygiene.

The main source of information regarding personal hygiene was found TV (85.2%). It may be mentioned here that in urban areas in most of the houses has TV.

Conclusion:

The study concluded that hygiene practices were directly related to knowledge on proper hygiene practices. The first step of achieving this goal is promotion of hygiene practices through proper scientific and culturally acceptable health education by teachers who are the first contact person of school children. There is need for promotion of proper hygiene practices and behavioural changes through conduction of school based health education program which in turn will lead to tackle the common communicable diseases spreading through unsafe hygiene practices.

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Evaluation of Inter Incisal Opening After Excision of Oral Leukoplakia: Amniotic Membrane Vs Buccal Pad of Fat as Graft Material

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Abstract

Background: Mouth opening among different population has been shown to vary considerably and its range is specific for a given population. The present study is an attempt to evaluate the inter incisal opening after excision of oral leukoplakia.

Objective: To evaluate the inter incisal opening after excision of oral leukoplakia after one month through clinical observation.

Methods: This cross sectional prospective comparative study was done during the period of January 2014 to June 2014 among the patients who attended in the Oral & Maxillofacial Surgery Department of BSMMU with histopathologically diagnosed leukoplakia on oral mucosa. The diameter was about 3-4 cm and need surgery, where primary closer was impossible. After excision of leukoplakia amniotic membrane was used in 10 (group 1) cases and buccal pad of fat used in 10 (group 2) cases. Postoperative clinical evaluation was done on the 3rd POD, 1st week, 3rd week and 1st month. The study protocol was explained to the patients in detail before obtaining the informed consent from the patients.

Results: Age range of 20 patients was from 22-65 years. Mean age of patient was 45.0±10.5 years. Male patients were 60% and female patients were 40%. Inter incisal opening reduced little in 70%, slight in 20% and serious in 10% when amniotic membrane was used. When buccal pad of fat was used inter incisal opening reduced little in 80%, slight in 20% and serious in 0%. Preoperative inter incisal opening range was (38-52 mm) and postoperative inter incisal opening range was (36-50 mm) when used amniotic membrane. Again preoperative inter incisal opening range was (37-52 mm) and postoperative inter incisal opening range was (37-50 mm) when used buccal pad of fat.

Conclusion: When amniotic membrane was used, inter incisal opening reduced more than buccal pad of fat after excision of oral leukoplakia if the lesion is not too large.

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Keywords: Oral leukoplakia, Inter incisal opening, Amniotic Membrane, Buccal Pad of Fat.

Introduction:

Mouth opening is variable which we come across routinely in our daily practice. Increasing number of patients of maxillofacial fractures, temporomandibular joint diseases, oral malignancies, reconstructed oral defects and craniofacial syndromes are now referred to oral and maxillofacial surgery and plastic surgery facilities. Mouth opening and its adequacy is an important component in treatment and follow up of all of these conditions. Normal mouth opening has been defined as the inter-incisal distance at maximal mouth opening.¹

Normal range of mouth opening is necessary to enable the clinician conduct a thorough oral examination conveniently. Limitation of mouth opening is one of the early signs of many pathological and traumatic conditions. Early recognition of decreased or limited mouth opening is necessary for a prompt and efficient approach to diagnosis and to plan out the treatment options judiciously. In order to make a diagnosis of decreased mouth opening it is essential to establish what constitutes the normal opening for the population.² The measurement of mouth opening varies

significantly with age, gender and race.³⁻⁷

In 1978 the World Health Organization (WHO) defined leukoplakia as “a white patch or plaque that cannot be characterized clinically or pathologically as any other disease”.⁸ The current definition is that of “a white plaque of questionable risk having excluded (other) known diseases or disorders that carry no increased risk for cancer”.⁹ It is considered as one of the most common premalignant lesion or Potentially Malignant Disorder.¹⁰

It is a clinicopathological diagnosis that can only be made after histological examination of the tissue. It represents the most common premalignant disease of the oral mucosa. The prevalence varies geographically but also reflects differences in study design and population's studies.¹¹ The presence of dysplasia in leukoplakia is believed to be associated with a higher probability to transform into oral cancer which increases with the grade.¹²⁻¹³

The reason to treat leukoplakia may be the presence of symptoms and an attempt to prevent malignant transformation. The gold standard for the diagnosis and management remains histopathologic assessment from a suspicious lesion. This depends on the quality of the biopsy, patient clinical information, interpretation of biopsy by a pathologist and the correct action by the clinician. The pathologist can only confirm that no other pathology is present and comment on the presence and degree of dysplasia or infiltration.¹¹

It is usually treated by surgical excision with a healthy margin. In case of a large mucosal defect after excision of any benign or malignant soft tissue lesion, reconstruction is mandatory. A number of surgical procedures have been advocated for the reconstruction of oral cavity defects after surgery, including primary closure, buccal mucosal graft, split thickness skin graft, buccal pad of fat, allogenic graft, regional rotational flap and distant flap.¹⁴

Human amniotic membranes have been used successfully over 70 years for a wide range of surgical application. The use of fetal membrane in skin transplantation was first reported by Davis in 1910.¹⁵ In 1913, Stern M described the use of human amniotic membrane for burned and ulcerated skin surfaces.¹⁶

Materials and Methods:

This Prospective cross sectional comparative study was done between January 2014 to June 2014. A total 20 adults, 12 males and 8 females in the age range of 22 to 65 years were studied. The mouth opening was measured using a standardized protocol. The subjects were asked to open their mouth maximally. The distance from the incisal edge of the upper incisor teeth to the incisal edge of the lower incisor teeth was measured and the findings were recorded in ranges of millimeters. The patients were divided in amniotic membrane graft (Group 1) and buccal pad of fat (group 2). Both groups were evaluated preoperatively and

postoperatively. Inter incisal opening were evaluated up to one month after surgery. In all cases postoperative Inter incisal opening was measured by millimeters scale and recorded. er telephone. Result was calculated using Chi-square test.

Data Analysis:

The data was analyzed with the help of software programmed SPSS version 20 for windows. The comparison between means was done by Student's 't' test for continuous variable. The result was considered significant if p value was ≤ 0.05 .

Figures:



Figure 1: Pre-operative picture



Figure 2: Per operative picture.

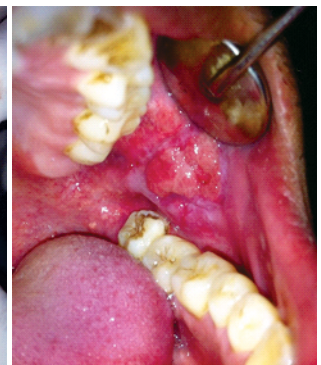


Figure 3: After 3 Weeks.



Figure 4: After 4 Weeks.

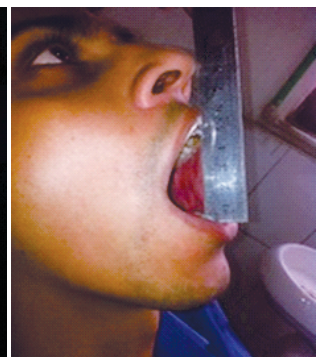


Figure 5: Inter incisal opening after surgery.

Results:

The study was conducted in the department of Oral and Maxillofacial Surgery, BSMMU, Dhaka. The study was intended to evaluate the inter incisal opening after excision of oral leukoplakia. The tables, bar diagrams and pie charts were formed as necessary.

Table 1: Age distribution of the patients (n=20)

Age	Frequency	Percentage (%)
20-30 years	2	10.0
31-40 years	4	20.0
41-50 years	8	40.0
> 50 years	6	30.0
Total	20	100.0
Mean ±SD	45.0±10.5 years	
Range	22-65 years	

The table shows most common age group 41-50 years 40%. Maximum age 65 years and Minimum age 22 Years. Mean age of patients was 45.0±10.5 years.

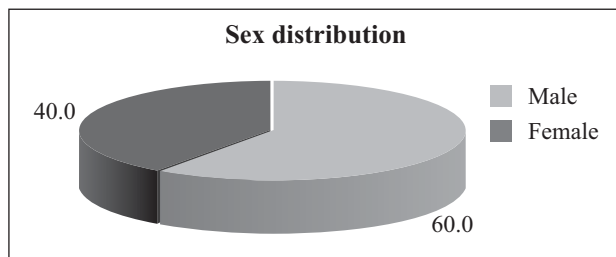


Figure 1: Sex distribution of the patients (n=20)

Pie diagram of figure 1 shows the sex distribution of the patients. This diagram shows male patient are 60% and female are 40%.

Table 2: Assessment of inter incisal opening after one month when reconstruction was done by amniotic membrane

Mean±SD Range	Inter incisal opening range (mm)		p value
	Preoperative	Postoperative	
	44.20±3.37 (38-52 mm)	42.05±3.47 (36-50 mm)	

This table shows preoperative inter incisal opening range (38-52mm) and postoperative inter incisal opening range (36-50 mm). Preoperative inter incisal opening mean 44.20 ±3.37 and postoperative inter incisal opening mean 42.05±3.47 p value <0.001 which was significant.

Table 3: Assessment of inter incisal opening after one month when reconstruction was done by buccal pad of fat in preoperatively and postoperatively

Mean Range	Inter incisal opening range (mm)		p value
	Preoperative	Postoperative	
	44.09±3.32 (37-52 mm)	3.01±3.38 (37-50 mm)	

This table shows preoperative inter incisal opening range (37-52mm) and postoperative inter incisal opening range (37-50 mm). Preoperative inter incisal opening mean 44.09±3.32 mm and postoperative inter incisal opening mean 43.01±3.38 mm. The p value 0.46 which was not significant.

Table 4: Assessment of reduced inter incisal opening after one month when reconstruction was done by amniotic membrane and buccal pad of fat

Reduced inter incisal opening	Name of the reconstruction material		Total (n=20)	p value
	Amniotic membrane (n=10)	Buccal pad of fat (n=10)		
Little (1-2mm)	7(70.0%)	8(80.0%)	15(75.0%)	0.58 ^{ns}
Slight (3-4mm)	2(20.0%)	2(20.0%)	4(20.0%)	
Serious (>5mm)	1(10.0%)	0.0%	1(10.0%)	
Total	10(100.0%)	10(100.0%)	20(100.0%)	

This table shows inter incisal opening reduced little in 70%, slight in 20% and serious in 10% when use amniotic membrane. When use buccal pad of fat then little reduction in 80%, slight in 20% and serious in 0%. The p value 0.58 which was not significant.

NB: We classified reduced inter incisal opening into little, slight and serious according to how much the inter incisal opening reduced, which matches the study by Patel K B¹⁷. It is mention that normal preoperative inter incisal opening reduced postoperatively.

Discussion:

Mouth opening is a commonly used term in our daily practice. It is the denominator for a number of pathological entities. Patients with oral pre malignant lesion like leukoplakia, erythroplakia, proliferative verrucous leukoplakia and premalignant conditions like oral submucous fibrosis, lichen planus and oral malignancies which were treated by surgery often complain of restricted mouth opening. The aim of treatment of disorders affecting mouth opening is to restore the mouth opening to its normal value. It is thus important to know the normal value.

However, clinically important is sufficient mouth opening to allow normal social function for the patient and adequate access to the oral cavity for clinicians which in effect is the inter incisal distance without the overbite. The normal mouth opening in Irish population was found that the normal mouth opening in males was 43.3 mm and in females was 41.4 mm.²

In this study twenty patients (n=20) were purposefully selected and divided into two groups. Its 60% patients were male and 40% were female. Most common age group was 41-50 years. Maximum age was 65 years and Minimum age was 22 Years. Mean age of patients was 45.0±10.5 years.

In another study no significant gender predilection in leukoplakia (male: female = 1.2: 1). The peak of age frequency distribution of leukoplakia was in the fourth decade among men and fifth decade among women.¹⁸

Reduction of inter incisal opening was categorized little (1-2 mm), slight (3-4mm) and serious (> 5mm). When amniotic membrane was used (group 1), it resulted little in 70%, slight in 20% and serious in 10%. When buccal pad of fat was used (group 2) than little reduction in 80%, slight in 20% and serious in 0%.

This study also showed preoperative and postoperative Inter incisal opening ranges from (38-52mm) and (36-50 mm) in group 1 after one month of surgery. Preoperative and postoperative inter incisal opening mean were 44.20±3.37 and 42.05±3.47; p value was found significant (p<0.001). In group 2 preoperative and postoperative inter incisal opening ranges from (37-52mm) and (37-50 mm). Preoperative and postoperative inter incisal opening mean were 44.09±3.32 and 43.01±3.38. p value 0.46 which was not significant, so incisal opening reduced more in Group 1.

Conclusion:

Inter incisal opening reduced more when used amniotic membrane than used buccal pad of fat as a graft material after excision of oral leukoplakia. So we can recommend buccal pad of fat instead of amniotic membrane as a graft material. Reduction of inter incisal opening depends on size of the mucosal defect.

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Update in Choosing Appropriate Hysterectomy Route in Benign Gynecological Disease

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Abstract

Background: Abdominal hysterectomy (AH) is the commonest major gynecological surgery worldwide in spite of well documented advantages of vaginal hysterectomy (VH). AH: VH is known to be 3:1. Evidence-based guidelines enable physician to perform up to 98.9% hysterectomy vaginally dramatically reversing AH: VH to 1:92. But many gynecologists remain reluctant to change traditional practice style of performing AH though VH is feasible.

Objective: To limit the rate of AH.

Methods: Search strategy: Electronic databases (PubMed, google scholar, MEDLINE) were searched. Selection criteria: Original articles, editorials, committee opinions, guidelines and book chapters were included. Review articles were excluded. 53 literatures were identified first and following exclusion 15 relevant papers were retrieved and reviewed.

Results: Quality care organizations recommended vaginal route to be the route of choice whenever feasible followed by laparoscopic and then abdominal.

Conclusion: Multicentric researches on different hysterectomy routes are demanding. Post graduate institute should include training programme on all routes of hysterectomy in post graduate curriculum. Adherence to formal evidence-based guidelines is essential.

Keywords: Hysterectomy route, benign gynecological disease, abdominal hysterectomy, vaginal hysterectomy.

Introduction:

Evidence-based practice guidelines of surgical management are defined by objective criteria (severity of pathologic condition and outcome) rather than subjective criteria (physician comfort, preference or experience). Once hysterectomy is indicated the surgeon must determine the safest and the most efficient route.¹ Unfortunately many gynecologists remain reluctant to change traditional practice style (preference, comfort and experience) of performing abdominal hysterectomy ignoring the severity of pathological condition as well as the outcome.

Abdominal hysterectomy (AH) is the commonest major gynecological surgery worldwide despite its higher rate of complications and morbidity, longer recovery time, higher cost and higher level of reimbursement for surgeons compared to vaginal hysterectomy (VH).² For benign gynecological disease AH:VH ratio is 3:1 in USA.³ Researchers concluded evidence-based guidelines enables physicians to perform 98.9% hysterectomy vaginally in benign disease dramatically reversing AH:VH into 1:92.⁴ Quality care organizations recommended vaginal route to be the route of choice whenever feasible followed by laparoscopic and then abdominal.⁵

This article will try to analyze the most evidence-based approach for hysterectomy.

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Material and Methods:

Electronic databases- PubMed, Google scholar and MEDLINE were searched. Original articles, committee opinions, guidelines and editorials were included. Review articles were excluded. Literature search initially identified 53 published articles written in English. After removal of duplicate and screening 15 potentially relevant literatures were retrieved and reviewed in-depth to prepare this review article.

History of hysterectomy:

Langenbeck first performed hysterectomy vaginally for uterine prolapse in 1813 in Germany successfully. In 1843, two abdominal hysterectomies were performed by Clay &

Heath of England. But unfortunately both died of exsanguination. Almost ten years later, in 1953 Ellis Burnham of Massachusetts performed first successful abdominal hysterectomy.⁴

However, by the late 19th century, vaginal hysterectomy was considered as safe surgery over abdominal. US surgeons were largely abandoning vaginal route when VH was gaining popularity in French and certain parts of world. Danforth initially prejudiced against VH but he later wrote that VH is a procedure of great value and is worthy of more extended use than it receives. Harry Reich of Pennsylvania introduced laparoscopic hysterectomy in 1989 with intention of replacement of majority of abdominal hysterectomy and never to encourage laparoscopic approach when VH was feasible.⁵

Indications and types of hysterectomy:

The most common indications are symptomatic uterine leiomyomas, abnormal uterine bleeding, endometriosis and uterine prolapse. Depending on route, hysterectomies are vaginal (VH), laparoscopic (LH) and abdominal (AH). LH are total laparoscopic hysterectomy (TLH), laparoscopic-assisted vaginal hysterectomy (LAVH) and robotic hysterectomy (RH). VH is the signature surgery of gynecology. It is the most minimally invasive as it is performed through natural orifice like exiting a room through door. LH is a glamorous surgery and minimally invasive but next to VH like making window holes to exist from the room. VH and LH are considered minimally invasive because they do not require a large abdominal incision and thus typically are associated with short hospital stay and early recovery compared to AH. AH is the most invasive like breaking open the wall to exit from the room.^{5,6}

Determinants of hysterectomy:^{2,5-8}

Three basic technical issues determine the routes for hysterectomy for benign disease: a) The passage, b) The passenger and (c) The place of the passenger.

a) The passage: Vaginal passage way

A major factor in determining the route of hysterectomy is vaginal accessibility for transvaginal removal of uterus. Undescended and immobile uterus, narrow vagina less than 2 finger breadths at apex, virginity and orthopedic conditions restricting the lithotomy position may make vaginal route inaccessible for hysterectomy. However, nulliparity is not an absolute contraindication to VH.

b) The passenger: Uterine size

Normal uterus weighs approximately 70-125 grams. The weight of in-vivo uterus can be objectively and accurately (98%) measured in gram by preoperative transvaginal ultrasound using an algebraic formula by multiplying three dimensions of uterus in cm (Length

width antero-posterior diameter at fundus) by 0.52. Example: 6cm 6cm 8cm 0.52 = 149g. VH is appropriate if uterine size is less than 12 weeks gravid size and weight is less than 300 gm. If uterine weight has been documented to be more than 300 gm, evidence supports that VH can be performed with size reduction techniques- bivalving, intra-myometrial coring, vaginal myomectomy, morcellation or a combination of these.

c) Place of the passenger: Pelvic cavity

Potential extra uterine pathology in endometriosis, adnexal pathology, chronic pelvic pain, adhesions, PID etc. prevents the feasibility of VH. Traditional history, examination and imaging are not accurate to determine the severity of the above conditions. This determination requires intraoperative evaluation with the use of laparoscope at the beginning of procedure which aids in the appropriate selection of hysterectomy route. If extensive adhesions or adnexal pathology are found adhesiolysis or resection can be performed to allow hysterectomy to be completed vaginally (LAVH).¹

These three factors for uterine removal require accurate recording and documentation for determining the feasibility of the vaginal route, as well as the necessity if abdominal or laparoscopic type are selected for any indication.

Additional determinants are (1) need for concurrent procedures (2) surgeon training and experience (3) average case volume (4) available hospital technology, device and support (5) whether the case is emergent or scheduled and (6) preference of the informed patient.

Outcomes and complications:

A Cochrane review of 47 studies of AH, LH and VH (5102 patients) reported that compared with AH, VH was associated with faster return to normal activities and better quality of life. Compared with LH, VH was associated with short operating time and hospital stay. The systematic review concluded that VH has the best outcomes of these three routes. The 2015 Cochrane review on route of hysterectomy found that when VH is not possible, LH has advantages, including faster return to activity shorter hospital stay, fewer wound infection when compared with open AH (Box-1).^{6,9,10}

Box 1: Comparison of different Approaches to Hysterectomy

VH Compared with AH

- Shorter hospital stay
- Faster return to activity
- Better functional capacity and improved pain assessment
- No evidence of difference in satisfaction, intraoperative injury or complications
- No studies evaluated costs

VH compared with LH

- Shorter operating time
- Lower overall costs
- Patients were more satisfied than those who had a LAVH (no difference between VH and TLH)
- No evidence of difference in return to normal activities, UT injury and complications

LH compared with AH

- Faster return to normal activity
- Shorter hospital stay
- Fewer wound or abdominal wall infections
- Longer operating time
- Higher lower UT (bladder & ureter) injuries
- Improved quality of life in the first month and at 4 years post-surgery
- No evidence of difference in satisfaction or major long-term complications
- No evidence of difference in overall cost (limited studies)

LH compared with RH

- No evidence of difference in any of the measured outcomes
- No studies evaluated costs

Surgical approaches for hysterectomy have been compared in numerous other publications including two systematic reviews, one review based on recommendations of the National Institute for Health and Clinical Excellence (NICE) and one Cochrane review. Nieboer et al. analyzed 34 RCTs with total of 4495 patients. In the NICE publication, the analysis additionally included controlled studies involving 37049 women. These analyses consistently found the lowest costs and the lowest complication rate for VH, followed by laparoscopic procedures.^{6,11,12}

Algorithm for hysterectomy route:

Kovac reported a standard structured protocol for selecting appropriate hysterectomy route. A simplification of

Kovac's guideline applicable to women undergoing hysterectomy for benign indications is summarized in Figure-1. Using these guidelines Kovac reported 98.9% success rate for women assigned to VH or LAVH.¹

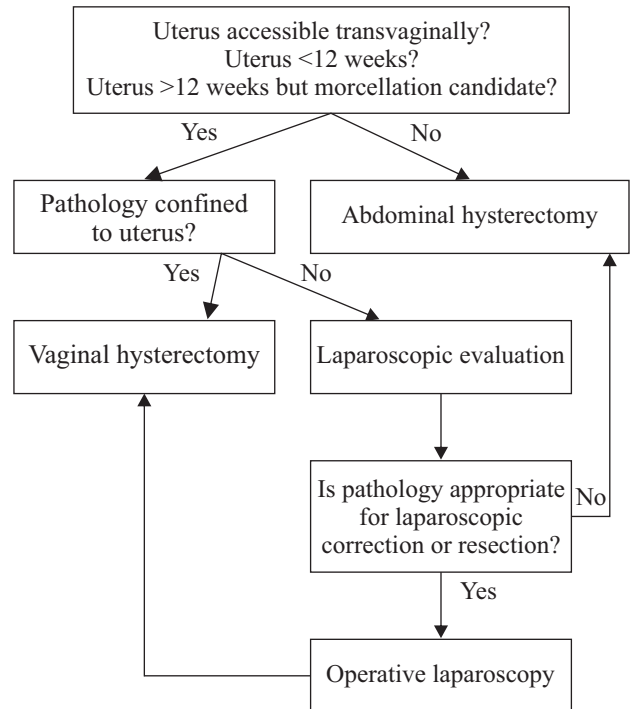


Figure 1: Algorithm for determining the route for hysterectomy

Guidelines for hysterectomy route:

Guideline development and adoption make medical and surgical care more consistent for patient.^{13,14} **Quality care organizations** including emergency care research institute (ECRI), Cochrane Collaboration, the American College of Obstetricians and gynecologists (ACOG), Board of the Society of Pelvic Reconstructive Surgeons, National Guideline Clearinghouse and Agency for Healthcare Research and Quality have all recommended vaginal route to be the route of choice whenever feasible followed by laparoscopic and then abdominal.⁵

ACOG reviewed hundreds of articles on patient related outcomes and clinical trials and reported their un-biased and evidence-based conclusions:⁶

- VH is the approach of choice whenever feasible.
- LH is a preferable alternative to open AH for those in whom VH is not indicated or not feasible.
- For an individual patient, surgeon should account for clinical factors and determine which route of hysterectomy will most safely facilitate removal of uterus and optimize patient outcomes, given the clinical situation and surgical training and experience.

- Obstetrician-gynecologist should discuss the options with the patient and make clear recommendations on which route the hysterectomy will maximize benefits and minimize risks given the specific clinical situation.
- The relative advantages and disadvantages of the approaches to hysterectomy should be discussed with patient by health care provider in the context of patient's values and preferences and then should together determine the best course of action.

AAGL (American association of gynecologic laparoscopists) Position Statements are as follows:¹⁵

- Most hysterectomies for benign disease should be performed either vaginally or laparoscopically and continued efforts should be taken to facilitate these approaches.
- Surgeons without the requisite training and skills required for the safe performance of VH or LH should enlist the aid of colleagues who do or should refer patients requiring hysterectomy to such individuals for their surgical care.
- AAGL is committed to the principles of informed patient choice and provision of minimally invasive options.

Although minimally invasive approaches are preferred route, open AH remains an important surgical option for some patients like (a) vaginal or laparoscopic approach is not appropriate to manage the patient's clinical situation (b) When facilities cannot support less invasive approach (c) when an attempt at minimally invasive route fails intraoperatively.⁶

Reasons for decreased VH:^{4,16-20}

Several factors have been implicated (a) Less emphasis on VH in resident or post-graduate training programs (b) the absence of clear guidelines selecting appropriate candidates for VH (c) Physician practice style and habits (d) Lack of patient knowledge about surgical options (e) More hospital reimbursement for AH, LH and RH than VH for patient with similar indication. (f) Lack of documenting actual uterine size and points in favour of non-feasibility of vaginal approach.

Researcher's view to improve VH:

1. If feasibility of vaginal approach can be documented by using guidelines, more vaginal surgeries will be performed.⁴
2. It is imperative for today's gynecologist to be fully trained in all routes of hysterectomy and only then can be a fair opportunity be given to the patient to select the appropriate route for hysterectomy.⁵

Conclusions:

Every gynecologist should individually try his/her best to reduce AH and increase VH in his/her practice by

following evidence-based guidelines. Gynecologists must be expert in all routes of hysterectomy. Postgraduate institutions should include training on all routes of hysterectomy in post-graduate curriculum. Proper documentation of reasons for non-feasibility of VH is essential by gynecologist during AH. Multicentric researches, seminar and symposium on routes of hysterectomy are demanding.

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Alternate Way to Treat Ventriculo-peritonitis: Report of Three Cases

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Abstract

In Bangladesh Medical College Hospital, we managed 3 male kids with ventriculo peritonitis. All of them came with infected shunts, abdominal distension, impaired conscious level and severe headache. They were treated with immediate shunt removal, ventricular drainage, instillation of intra ventricular and intra peritoneal antibiotics. Finally, after eradication of infection all were given Ventriculo Peritoneal Shunts. Throughout the period nutritional imbalance was addressed aggressively. Outcome of the three cases were successful but unfortunately the 2nd case expired after 18 months due to isolated cause of pneumonia.

Keywords: Shunt infection, intra ventricular antibiotics, intra peritoneal antibiotics.

Abbreviations

CSF: Cerebrospinal Fluid; VPS: Ventriculo-Peritoneal Shunt; ETV: Endoscopic Third Ventriculostomy; CT: Computed Tomography; IVT: Intra Ventricular Therapy; IP: Intraperitoneal; IV: Intravenous; G.C.S: Glasgow Coma Scale; USG: Ultrasonogram.

Introduction:

Hydrocephalus occurs when there is excess production or most commonly decreased absorption of C.S.F. It may be consequence of aqueductal stenosis, meningitis, intracranial hemorrhage or brain tumor.¹ These morbid conditions are treated most commonly by VPS. ETV is done in some centers. ETV when successful, saves the patients from life threatening hazards of shunt complications. VPS is a bypass of accumulated CSF to peritoneum, from this huge absorptive surface CSF ultimately reaches blood. Though it is the most common neurosurgical procedure done for treating hydrocephalus, it bears a risk of malfunction, infection. The peritoneal end of the shunt tube can give rise to infection, pseudo-cyst formation, bowel perforation, abdominal abscess etc. Among them shunt infection was the most common.² Early results of shunts revealed 1.5- 39% infection rate; however, during the past two decades it dropped down to 2-9%.³

Ommaya reservoir is a channel when placed in ventricle, it helps drawing CSF for drainage purpose (Fig 1a). IVT

antibiotics are instilled through this route directly goes to CSF. For blood brain barrier, CSF penetration of antibiotics are poor. When a port is made in peritoneum direct instillation of antibiotics can be done (Fig 1b). The patients who develop peritonitis during peritoneal dialysis frequently treated with IP antibiotics.⁴



Fig 1a: Intraventricular administration of Vancomycin through ommaya reservoir

Fig 1b: Intraperitoneal administration of Meropenem through ommaya reservoir

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Case Presentation:

Patient No. 1

A boy of 5 years was diagnosed as a case of Idiopathic Congenital Hydrocephalus. He underwent VPS surgery on September 2015. Next month he was admitted again with distended abdomen and vomiting. There was infection in abdominal end of the tube. Exteriorization of abdominal end was done followed by revision. From October 2015 to March 2016 he underwent four revision surgeries.

Throughout this period, he was treated by intravenous and oral antibiotics which included all generations of cephalosporins and carbapenem group.

In 1st week of April 2016, he faced the same problem. This time he had severe headache and progressive loss of consciousness. With these problem he was referred to Neurosurgery Department of Bangladesh Medical College Hospital. We found an apathetic emaciated boy with moderate anaemia, temperature of 102^o F. Abdomen was tense, tender and muscle guard present. There were 4 scar marks in abdomen and 1 over chest wall (Fig 2a). Bowel sound was sluggish and upper border of liver dullness was not obliterated. He had G.C.S of 11 with signs of meningism. His blood count showed leucopenia, C reactive protein was high, Ultrasonogram of abdomen revealed mild to moderate ascites. Plain X-ray showed no feature of obstruction or perforation.

CT scan of brain showed evidence of acute hydrocephalus, cranial end of shunt tube in situ. Our provisional diagnosis was shunt malfunction (infection and obstruction).

On that very day we removed the total shunt system and sent for culture sensitivity. Two Ommaya reservoirs were placed. One in frontal horn of right lateral ventricle and another in abdomen through a previous incision site. Post operatively 30ml CSF was drawn 8 hourly and 1ml vancomycin was instilled through intra ventricular route for 14 days (Fig 2a), 250mg Meropenem was instilled through the peritoneal tube thrice. Shunt tube culture yielded growth of *Staphylococcus aureus* sensitive to those drugs. On 14th post-operative day, when CSF yielded no growth and pleocytosis resolved he had definitive surgery of "Endoscopic Third Ventriculostomy. After creating the stoma, we found cistern was scarred and flow is very poor. So, we put a VPS and removed the ventricular and peritoneal catheter. Post operatively he was maintained 7 days by IV Meropenem. On 9th post operative day, he was discharged with advice.

He is on follow up, he returned to school after 6 months.

Patient No. 2

A baby boy of 1 year 4 months with history of previous shunt for hydranencephaly came with all signs of ventriculo-peritonitis. He had shiny reddish swelling over epigastrium. He had neutrophilic leukocytosis, high fibrin degrading product. USG of abdomen showed an infected pseudocyst with multiple septa (Fig 2b). He was treated with immediate shunt removal, ommaya reservoir placement in ventricle, drainage of pseudocyst with peritoneal toileting. Around 200ml of thick pus was found in the cyst, rest of the abdomen was not involved. A drain was kept in situ through which meropenem used to be given 8 hourly. The drain used to be clamped for half hour then released after instillation of IP antibiotic. Culture of shunt tube yielded no growth. Systemic, IP meropenem and IVT vancomycin was given for 14 days. Leucocytosis

resolved, fibrin degrading product back to normal range and USG showed almost no residual cyst and collection. This baby had huge head and in fact cranial vault was opened. Every day around 100 ml C.S.F used to be drained through the ommaya reservoir. He was discharged with VPS, Vitamin D and Acetazolamide at night. The last one was given to minimize CSF production. After 6 months, baby was doing fine and cranial vault almost closed. After 18 months of surgery, he expired from pneumonia.

Patient No. 3

This male baby of 3 years came with H/O VPS. He had right sided hemiplegia, aphasia, fever, decreased level of consciousness, diffuse abdominal distension and persistent vomiting. He had history of VPS 3 months back. There was continuous dribbling of clear fluid from previous abdominal incision, for one month (Fig 2c). His CT scan showed right sided sub dural hygroma with midline shift, ventriculomegaly on left side. USG showed no abdominal collection. We immediately removed the shunt, put a 6 size feeding tube as external ventricular drainage, removed the sub dural collection through a single burr hole. In abdomen we opened the fistulous tract, saucerized it and closed it. A drain tube was inserted in peritoneum. Initially we started IVT Vancomycin, IP meropenem. When culture of shunt tube showed profuse growth of *Pseudomonas*, according to sensitivity we stopped the previous antibiotics and switched to colomycin. Baby received IV, IP and IVT colomycin in recommended dosage. The external ventricular drainage was kept closed all times except it used to be opened 8 hrly. At that time CSF was drained according to pressure gradient, around 25ml drainage 8 hourly, brought back the pressure to normal. At the end of the procedure, IVT colomycin used to be given and feeding tube was kept closed. After 14 days, while CSF culture became negative and leukocytosis was resolved. Then left sided VPS was given and ventricular and peritoneal drainage systems were removed. For next 7 days we kept IV antibiotics. Baby is in follow up for 3 months, he can utter words and stands with support.

a) Patient no 1



Fig 2a: Visible scar marks during admission

b) Patient no 2



Fig 2b: Infected Pseudocyst

c) Patient no 3



Fig 2c: Leakage from incision point.

Discussion:

Children are most susceptible to shunt infection because of higher skin bacterial concentration, immaturity of immune system or more adherent type of bacteria. In a brief communication about ventriculo-peritoneal shunt infection, P Sargunas showed coagulase negative staphylococcus was the most common organism isolated.⁵ Skin commensals or direct wound contaminated cases showed gram positive shunt infection. Retrograde infection is another mechanism where asymptomatic perforation of bowel leads to retrograde progression of infection.^{6,7} Jae-Joon Chung et al. concluded that in various intra-abdominal complications secondary to ventriculo peritoneal shunt, infection was the most common.⁸

In the first boy had prolonged hospital staying. Culture of the shunt tube yielded growth of *Staphylococcus Aureus*. The second patient though he had huge mass in infected pseudocyst, no organism was detected. The third one was infected with *Pseudomonas*.

All kids suffered abdominal complications. There was no viscous perforation or obstruction.

Shunt infection is associated with increased risk of seizure, decreasing intellectual abilities and increase in mortality and morbidity rate.⁸ After 6 months of last surgery the first kid started school. It will require more time to evaluate his neuro developmental status. The second baby had hydranencephaly and the third one is too small for any comment.

Mathew J et al. stated that prior shunt infection with *S. aureus* or prolonged hospitalization were predictive for subsequent shunt infection with *S. aureus*. However, they found that prior infection with coagulase negative *Staphylococcus* did not yield any predictive value. They concluded closer follow up and longer courses of treatment may be needed for patient with *S. aureus* shunt infection before planning a reinsertion procedure.⁸

All the babies were treated with parenteral antibiotic for more than 14 days. IP meropenem is used to treat peritonitis in case of patients who have peritoneal dialysis. IP

administration is superior to IV administration. Van Ende concluded IP administration of meropenem is well tolerated and safe.⁹ P.J Vlaar et al. suggested during peritonitis, bioavailability of IP meropenem is reasonably high.¹⁰

In these cases, the kidney function of the boy was perfect. As various studies showed intra peritoneum meropenem has high efficacy in treating peritonitis we created a port through a previous incision site. For last few months the first kid was getting full courses of IV and oral antibiotics ranging from all generation of cephalosporins, vancomycin and carbapenem. In spite of this and exteriorization of shunt he was having recurrent peritonitis.

In the second case no organism was detected from pus. IP meropenem and IVT vancomycin was sufficient to control sepsis.

In the third case we gave IP and IVT colomycin with good result.

Bangladesh is an under developed country and usually families of hydrocephalus are poorest of them. They come from slum area, broken family, nutrition and hygiene sense is almost nil. So, they are very prone to shunt infection. As a part of treatment we taught the mother about hygiene, hand washing and fed the babies with high calorie food especially rich in protein, fat and vitamins through nasogastric tube. It ensured adequate feeding to combat malnutrition and infection.

Conclusion:

Ventriculoperitonitis and shunt obstruction result in high mortality and morbidity. Removal of infected hardware and IVT antibiotics are on use but in these cases IP antibiotic was used. They represent an innovative and fruitful method to treat shunt infection. It demands further study on pharmacokinetics of IP antibiotics. The role of proper nutrition and maintenance of hygiene play crucial role in preventing and combating shunt infection along with aseptic surgery.

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Hydatid Cyst of the Breast- A Rare Case Report

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Abstract

Hydatid disease of breast is very rare. It is challenging to differentiate it from other tumoral lesions of the breast. Only few reports of breast hydatid cyst are published and majority of the reported cases have been diagnosed postoperatively as it is not possible to reach definitive diagnosis with clinical examination and radiological investigations only. However, it might constitute a potentially serious differential diagnosis of a breast lump in areas endemic for this disease. We report a case of hydatid cyst in the breast in a 30 years old rural women who presented with a isolated lump in her breast. Hydatid disease is a parasitic infestation by a tapeworm of the genus *Echinococcus*. Most commonly infected organs include liver and lung. Beside radiological and sonological examination proper serological and histopathological examination should be done for confirmation of the disease. The treatment of a hydatid cyst of the breast is complete excision followed by anti-parasite medication.

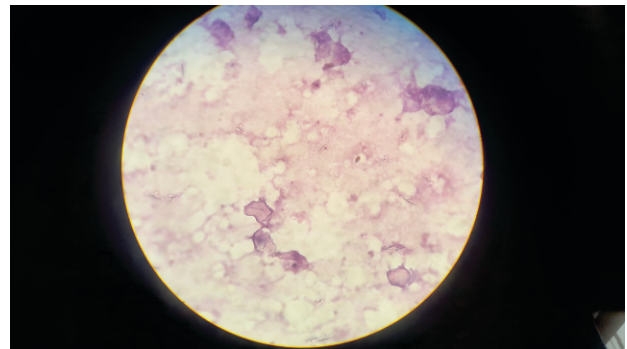
Introduction:

Echinococcus granulosus, responsible for hydatid cysts is a tapeworm from the Cestoidean class. It usually affects right lobe of liver but may involve all the lobes. The lung is the next common site. Breast is one of the rare sites for hydatid disease accounting for only 0.27%.¹ Clinically it presents as a painless freely mobile lump which can mimic fibroadenoma, phyllodes tumours, chronic abscesses or even carcinoma.² Sonography and MRI have an important diagnostic role with giving additional information about internal structure of hydatid cyst rather than CT and mammography.² Radiological investigations help to achieve a diagnosis but it is not always conclusive. Proper serological and histopathological examination should be done for confirmation of the disease. Serological investigations like indirect hemagglutination test may be used for diagnosis and in the follow-up of patient.³

Case Presentation:

A 30-year-old woman presented with a painless lump in the left breast for last eight months. Patient is also a lactating mother with a baby of eight months. She is a house wife. She did not give history of close contact with any dog or pet

animal. On clinical examination, a mobile firm lump was detected in the left breast. There was no nipple contraction, nipple retraction, skin change or axillary lymphadenopathy. This case was diagnosed as a cyst after fine needle aspiration and confirmed as hydatid cyst under microscopic examination of cystic fluid. The cyst fluid shows presence of scolices of *Echinococcus granulosus* and hooklets. The treatment of a hydatid cyst of the breast was done with complete excision followed by anti-parasite medication.



Photographs showing scolices and hooks

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Discussion:

Hydatid disease is a cyclozoonosis caused by the larval stages of cestodes (flat worms) belonging to the Genus *Echinococcus* and the family Taeniidae. The disease exists in two forms: the larval stage (metacestode) and the adult stage (tenia). The parasites are perpetuated in life cycles with carnivores (dogs and wild canine) as definitive hosts.⁴ Humans are the accidental intermediate host (dead end) and animals (herbivores and omnivores) are both intermediate and definitive hosts.⁴ The adult *E. granulosus* is a worm, when infected it produces eggs that are passed in stool. Eggs ingested by intermediate hosts like cows, sheep and humans liberate an embryo in the duodenum which penetrates intestinal mucosa and enters the portal circulation.^{5,6} The liver and lung acts as first and second filter, filtering 75% and 10% of embryos respectively. Only

15% embryos are free to develop cysts in other organs of the body.⁷ According to Barret and Thomas, 60% of the cysts are found in the liver, 30% in lungs, 2.5% in kidneys, 2.5% in heart and pericardium, 2% in bone, 1.5% in spleen, 1% in muscle, and 0.5% in brain.^{7,8}

Hydatid disease of breast is rare and accounts for only 0.27% of all cases.¹ The breast can be a primary site or part of a disseminated hydatidosis.^{9,10} Usually the patient complains of painless breast lump, which increases slowly in size without regional lymph node involvement. The age incidence is in between 30 and 50 years of age. It may be confused with fibroadenoma, phyllodes tumors, cystic disease, chronic abscesses, or even carcinoma.² So the disease should be included in differential diagnosis of breast lumps especially in endemic areas.^{7,9,11} Preoperative diagnosis can be made by fine needle aspiration cytology where scoleces, hooklets or laminated membrane can be identified.¹⁰

No urticarial or anaphylactic reactions have been reported as complication of this procedure.¹² This supports the importance of the widely adopted routine use of FNAC even in patients undergoing excision for clinically obvious fibroadenomas. It is a safe procedure, as no complications were mentioned in the literature.^{7,11,13} The diagnosis can also be done by radiologic or serologic examinations, but both are not definitive.¹³

Mammogram may show a circumscribed mass, the characteristic ring shaped structures inside the mass in over penetrated view strongly suggests breast hydatid cyst.¹⁴ The ultrasound and Magnetic Resonance Imaging are helpful diagnostic tools.^{7,15}

Hemagglutination tests may be helpful in diagnosis.¹⁶ The treatment of a hydatid cyst of the breast is complete excision followed by anti-parasite medication.

Conclusion:

In conclusion, breast hydatosis is rare but should be included in the differential diagnosis of breast lumps in areas endemic for hydatid disease. As it presents as a lump it might mimic fibroadenomas, cystic mastopathies, phyllodes tumours, chronic abscess or even carcinomas. Preoperative diagnosis by fine needle aspiration cytology is considered as a safe procedure. Cystectomy is curative. Due to widespread travelling between different countries, radiologists should be aware of this rare but potentially serious breast disease. Case report

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Primary Fallopian Tube Cancer: A Rare Diagnosis with a Common Presentation

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Abstract

Malignant neoplasm of the fallopian tube is the rarest of all gynaecological cancers. It comprises approximately 0.14 to 1.81% of female genital tract malignancies. The possibility of primary fallopian tube carcinoma is rarely considered pre-operatively. This entity is usually first appreciated by the pathologists. We present a case of fallopian tube carcinoma in a 64 years old postmenopausal female. Though the patient had the classic triad of symptoms, this diagnosis was not entertained before surgery, rendering pre-operative evaluation and counselling incomplete. The patient was later staged as stage II disease and she underwent Total abdominal hysterectomy and bilateral salpingo-oophorectomy. The patient received 6 cycles of combination chemotherapy. The patient developed a pelvic recurrence after 3 months of completion of chemotherapy which was managed by surgical removal of the pelvic relapse followed by second line single agent chemotherapy.

Keywords: Primary fallopian tube cancer, surgery, chemotherapy, Ca-125, HE-4.

Introduction:

Although figures indicate that fallopian tube cancer is rare, it is now proposed that majority of tubo-ovarian cancers (high grade serous type) actually originate in the far end of the fallopian tube, rather than the surface of the ovary. Most of Primary fallopian tube cancers (PFTC) are papillary serous adenocarcinoma or endometrioid adenocarcinoma. Other histologic types of PFTC are very rare and include transitional cell cancer and leiomyosarcoma. Secondary fallopian tube cancers are more common, spreading from the ovary, endometrium, gastro-intestinal tract (Krukenberg cancer) and breast as primary source.¹

Surgery followed by chemotherapy is the main treatment of Fallopian tube cancer. The type of surgery depends on the stage. The FIGO (International Federation of Obstetrics and Gynaecology) system for staging of fallopian tube carcinoma is similar to surgical staging criteria for ovarian carcinoma. The fallopian tube, ovaries,

uterus and cervix as well as nearby lymph nodes are usually removed. Patients with PFTC have a higher rate of retroperitoneal and distant metastases than those patients with epithelial ovarian cancer. Metastases to the para-aortic lymph nodes have been documented in 33% of the patients with all stages of disease. The 5- year survival rate for women younger than 45 is 77%; for women 75 and older, survival is 20%. Stage- wise survival: Stage II 92%, stage III 73% and Stage IV 29%. Approximately 60% cases are diagnosed at stage IV.²

Case Presentation:

A 64-year-old post-menopausal lady para: 4+2 (spontaneous abortion), age of last child: 34 years, was admitted in the Department of Obstetrics and Gynecology, Bangladesh Medical College and Hospital with complains of sudden profuse per vaginal serosanguinous discharge associated lower abdominal pain for 3 days. She is hypertensive, diabetic and hypothyroid. General examination reveals that she is mildly anemic, Body weight 51 kg, Body Surface Area (BSA) 1.4 m². Blood pressure 135/80 mm of Hg. Abdominal examination revealed that the abdomen is soft and non- tender; Uterus was just palpable. Vaginal examination shows healthy vulva, vagina and cervix. On bimanual examination, uterus was found 14 weeks size, anteverted with restricted mobility and free fornix. Investigations revealed Hb% 13.4 gm/dl, WBC: 5700X10⁴/ml, S.creatinine: 0.8 mg/dl, Hb A_{1c}=4.5%, TSH 5.94 UIU/ml, CA-125=7.1U/ml, Chest X-ray: normal findings. Trans -vaginal sonography of the pelvis shows: Intra cavitory mass with collection in the uterus suggestive of sub-mucus fibroid. Pap's smear shows negative for malignancy and mild inflammation. The patient underwent Total abdominal hysterectomy with bilateral salpingo-oophorectomy after attaining operative fitness. The indication of surgery was post-menopausal bleeding with fibroid uterus. The per-operative findings revealed that uterus was 14 weeks size and uniformly enlarged. The pouch of Douglas was obliterated by adherent bowel loops.

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There were bilateral tubo-ovarian masses. The right sided fallopian tube was grossly distended with a firm nodular and irregular growth mimicking a fibroid in consistency. Gut were adherent to the mass and during attempt of mobilization, pus-like material came out. There was no significant peritoneal fluid.



Fig 1: Resected uterus along with cervix and right sided tubal mass



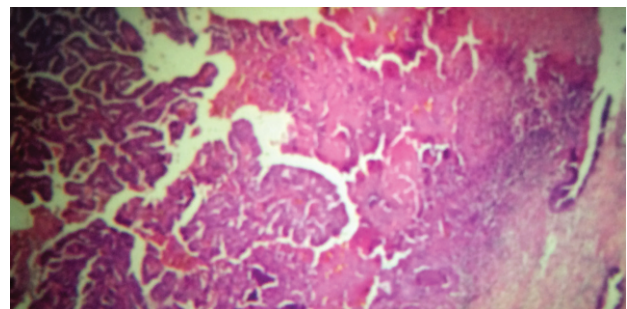
Fig 2: Resected uterus with left sided para-tubal cyst



Fig 3: Tubal mass (gross appearance)

Histopathology of the resected uterus and both sided adnexa revealed Adenocarcinoma of the right fallopian tube Grade II (moderately differentiated) with papillary projections, right ovarian serous cystadenoma and paratubal cyst, leiomyoma of the uterus, chronic cervicitis with squamous metaplasia and unremarkable endometrium and left ovary.

Fig 4: Histopathologic photography demonstrating intraluminal pedunculated moderately differentiated adenocarcinoma of the Fallopian tube with papillary projections



The patient had an uneventful post-operative recovery. An oncology consultation was sought who suggested review of CT scan of the abdomen and chest, as this diagnosis had not been entertained prior to surgery and estimation of serum Alkaline Phosphatase after 2 weeks. The oncologist advised Paclitaxel ($175 \text{ mg/BSA} = 175 \times 1.4 \text{ m}^2$) and

Carboplatin (508 mg calculated according to the Calvert's formula with a target AUC 5 (Area under concentration /time curve of 5). Her GFR (Glomerular Filtration rate) was 76.75 using the MDRD (Modification of diet in renal disease) GFR calculator. Using the Calvert's formula, the Carboplatin dose = Target AUC (GFR + 25) = 5(76.75 + 25) = 5 x 101.75 = 508.7 mg was determined. She was advised to receive this chemotherapy regimen at 21 days interval for 6 cycles. The patient exhibited good tolerance to this regimen and there was no detectable elevation of CA-125. She was also advised to do BRCA1 and BRCA2 genetic screening but the report is not yet available.

After completion of chemotherapy, the patient was advised pelvic radiation in the form of external beam teletherapy by the oncologist, but the radiotherapist opined against it as there were no evidence of recurrence. The patient was kept under surveillance clinically and by monitoring the CA-125 level and Ultrasound of the pelvis. She developed an asymptomatic complex pelvic mass with partial cystic and solid components after 3 months of chemotherapy, about 8 months post-surgery. Though CT guided FNAC from the mass was benign on histopathological review, high clinical suspicion of malignancy led the collaborative team to take decision for surgical removal of the mass and biopsy. She underwent laparotomy followed by removal of the pelvic mass and total omentectomy. The mass was proven to be malignant: metastatic adenocarcinoma. The patient recovered uneventfully. The cancer team suggested second line chemotherapy with Gemcitabine as a 6 cycle schedule; she has already completed her first cycle of chemotherapy. The patient has been advised for comprehensive re-evaluation after 4th cycle of chemotherapy with CA-125, CT scan of the whole abdomen and Chest X-ray or CT scan if deemed necessary.

Discussion:

Primary Fallopian tube cancer/tubal cancer (PFTC) constitutes approximately 0.14%–1.8% of female genital malignancies. Only 1500 to 2000 cases have been reported worldwide. It is linked to BRCA 1 and HNPCC gene/Lynch syndrome genes. 16% of fallopian tube cancers are BRCA positive. PFTC is also associated with breast and ovarian cancer and chronic infection of the tube. PFTC typically affects post-menopausal women between age 50- 60; as in our case, although it can occur at any age.¹ Therefore, the value/benefit of screening a patient who has undergone radical surgery for ovarian/fallopian tube cancer is that detection of BRCA positivity in such a patient mandates strict surveillance for breast cancer or prophylactic mastectomy. PFTC is more common in Caucasians who have few or no children. Presentation is unusually clear or pinkish per vaginal discharge synchronously with colicky/spasmodic lower abdominal pain or post-menopausal bleeding/ pelvic mass (Latzko's triad); our case also had similar presentation. Even though the probability of PFTC was not considered pre-operatively. In 5% of patients, hydrops tubae profluens, a pathognomonic feature, implies intermittent discharge of clear /blood- stained fluid spontaneously or on pressure

followed by shrinkage of the adnexal mass.²

The diagnosis of PFTC is rarely considered pre-operatively and is usually first appreciated by the pathologist despite the presence of classical clinical features; this is probably due to the rarity of the case and the lack of clinical suspicion. We therefore would like to emphasize on the clinical features of this rare malignancy; as pre-operative suspicion can lead to thorough staging investigations and can direct appropriate counselling regarding prognosis. Retrospective studies have revealed that earlier diagnosis of PFTC leads to an apparent better survival compared to EOC (Epithelial ovarian cancer), as earlier lymphatic spread occurs in PFTC. However as with EOC, stage and residual tumour are the most important prognostic variables.^{3,4} In the evaluation of PFTC, serum Human Epididymis Protein-4 (HE-4) and CA-125 concentration were found significantly higher in comparison to those seen in patients with benign pelvic masses. Compared with CA-125, HE-4 had higher specificity in PFTC, but lower sensitivity, either at early or advanced stage. The combined HE 4 and CA-125 have higher sensitivity and specificity. Moreover, combined with CA-125, HE 4 elevations better predicts recurrence in PFTC patients. Presence of lympho-vascular space invasion indicates increased recurrence risk as assessed by CT scan of pelvis.^{5,6} In this particular case, CA-125 was measured, but HE4 levels and pre-operative CT scan were not performed.

The Overall survival (OS) rate for PFTC patients is approximately 30%–50%, compared with 40% for patients with Epithelial Ovarian Carcinoma (EOC). Generally, the reported 5-year survival rate is about 65% or higher. Most important prognostic factor is Stage of disease.

In a retrospective analysis of 115 patients, it was found that 5-year survival rates of 50.8% for stages I and II and 13.6% for stages III and IV. The 5-year survival rates are influenced by the quality of surgical staging and the different therapeutic regimens.⁷ As in EOC, residual disease after initial surgery is also a significant prognostic factor. Patients with stage III–IV disease had a 5-year survival rate of 55% if the residual tumor was <1 cm in diameter, compared with 21% for those with larger residual tumor ($p = 0.0169$).⁸ The presence or absence of invasion of the tubal wall, the depth of invasion, and the location of the tumor within the tube (fimbrial or nonfimbrial) and grade appeared to be significant prognostic factor which correlated to survival.⁹ Other reported prognostic factors include advanced age, serous versus endometrioid, bilaterality, positive peritoneal cytology, HER-2/neu expression, p53 alteration and elevated pretreatment CA-125 level. PFTC shares several biologic and clinical features with EOC. However, when compared with EOC, PFTC more often tends to recur in retroperitoneal nodes and distant sites.¹⁰

Regarding adjuvant chemotherapy of PFTC, in this case Carboplatin AUC 5 and Paclitaxel were used. Varigestrol (megestrol acetate) was used as an appetite enhancer. The dose of Carboplatin, a platinum-based alkylating -like agent was calculated according to the Calvert's formula. The Calvert formula provides a formula for calculating the

optimum dose based upon the patient's GFR and Carboplatin target AUC, as myelotoxicity and clinical efficacy of carboplatin correlates with the clearance of the drug which is correlated to the GFR. Dosing of this agent based solely upon BSA (Body surface area) is therefore not accurate enough for carboplatin. The GFR and therefore the clearance of Carboplatin differs in each patient irrespective of BSA. A high AUC correlates with increased toxicity, thus increases the risk of treatment, but in the case of a low AUC its therapeutic efficacy decreases.¹¹

A case report demonstrates the use of variant regimens of Chemotherapy, particularly in a situation of elevation of CA-125 level and metastatic supraclavicular, superior mediastinal, retrocaval nodes and secondary thyroid nodule after Total abdominal hysterectomy and bilateral salpingo-oophorectomy.¹² After an initial 6 cycles of PEC (Cisplatin-150mg, Epirubicin- 120mg, Cyclophosphamide- 1 gm), she received six courses of 2nd line chemotherapy with Paclitaxel -260 mg and Carboplatin- 450mg, followed by six courses of 3rd line combination chemotherapy with Gemcitabine - 1.4 gm and Vinblastine . Later Gefitinib 250 mg and Melphalan 4 mg was added. It is therefore reflected that standard post-surgical surveillance in malignant cases is mandatory to optimize long-term disease free survival. In reference to our case, she developed pelvic recurrence after 8 months of surgery and now is on second chemotherapy.

In a study designed to evaluate the incidence and clinical significance of lymph node metastases in 33 patients with primary carcinoma of the fallopian tube, during primary surgery 27% of patients were submitted to pelvic and para-aortic lymphadenectomy, whereas remaining were submitted to lymph node sampling. Overall 45% patients had positive nodes, that is, invaded by tumor; whereas remaining showed no lymphatic spread. 40% had exclusively positive para-aortic lymph nodes; 33% had only metastases in pelvic lymph nodes, 20% manifested simultaneously pelvic and para-aortic spread. The rate of lymphogenous metastases was found not to be significantly related to progressive intra-abdominal dissemination, histologic grade or depth of tubal infiltration. On the other hand, the presence of residual disease after primary surgery and positive peritoneal cytology significantly increased the risk of nodal metastases. Patients with lymph node metastasis had a significantly ($p = 0.02$) worse prognosis compared with patients without nodal involvement (median survival 39 vs 58 months).¹³ Therefore, complete pelvic and para-aortic node sampling should be carried out in cases of suspected Primary fallopian tube cancer.

Conclusion:

Considering the high incidence of lymph node metastasis, correct staging of tubal carcinoma should include a thorough evaluation of both pelvic and para-aortic lymph nodes either surgical or imaging. Pre-operative consideration of this rare diagnosis along with the surgical aptitude of lymph node evaluation can help to increase survival and bring about favorable long-term prognosis.

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College News

College Events:

- The National Mourning Day was observed in Bangladesh Medical College and Hospital on 15th August 2018, 43rd death anniversary of Father of Nation Bangabandhu Sheikh Mujibur Rahman. Teachers, doctors, nurses, students of BMCH and officials & staffs of BMSRI participated with full enthusiasm in that event.
- 48th "Victory Day" of Bangladesh was celebrated in Bangladesh Medical College and Hospital premises on 16th December 2018. Teachers, doctors, nurses, students of BMCH and officials & staffs of BMSRI participated with full enthusiasm in that event.
- Induction course of intern of BM-27 & others (July, 2018 batch) was held on 5th December, 2018. This event was organized by Brig. General Dr. Md. Abdus Sabur Miah, Director, BMCH.

Seminar in BMC:

- A scientific seminar was held on "Current practice and future of advanced laparoscopy in BMCH" on 28th August, 2018. It was organized by Surgery Unit-1 of BMCH. Presentations with video illustrations on laparoscopic hernia surgery, colo-rectal surgery and splenectomy were delivered by the concerned unit surgeons which were appreciated by all. The seminar was chaired by Prof. S A Nayeem, President of the Society of Surgeons of Bangladesh (SLSB). Prof. AHM Shamsul Alam, Head of the dept. of Surgery and Vice-principal, BMC mentioned about the successful hosing of live laparoscopic hernia surgery workshop jointly organized by Asia Pacific Hernia Society (APHS) and Hernia Society of Bangladesh (HSB) in November, 2017 held in BMCH premises. Surgeons of SU-1 operated a hernia using TEP technique in that workshop which was highly appreciated by national overseas surgeons.
- A seminar was held in BMC to observe the World Rabies Day on 28th September, 2018. The speakers were- Prof. Raihana Begum, Dept. of Community Medicine, BMC, Dr. Sohely Sharmin, Associate Professor, Dept. of Microbiology, BMC and Dr. Shahed Haider Chowdhury, RAP of Ophthalmology, BMCH. It was presided over by Brig. General Dr. Md. Abdus Sabur Miah, Director, BMCH.
- The International "Day of Hydrocephalus and Spina Bifida" was celebrated on 25th October 2018. It was organized by dept. of Neurosurgery, Bangladesh Medical College. In that event "Life Time Achievement Award" was offered to following persons;
 1. Late Prof. Rashid Uddin Ahmed, Ex-Chairman and Prof. Emeritus, Dept. of Neurosurgery, BSMMU
 2. Prof. Kanak Kanti Barua, Ex-Chairman, Dept. of Neurosurgery and Vice Chancellor, BSMMU

3. Prof. Afzal Hossain, Ex-Chairman, Dept. of Neurosurgery, BSMMU

4. Prof. Abul Khair, Ex-Professor, Dept. of Neurosurgery, BSMMU

- A seminar was held on 27th November, 2018 on account of "World Diabetes Day 2018". The Speaker was Dr. Yasmin Aktar, Consultant, Endocrinology, Bangladesh Medical College Hospital.
- A seminar was held on 1st December, 2018 to celebrate World AIDS Day, 2018, organized by Bangladesh Medical College Hospital. The main speaker was Brig. General Dr. Md. Abdus Sabur Miah, Director, BMCH. Also a rally was organized with the teachers, doctors, nurses, students, officers and staffs of BMCH.
- A seminar was held on "Prevention of HIV infection" on account of celebration of World AIDS Day on 1st December, 2018, organized by Dept. of Community Medicine, BMC. The main speaker was Dr. Mainul Alam Chaklader, Associate Professor of Community Medicine, BMC. Among the discussants were- Prof. Sharmeen Yasmeen, Prof. Nilufar Begum and Prof. Raihana Begum.

Participation in the International Conferences/Seminars/Workshop/Congress/Meetings:

- Dr. A S M Lutfur Rahman, Consultant of ENT, Bangladesh Medical College Hospital (BMCH) attended British Academic Conference in Otolaryngology (BACO) from 4th to 6th July, 2018 held in Manchester, UK.
- Dr. Akhil Chandra Biswas, Associate Professor of ENT, BMC attended a skull based workshop from 27th July to 4th August, 2019 held in Mumbai and Bangalore, India.
- Prof. Dr. M Touhidul Haque, Professor & Head of the Dept. of Cardiology, BMC attended ESC Congress, 2018 held from 25th to 29th August, 2018 in Munich, Germany.
- Dr. Mushtaque Ahmad Rana, Associate Professor, Dept. of Gastroenterology, BMC attended the 20th International Congress of the Egyptian Society of Hepatology, Gastroenterology & Infectious Diseases held from 12th to 14th September, 2018 in Alexandria, Egypt.
- Prof. Dr. Md. Fazlul Kadir, Professor, Dept. of Medicine, BMC attended the 2nd Global Cardio Diabetes Conclave 2018 Conference held from 28th to 30th September, 2018 in India.

- Prof. Dr. Md. Zahid Hasan Bhuiyan, Professor, Dept. of Urology, BMC attended the 38th Congress of the Society International d'Urology held from 4th to 7th October, 2018 at Seoul, South Korea.
- Dr. Md. Saydur Rahman, Associate Professor of Orthopaedics, BMC attended the 39th SICOT Orthopaedic World Congress 2018 held from 11th to 13th October, 2018 in Montreal, Canada.
- Dr. Sohely Sharmin, Associate Professor, Dept. of Microbiology, BMC attended the 14th Congress of the Asian Society for pediatric Research Emergent and Relevant Issues in Child Health held in Philippines from 2nd to 4th October, 2018.
- Dr. Asma Habib, Assistant Professor of Gynae & Obstetrics, BMC attended and presented scientific paper in XXII FIGO World Congress of Gynecology and Obstetrics held in Brazil from 14th to 19th October, 2018.
- Prof. Dr. Zafor Md. Masud, Professor and Head of the Dept. of Oncology, BMC attended the ESMO 2018 Congress held in Munich, Germany from 19th to 23rd October, 2018.
- Prof. Dr. Md. Tarek Alam, Professor (C.C) and Head of the Dept. of Medicine, BMC attended the 23rd Congress of the Asian Pacific Society of Respiriology (APSR 2018) from 29th November to 2nd December, 2018 held in Taiwan.
- Prof. Dr. Md. Fazlul Kadir, Professor, Dept. of Medicine, Bangladesh Medical College attended the 23rd Congress of the Asian Pacific Society of Respiriology held from 29th November to 2nd December, 2018 held in Taiwan.
- Dr. Mushtaque Ahmad Rana, Associate Professor, Dept. of Gastroenterology, BMC attended the 59th Annual Conference of Indian Society of Gastroenterology held from 28th November to 1st December, 2018 at Kerala, India.
- Dr. Sadia Saber, Assistant Professor (C.C), Dept. of Medicine, BMC attended the 23rd Congress of the Asian Pacific Society of Respiriology (APSR 2018) from 29th November to 2nd December, 2018 held in Taiwan.
- Prof. Dr. M. Touhidul Haque, Professor and Head of the Dept. of Cardiology, BMC attended the World Congress of Cardiology & Cardiovascular Health held from 10th to 14th December, 2018 in Dubai, United Arab Emirates.

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