

The **ORION** Medical Journal

May 2013, Volume 16, Issue 1, No. 39

16th
Years
of glorious venture

Editorial

- 02 Brain Abscess: study of 165 cases
Haque MME, Sayed MA, Sultana S, Ahamed SU

Original Articles

- 08 Clinical significance of Serum CA125 to diagnose
Ovarian malignancy pre-operatively
Nahar S
- 13 Arthroplasty in Bangladesh
Hossain MA
- 14 Treatment cost of surgically treated congenital anomaly
patients in Dhaka Shishu (Children) Hospital
Akter J, Islam M S, Ahmed S M M, Khan J G

Case Reports

- 19 Systemic Lupus Erythematosus (SLE) with pregnancy
A successful outcome in a least facilitated health complex
Rassel A, Rahman S
- 21 ACTH dependent Adrenal Adenoma
Qureshi NK, Shefin SM, Amin F, Ferdous HS, Pathan F, Latif ZA.
- 26 Twisted ovarian tumor often confused
with malignant ovarian tumor
Munni N, Shaheen N.

Launching of new products

Medi News

MSD News



Desloratadine

Deslor®

5 mg Tablet
2.5 mg/ 5 ml Syrup

Non-sedative, more effective antihistamine



Founded September 1998
Published quarterly
Volume 16, Issue 1, No. 39
May 2013

The Advisory Board

PROF. M Q K TALUKDER

MBBS, DIPNUTR (Lond), DCH (Glasg), FRCP (Edin), Ph.D (Edin), FCPS (BD), Ex-Director, Institute of Child and Mother Health, Matuail, Dhaka.

PROF. M. A. MAJED

MBBS (Dha), FRCS (Eng), DLO (Lond), FCPS (BD), FCPS (PAK), Senior Consultant, Department of ENT, Holy Family Red Crescent Hospital, Dhaka.

PROF. ABU AHMED CHOWDHURY

MBBS, FRCS, FCPS, FICS, Medical Director and Professor of Surgery, Bangladesh Medical College.

PROF. MUSTAFIZUR RAHMAN

MBBS, FRCS (I), FRCS (E), DO Chairman, The Eye Clinic & MMR Eye Foundation & Research President, Bangladesh Eye Care Society.

PROF. SHEIKH NESARUDDIN AHMED

MBBS (Dhaka), DTM and H, MRCP (Edin), FRCP (Edin), Ex-Professor and Head, Department of Medicine, DMCH.

PROF. KHMS SIRAJUL HAQUE

MBBS, FCPS, FCPS (PAK), FRCP (Edin), FACC, Professor and Chairman, Department of Cardiology, Bangabandhu Sheikh Mujib Medical University.

PROF. (DR.) MD. NURUL ISLAM

MBBS, FCPS, FRCP (Edin), Professor Emeritus & Former Chairmen, Department of Child Health, Bangabandhu Sheikh Mujib Medical University.

PROF. MOTIOR RAHMAN

MBBS, FRCS, FICS, FACS, Honorary Chief Consultant Surgeon, Department of Surgery, BIRDEM, Dhaka.

PROF. SHAHLA KHATUN

FRCOG, FICS, Department of Obstetrics and Gynaecology, BMCH.

PROF. DR. ANISUL HAQUE

MBBS, Ph.D., FCPS, FRCP (Edin), Professor and Chairman, Department of Neuromedicine, BSMMU.

MAJOR GENERAL (Retd.) PROF. ZIAUDDIN AHMED

MBBS (Dhaka), MCPS (Medicine), FCPS (Medicine), MRCP, FRCP (Ireland), FRCP (Glasgow, UK), Director General & Professor of Medicine, BIRDEM.

PROF. M. N. ALAM

MBBS, MRCP (UK), FRCP (Glasgow), Ex-Professor, Department of Medicine, BSMMU.

PROF. MOHAMMAD NAZRUL ISLAM

MBBS, FCPS, FRCP (Edin), FCCP, FACC, Professor of Cardiology (Interventional Cardiology), BSMMU.

DR. KAZI MESBAHUDDIN IQBAL

MBBS, DA, FFARCS (Ir.), FRCA (UK), FCPS, Consultant & Co-ordinator, Anesthesia & ICU, Apollo Hospitals, Dhaka.

PROF. HARUN-AR-RASHID

MD, MSc., MPH, PhD, FRCP (Dhaka) Director, Bangladesh Medical Research Council (BMRC) Mohakhali, Dhaka.

The Review Board

PROF. T. A. CHOWDHURY

MBBS, FRCS, FRCOG, FRCP, FCPS (B), FCPS (P), FICS, Professor and Senior Consultant, Department of Obstetrics and Gynecology, BIRDEM, Dhaka.

PROF. SAYEDA NURJAHAN BHUIYAN

FRCOG, Ex-Head, Department of Obstetrics and Gynecology, CMCH and Ex-Principal, Chittagong Medical College.

PROF. A. F. M. RUHAL HAQUE

FRCS (ED), FICS, Ex-Professor and Chairman Department of Orthopedics, BSMMU.

PROF. ANM ATAI RABBI

FCPS, FICS, Ex-Professor and Chairman, Department of Surgery, BSMMU.

PROF. A. Z. M. MAIDUL ISLAM

MBBS, D.D. (Dhaka), A.E.L.(Paris), A.E.S.D and V (Paris) D.T.A.E (Paris), Chairman and Professor, Department of Dermatology and Venereology, BSMMU.

PROF. FERDOUS ARA J JANAN

MBBS (Dhaka), MD (USA), FIBA (Eng.), FCPS (M) FRCP (Edin), FACP (USA), Professor & Head, Department of Medicine, Shahabuddin Medical College & Hospital, Gulshan-2, Dhaka.

PROF. HASINA BANOO

FCPS, Ex Professor of Cardiology, NICVD.

PROF. M.A. SOBHAN

MBBS, FCPS (Surgery), Professor and Ex-Head, Department of Surgery and Ex-Principal, Rangpur Medical College and Hospital, Rangpur.

PROF. A. K. M. ESHAQUE

D.Ortho, M.S. (Ortho.), FPOA, Ex. Professor and Head of the Department of Orthopedics, Sir Salimullah Medical College & Mitford Hospital, Dhaka.

PROF. KHURSHED JAHAN

MBBS, MPH, PhD, Professor, Institute of Nutrition and Food, Science, University of Dhaka.

PROF. KOHINOOR BEGUM

MBBS, FCPS, Ex. Professor, Department of Obstetrics and Gynecology, Dhaka Medical College Hospital.

PROF. QUAZI DEEN MOHAMMED

MBBS, FCPS (Med), MD (Neuro), Fellow Neurology (USA), Professor, Department of Neurology, DMCH.

PROF. DR. MAMTAZ HOSSAIN

MBBS, FCPS (Med.), Diploma in Cardiology (DU), Ex-Professor of Cardiology, National Institute of Cardio Vascular Diseases, Dhaka.

DR. MAHBUBUR RAHMAN

MBBS, MSc, Ph.D. (Distinction), FRCP (EDIN), Scientist, Laboratory Sciences Division, ICDDR,B.

DR. A.B.M. ABDULLAH

MBBS (Dhaka), MRCP (UK), FRCP (Edin), Associate Professor, Department of Medicine, BSMMU.

PROF. DR. A.H. MOHAMMAD FIROZ

MBBS, DPM, MAPA, MCPA, MBA, FCPS, MRCP, FRCP Professor of Psychiatry, Ex-Director, National Institute of Mental Health, Dhaka.

Editor's Choice

The ORION is one of the leading journals of the country which has been successfully published for the last 16 years. With Volume: 16, Issue: 1, No.39, The Orion accomplishes the choice of thousand readers nationally and in the international arena. "The Orion" today is one of the mostly accepted journals in Bangladesh with highest number of publication. Each esteemed reader of "The Orion" has always been a guiding light in this journey over the years. In this issue we published three Original articles and three case reports with adequate references. Latest and breakthrough news of modern Medical Science are also incorporated as before.

Editorial (p-02) of this issue focuses on some prognostic factors that can be implemented to determine the functional outcome of patients treated surgically for brain abscess. In this study the authors ascertain these factors by investigating over 165 cases of Brain Abscess.

The first original article (p-08) establishes the clinical significance of Serum CA125 along with sonographic evaluation to improve the diagnostic accuracy of adnexal mass preoperatively. "Arthroplasty in Bangladesh" -the second original article (p-13) illustrates a comparison of the cost of hip and knee replacement surgery in Bangladesh with the cost in other countries. The authors also have a discussion on how to relief pain, increase mobility and ability to take part in various activities thus lead to a normal life after a joint replacement surgery or arthroplasty. Economic evaluation is essential for preparing a treatment plan of a patient, especially in a third world country like Bangladesh. In the next original article (p-14) the authors focus on the cost characteristics of hospitalized patients and analyze different studies in respect to age, sex and different type of illness. A successful outcome of a 25 years old pregnant woman with Systemic Lupus Erythematosus (SLE) has been presented in this issue as a case report (p-19). The authors give a brief description of the management of such case in a least facilitated health complex. A 24 years old unmarried female diagnosed with ACTH-dependent adrenal adenoma variety of cushing's disease has been incorporated in the next Case Report (p-21). The patient presents primary hypothyroidism which is diagnosed by combination of biochemical tests and imaging modalities. As the twisted ovarian tumor is common in serous cystadenoma, the findings of such case were more towards malignant ovarian tumor. In the last case report (p-26) a case of twisted ovarian tumor has been explained thoroughly in order to bring contrast between twisted ovarian tumor and malignant ovarian tumor.

We are grateful to our valued authors, esteemed readers and respective members of the Advisory and Review Board. Without their arduous effort it will not be possible to prepare this issue. Further opinion and suggestions are highly encouraged for the development of 'The ORION'. At the same time, we thank all our readers, contributors and reviewers for their continued supports.

May the Almighty bless in the spirit of good health.



DR. MD. SHAFIUR RAHMAN
Chief Editor
The ORION Medical Journal

Brain Abscess: study of 165 cases

Haque MME¹, Sayed MA², Sultana S³, Ahamed SU⁴

The ORION Medical Journal 2013 May;16-1(39): p02-07

Abstract

Objective: To determine the prognostic factors of the functional outcome of patients treated surgically for Brain Abscess.

Method: This study was carried out to find out the age, sex, aetiology, clinical presentation & localization, CT scan findings, operative measures and outcome of patients of brain abscess at Dhaka Medical College & Hospital. One hundred and sixty five cases of Brain abscess were studied retrospectively from 1985 to 2002 in dept. of Neurosurgery, Dhaka Medical College & Hospital. Maximum cases (49.08%) were in second decade of life and came from poor socioeconomic group (80%). Most of the cases presented with headache & vomiting and features of raised intracranial pressure. Thirty cases presented in unconscious state (18.75%). Chronic suppurative otitis media was the most common cause of brain abscess (62.5%). CT scan was done in 134 cases and isotope scan in 6 cases. 6 cases were treated conservatively and 159 cases were operated. One died before operative procedure. Postoperative mortality was 6.25%. Three cases were presented with multiple brain abscess having congenital cyanotic heart disease.

Conclusion: A brain abscess can be extremely serious because the swelling can cause pressure effect on delicate brain tissue and disrupt the blood and oxygen supply to the brain. There is also a risk that the abscess may burst. If left untreated, a brain abscess can cause permanent brain damage and can be fatal. It is a medical emergency and requires prompt treatment with antibiotics and surgery.

This study identifies progression of the disease to a fatal one due to delay occurred in recognizing the condition and in subsequent transfer of patients to neurosurgical unit. Timely intervention gives not only the better result but also reduces the number of disabled vegetative person and reduces morbidity & mortality.

Introduction

Before the late 1800s, brain abscess was almost uniformly fatal condition that was rarely diagnosed before autopsy. The pioneering work of the English surgeon William Macewan led to remarkable breakthroughs in the treatment of this condition.¹ Brain abscess (or cerebral abscess) is an abscess caused by inflammation and collection of infected material, coming from local (ear infection, dental abscess, infection of paranasal sinuses, infection of the mastoid air cells of the temporal bone, epidural abscess) or remote (lung, heart, kidney etc.) infectious sources, within the brain tissue. The infection may also be introduced through a skull fracture following a head trauma or surgical procedures. Brain abscess is usually associated with congenital heart disease in young children.

Incidence of brain abscess is 1-2% of all intracranial space occupying lesions in developed countries & 8% in developing countries.² It is reported that majority of brain abscesses present in the first 4 decades of life. This is due to the fact that four important predisposing factors: otitis, sinusitis, open head injury and congenital heart diseases usually occur in these age groups. It is suggested that five different conditions predispose to the development of cerebral abscess:

- (1) Adjacent suppurative foci,
- (2) Haematogenous spread from distant foci
- (3) Dural opening
- (4) Immunosuppression
- (5) No obvious predisposing causes.

In the pre-antibiotic and pre-CT era morbidity and mortality from brain abscess were extremely high. Advances in the development of antibiotics, improved bacteriological techniques and most importantly the development of computed topography have dramatically changed this prognosis.

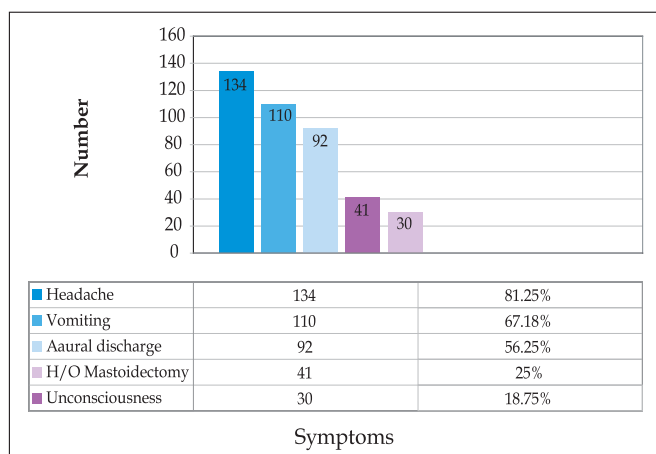
Key words : 165 Cases, Study, Brain Abscess

1. Dr. M.M. Ehsanul Haque
MS (Neurosurgery),
Associate Professor & Head, Department of Neurosurgery,
Sher-E-Bangla Medical College & Hospital, Barisal.
2. Dr. M.A. Sayed
Associate Professor, Department of Neurosurgery,
Sir Salimullah Medical College & Mitford Hospital, Dhaka.
3. Dr. Shamima Sultana
Assistant Professor, Department of Ophthalmology,
Shahid Sohrwardi Medical College & Hospital, Dhaka.
4. Dr. Shafiquddin Ahamed
Ex. Professor & Head, Department of Neurosurgery,
Dhaka Medical College & Hospital, Dhaka.

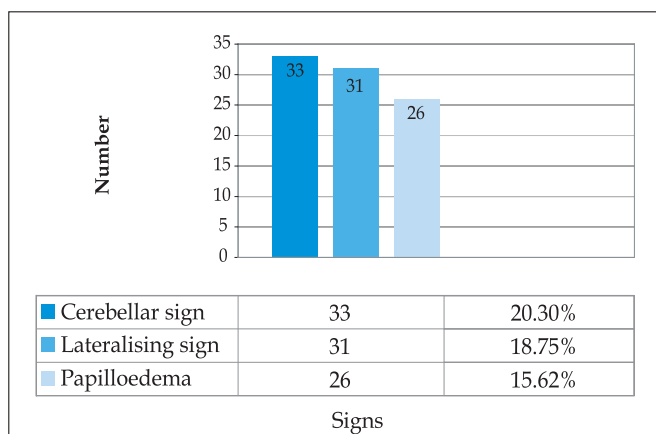
Surgical therapy is unquestionably indicated in cases that have mass effect with herniation, fail to resolve or in which follow-up examination reveals that the abscess have progressed.

Materials and methods

These 165 cases of brain abscesses were treated in the department of surgical neurology of Dhaka Medical College Hospital from 1985 to 2002. This was a retrospective study. Majority of these cases were referred from other units/ hospitals/especially from ENT department. Only pyogenic brain abscesses are included in this series. The purpose of this study is to analyze the presentation, difficulties of diagnosis and management of brain abscess in our present setting with very limited facility. Patients with brain abscess presented with headache in 134 cases (81.25%), Vomiting in 110 cases (67.18%), aural discharge in 92 cases (56.25%), history of mastoidectomy in 41 cases (25%), history of unconsciousness in 30 cases (18.75%).



Graph 1 : Symptoms



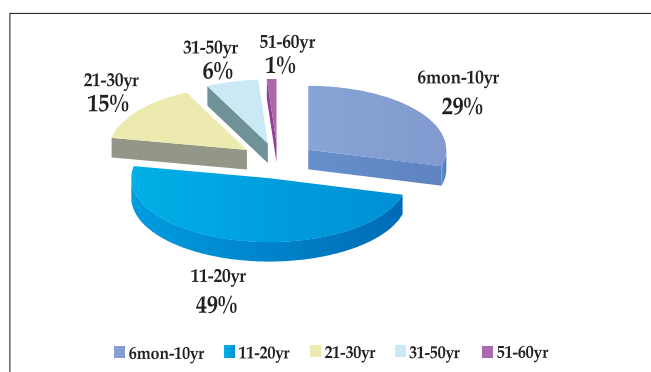
Graph 2 : Signs

All these cases diagnosed clinically having cerebellar sign in 33 cases (20.3%), lateralizing sign in 31 cases (18.75%), and papilloedema in 26 cases (15.62%). And diagnosis was supported radiologically by CT scan in the brain in 134 cases (81.25%), isotope scan of brain in 6 cases (3.63%). X-ray skull was done routinely and repeated CT scan in 66 cases (40%). No radiological investigation in 25 cases (15.15%).

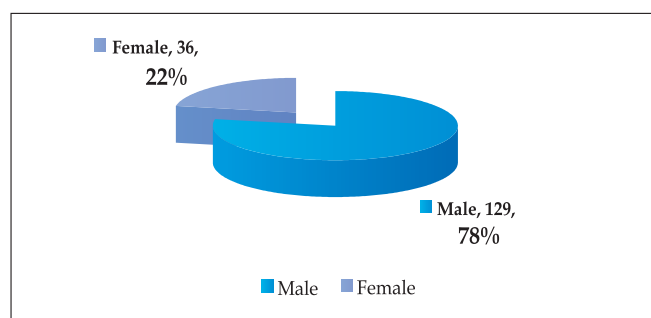
These patients were managed surgically by burr hole aspiration in 139 cases (84.24%), craniotomy in 14 cases (8.48%), craniectomy in 6 cases (3.6%), medical management in 6 cases (3.6%) and repeated aspiration was done in 30 cases (18.18%).

Results

Our study shows that brain abscess was more common in young age group 49% in 11 to 20 years of age, 29% in 6 months to 10 years of age, 15% in 21 to 30 years of age, 6% in 31 to 50 years and 1% in more than 51 years. It was more common in male than female. In our series male was 129 cases (78%), and female was 36 cases (21.8%).



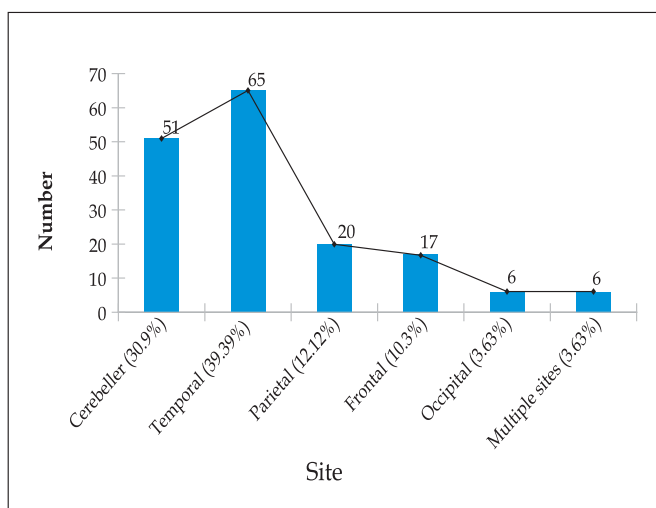
Pie chart 1 : Age distribution of Brain abscess



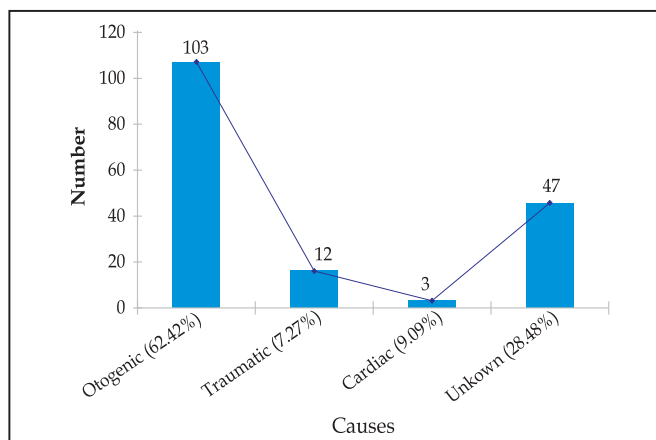
Pie chart 2 : Sex distribution of Brain abscess

Most common clinical presentation was increasing headache followed by vomiting, aural discharge, H/O mastoidectomy and unconsciousness. Clinical signs we found in chronological order were cerebellar sign in 33

cases (20.3%), lateralizing sign in 31 cases (18.75%) and papilloedema in 26 cases (15.62%) which indicates the well advanced disease with increased intracranial pressure.³ CT scan of brain shows location of abscess in cerebellar in 51 cases (30.9%), temporal 65 cases (39.39%), parietal in 20 cases (12.12%), frontal in 17 cases (10.3%), occipital in 6 cases (3.63%), multiple sites in 6 cases (3.63%).



Graph 3 : Location of Abscess



Graph 4 : Aetiology of Brain Abscess

Aetiology of brain abscess that we found in our series was autogenic 103 cases (62.42%) followed by unknown aetiology in 47 cases (28.48%), traumatic 12 cases (7.27%), cardiac cause in 3 cases (1.8%). Complications we found brain damage in 15 cases (9.09%), meningitis in 11 cases (6.6%) that was severe and life threatening, recurrence of infection in 31 cases (18.78%), Seizures in 5 cases (3.03%). Outcome that we found in our series was full recovery in 23 cases (14.6%), minor disability in 113 cases (68.75%),

moderate disability in 10 cases (6.25%) and death occurred in 10 cases (6.25%).

Discussion

Brain abscess is uniformly fatal condition if diagnosed lately. It is an abscess caused by inflammation and collection of infected material, coming from local or remote sources within brain tissue. These patients present clinically with sign symptoms of headache (50-90% of cases),⁴ focal neurologic deficit (50%),⁵ seizure (40%) and mental status changes (50%).⁶ Classic triad of headache, fever, and focal neurologic deficit is rarely seen (< 5-20% of cases in case series).⁷ Nausea, vomiting, or stiff neck may be found.⁸ Sudden worsening of a preexisting headache accompanied with meningismus may be indicative of a catastrophic event.⁹ Fever is typically low grade, but it does not aid in diagnosis, as it is present in less than half of all cases.¹⁰ Altered mental status ranges from subtle personality changes through drowsiness to full-blown coma.¹¹ Focal neurologic findings are commonly present¹² & nuchal rigidity occurs in about



Fig-1: CT Scan of Brain showing Abscess in different location

25% of cases.¹³ It can cause increasing cerebral edema around the abscess.¹⁴ Seizures are typically generalized.¹⁵ Papilledema indicates the disease process is well advanced and increased intracranial pressure is present.¹⁶ Bulging fontanelles, irritability, and enlarging head circumference may be noted in infants.¹⁷

As because it was a retrospective study started in early 80's when CT scan was not readily available, isotope scan and plain X-ray was main tools for investigation. In the pre-antibiotic and pre-CT era morbidity and mortality from brain abscess were extremely high. Advances in the development of antibiotics, improved bacteriological techniques and most importantly the development of Computed Tomography have dramatically changed this prognosis.

Brain abscesses may occur within the cerebral hemispheres or within the cerebellum. The location of the primary lesion may be suggested by the location of the abscess; infections of the middle ear result in lesions in the middle and posterior cranial fossae;¹⁸ congenital heart disease with right-to-left shunts often result in abscesses in the distribution of the middle cerebral artery;¹⁹ and infection of the frontal and ethmoid sinuses usually results in collection in the subdural sinuses. Surgical therapy is unquestionably indicated in cases that have mass effect with herniation, fail to resolve or in which follow-up examination reveals that the abscess have progressed.



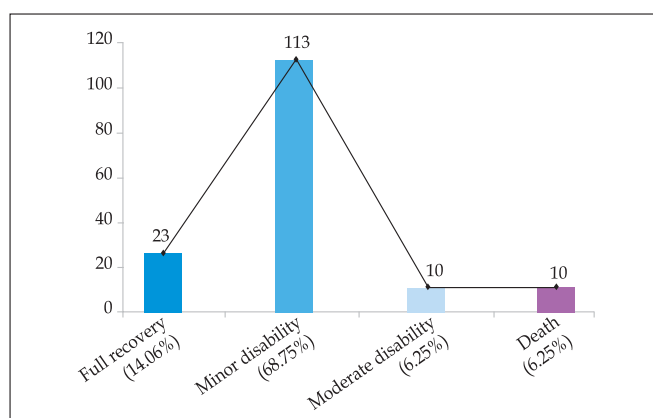
Fig-2: Per operative burr hole aspiration of Brain abscess

Surgical treatment of brain abscess previously required open craniotomy and drainage or excision of the lesion.²⁰ This procedure has largely been replaced by a minimally invasive closed-drainage procedure.

The predominant organisms include: *Staphylococcus aureus*, aerobic and anaerobic streptococci (especially *Streptococcus intermedius*), *Bacteroides*, *Prevotella*, and *Fusobacterium* species, *Enterobacteriaceae*, *Pseudomonas* species, and other anaerobes.²¹ Less common organisms include: *Haemophilus influenzae*, *Streptococcus pneumoniae* and *Neisseria meningitidis*.²² CSF cultures are positive only in rare cases. Careful culturing of abscess

material obtained at the time of surgery provides the best opportunity to make a microbiological diagnosis. When meticulous attention is paid to the proper handling of clinical specimens, the culture yield has approached 100% in some studies.²³ CSF cultures are positive only in rare cases.

Proteus was the commonest organism, *Staph. aureus*, *Staph. epidermidis*, *Peptostreptococcus*, *Pseudomonas* were also found in our study. No growth was found in 60% cases. Among 165 cases, full recovery without any damage occurred in 2 cases (only 14.06%). Minor and moderate disability was found in 113 cases (68.75%) and 10 cases (6.25%) respectively. Death occurred in 10 cases (6.25%).



Graph 5 : Outcome

The delay occurred for initiation of appropriate treatment was due to late presentation of patients and partly due to inadequate organization of emergency services. So this unwanted delay could be curtailed by decentralization of specific emergency neurosurgical services, to improve overall outcome.

Conclusion

A brain abscess is a pus-filled swelling in the brain caused by an infection. It is rare and life threatening. The diagnosis of brain abscess remains difficult in certain patients. Correct preoperative diagnosis influences the decision on the appropriate surgical procedure and helps to improve outcome. Aspiration was the last diagnostic investigation. One expired preoperatively for late presentation. Surgical intervention is the only procedure for definitive microbiological proof and should be done as early as possible.²⁴ The most successful predictor of clinical outcome for patients with brain abscess is the extent of neurological compromise at the time of presentation and diagnosis. The mortality is higher among patients with symptoms of short duration,

severe mental status changes, and rapidly progressing neurological impairment.²⁵

Commonest cause of brain abscess is middle ear infection. Mortality from brain abscess ranged from 30% to 60% until the late 1970s, while the availability of more effective antimicrobial regimens (eg, the addition of metronidazole), new surgical techniques, and computed tomography (CT) decreases this mortality to less than 10%.²⁶ Though main diagnostic criteria of brain abscess are raised intracranial pressure and associated disease (source), CT scan of brain has helped early and definitive diagnosis, and thereby timely management and tremendous improvement of morbidity and mortality. Burr hole aspiration and if necessary repeated aspirations have produced excellent results. Very rarely craniotomy with excision of whole abscess sac is needed. Although rare, three cases of brain abscess associated with congenital heart disease were in our series. So this association should be considered in cases with brain abscess of undetermined etiologic factors.

References

- Canale DJ. William Macewen and the treatment of brain abscesses: revisited after one hundred years. *J Neurosurg* 1996;84:133-42.
- Garg M. et al. Brain Abscesses: Etiologic Categorization with in Vivo Proton MR Spectroscopy. *Radiology* 2004; 230:519-527
- Seydoux C, Francioli P. Bacterial brain abscesses: factors influencing mortality and sequelae. *Clin Infect Dis*. Sep 1992;15(3):394-401.
- Carpenter J, Stapleton S, Holliman R. Retrospective analysis of 49 cases of brain abscess and review of the literature. *Eur J Clin Microbiol Infect Dis*. Jan 2007;26(1):1-11. Sharma R, Mohandas K, Cooke RP. Intracranial abscesses: changes in epidemiology and management over five decades in Merseyside. *Infection*. Feb 2009;37(1):39-43. Seydoux C, Francioli P. Bacterial brain abscesses: factors influencing mortality and sequelae. *Clin Infect Dis*. Sep 1992;15(3):394-401.
- Bernardini GL. Diagnosis and management of brain abscess and subdural empyema. *Curr Neurol Neurosci Rep*. Nov 2004;4 (6) : 448-56
- Sharma R, Mohandas K, Cooke RP. Intracranial abscesses: changes in epidemiology and management over five decades in Merseyside. *Infection*. Feb 2009;37(1):39-43
- Carpenter J, Stapleton S, Holliman R. Retrospective analysis of 49 cases of brain abscess and review of the literature. *Eur J Clin Microbiol Infect Dis*. Jan 2007;26(1):1-11.
- Seydoux C, Francioli P. Bacterial brain abscesses: factors influencing mortality and sequelae. *Clin Infect Dis*. Sep 1992;15(3):394-401.
- Carpenter J, Stapleton S, Holliman R. Retrospective analysis of 49 cases of brain abscess and review of the literature. *Eur J Clin Microbiol Infect Dis*. Jan 2007;26(1):1-11.
- Menon S, Bharadwaj R, Chowdhary A, Kaundinya DV, Palande DA. Current epidemiology of intracranial abscesses: a prospective 5 year study. *J Med Microbiol*. Oct 2008; 57(Pt 10): 1259-68
- Bernardini GL. Diagnosis and management of brain abscess and subdural empyema. *Curr Neurol Neurosci Rep*. Nov 2004; 4(6): 448-56.
- Menon S, Bharadwaj R, Chowdhary A, Kaundinya DV, Palande DA. Current epidemiology of intracranial abscesses: a prospective 5 year study. *J Med Microbiol*. Oct 2008;57 (Pt 10): 1259-68.
- Bernardini GL. Diagnosis and management of brain abscess and subdural empyema. *Curr Neurol Neurosci Rep*. Nov 2004; 4(6): 448-56.
- Bernardini GL. Diagnosis and management of brain abscess and subdural empyema. *Curr Neurol Neurosci Rep*. Nov 2004; 4(6): 448-56.
- Seydoux C, Francioli P. Bacterial brain abscesses: factors influencing mortality and sequelae. *Clin Infect Dis*. Sep 1992; 15(3): 394-401.
- Seydoux C, Francioli P. Bacterial brain abscesses: factors influencing mortality and sequelae. *Clin Infect Dis*. Sep 1992; 15(3): 394-401.
- Bernardini GL. Diagnosis and management of brain abscess and subdural empyema. *Curr Neurol Neurosci Rep*. Nov 2004; 4(6): 448-56
- Seydoux C, Francioli P. Bacterial brain abscesses: factors influencing mortality and sequelae. *Clin Infect Dis*. Sep 1992; 15(3): 394-401.
- Seydoux C, Francioli P. Bacterial brain abscesses: factors influencing mortality and sequelae. *Clin Infect Dis*. Sep 1992; 15(3): 394-401.
- Mathisen GE, Johnson JP. Brain abscess. *Clin Infect Dis*. Oct 1997; 25(4): 763-79; quiz 780-1.
- Seydoux C, Francioli P. Bacterial brain abscesses: factors influencing mortality and sequelae. *Clin Infect Dis*. Sep 1992; 15(3): 394-401.
- Seydoux C, Francioli P. Bacterial brain abscesses: factors influencing mortality and sequelae. *Clin Infect Dis*. Sep 1992; 15(3): 394-401.
- Sáez-Llorens X. Brain abscess in children. *Semin Pediatr Infect Dis*. Apr 2003; 14(2): 108-14.
- Macewan W (1893). *Pyogenic Infective Diseases of the Brain and Spinal Cord*. Glasgow: James Maclehose and Sons.

25. Ingraham FD, Matson DD (1954). Neurosurgery of Infancy and Childhood. Springfield, Ill: Charles C Thomas. pp. 377.
26. Raimondi AJ, Matsumoto S, Miller RA (1965). "Brain abscess in children with congenital heart disease". J Neurosurg 23 (6): 588-95. doi:10.3171/jns.1965.23.6.0588. PMID 5861142.
27. Itakura T, Yokote H, Ozaki F, Itatani K, Hayashi S, Komai N. Stereotactic operation for brain abscess. Surg Neurol 1987; 28: 196-200.
28. Brook I. Microbiology and antimicrobial treatment of orbital and intracranial complications of sinusitis in children and their management. Int J Pediatr Otorhinolaryngol. 2009; 73: 1183-6.
29. Brook I. Brain abscess in children: microbiology and management. J Child Neurol. 1995; 10: 283-8
30. Mathisen GE, Meyer RD, George WL, Citron DM, Finegold SM. Brain abscess and cerebritis. Rev Infect Dis 1984; 6 (suppl 1): S101-6.
31. De Louvois J, Gortvai P, Hurley R. Bacteriology of abscesses of the central nervous system: a multicentre prospective study. Br Med J 1977; 2: 981-4.
32. Cochrane DD. Brain abscess. Pediatr Rev 1999; 20: 209-15.
33. Seydoux C, Francioli P. Bacterial brain abscesses: factors influencing mortality and sequelae. Clin Infect Dis 1992; 15: 394-401.
34. Seydoux C, Francioli P. Bacterial brain abscesses: factors influencing mortality and sequelae. Clin Infect Dis 1992; 15: 394-401.
35. Tunkel AR, Wispelwey B, Scheld WM. Brain abscess. In: Mandell GL, Bennett JE, Dolin R, eds. Mandell, Douglas and Bennett's Principles and Practice of Infectious Diseases.
36. Mathisen GE, Johnson JP. Brain abscess. Clin Infect Dis 1997; 25: 763-81.





Unique & Unparalleled against infections

Clinical significance of Serum CA125 to diagnose Ovarian malignancy pre-operatively

Nahar S¹

The ORION Medical Journal 2013 May;16-1(39): p8-12

Abstract

Background: Screening programme for ovarian malignancy is an international public demand.

Objective: To evaluate the role of Serum CA125 for pre-operative diagnosis of ovarian malignancy among the patients with adnexal mass.

Methods: This prospective observational study was conducted on 57 patients having adnexal mass admitted consecutively for surgical exploration in Bangladesh Sheikh Mojib Medical University from January 2000 to March 2001. Serum CA125 assay was done within 10 days preoperatively. Definitive diagnosis was based on histopathological examination. Sensitivity, specificity, positive and negative predictive values of S.CA125 were determined. For statistical analysis Chi square & student's 't' test were used.

Results: Sensitivity, specificity, positive and negative predictive values of S.CA125 to diagnose adnexal mass preoperatively were 67%, 88%, 55% and 92% respectively at the cut-off value of >120 U/ml.

Conclusion: Combination of S.CA125 with sonographic evaluation may further improve the diagnostic accuracy pre-operatively in adnexal mass.

Introduction

The management of a woman having adnexal mass is a problem frequently faced by the Gynecologists. It may represent a wide and varied differential diagnosis including both benign and malignant gynecological conditions and also some non-gynecological conditions.¹ In a clinically diagnosed adnexal mass traditional strategy for establishing final diagnosis has been to perform an exploratory laparotomy.²

Ovarian malignancy is an important adnexal pathology. It shows the highest mortality among the gynecological malignancy and has become the greatest challenge in gynecological oncology throughout the globe including Bangladesh.

Of the ovarian malignancies that report for treatment, 80% belongs to stage III and stage IV and only 20% belongs to stage I and stage II.³ Five year survival rate ranges from 70-90% when cancer is limited to female reproductive tract.^{4,5} and it is less than 20% with more advanced stages.⁶

Key words: S.CA125, Adnexal Mass, Ovarian Malignancy

1. Dr. Shamsun Nahar, MS(OB-GYN)
Associate professor, Dept. of OB-GYN,
Central Medical college, Comilla,

In recent years, there developed considerable international public demand for ovarian malignancy screening. Multiple studies have concluded the in-effectiveness of the screening programme due to the absence of pre-cancerous condition and low prevalence of ovarian malignancy among the population.⁷

The prognosis of ovarian malignancy may be greatly influenced by appropriate first line surgery. The initial laparotomy is important for accurate staging and cytoreductive surgery.⁸ Staging of neoplastic disease has assumed great importance in the selection of the best form of therapy for the patient.⁹ The amount of residual disease after primary surgery is the most important prognostic factor.^{10,11} The aim of cytoreductive surgery is to achieve optimal residue. Moreover, chemotherapy and radiotherapy are likely to be effective in optimal residual disease.

However, inspite of known benefit of meticulous comprehensive surgical staging and cytoreductive surgery, many women do not receive appropriate first line surgery. This is because of skilled and lengthy surgery of cytoreduction and the consequence of difficulty in making an accurate pre-operative diagnosis of ovarian malignancy. In practice, the diagnosis of ovarian malignancy is often difficult to make pre-operatively and inadequate surgical exploration by junior or inexperienced surgeon is a regular occurrence. Therefore, sensitive and specific methods for diagnosis of ovarian malignancy are required which may influence the selection of the institution and also the seniority and expertise of surgeon. This would provide a rational basis for referral before diagnostic laparotomy.¹²

The tumour marker, CA125 mostly elevates in epithelial ovarian malignancy. Its normal value is upto 35 U/ml. The diagnostic accuracy of CA125 assay is sufficiently high to be of clinical value to discriminate benign from malignant ovarian conditions.¹³ S.CA125 also rises in other pelvic malignancies and various benign conditions. It may or may not rise in non-epithelial ovarian malignancy.¹⁴

This study was conducted to find out the sensitivity, specificity, positive and negative predictive values of S.CA125 to diagnose adnexal mass preoperatively.

Methods

This was a prospective observational study. The girls and women admitted consecutively in the Department Obstetrics and Gynecology of BSMMU, Dhaka, for the surgical exploration of adnexal mass were enrolled for the study.

Total number of patients available (n=57) during the data collection period fulfilling the selection criteria and having informed willingness in participation into the study comprised the population of the study. The study was conducted during the period of January 2000 to March 2001 in the Dept. of OB-GYN of BSMMU, Dhaka, with the full cooperation of Department of Clinical Pathology and Department of Pathology of BSMMU, Dhaka.

Proper permission to conduct the study was taken from the chairman of the concerned Departments after approval of the protocol. Verbal consent from each patient was obtained after informing about the nature and aim of the study.

Inclusion Criteria were,

a) Girls and women having adnexal mass admitted consecutively for surgical exploration irrespective of age, parity and socio-economic status.

Exclusion Criteria were,

a) Patient with adnexal mass having unwillingness for surgical exploration.

b) Patient with histo-pathological report showing non-adnexal mass in clinically suspicious adnexal mass.

Data was collected in data collection instrument that was a pre-designed data sheet of mixed form and questionnaire type. Data was collected by two methods - by interview and by some investigations, which have been explained below.

In interview method, the socio-demographic characteristics and clinical informations were recorded by interview. Age was recorded in nearest full years as stated by the patient. Socio-economic status was categorized on monthly income as poor (<3000 Taka), middle (3000-6000 Taka) and rich (>6000 Taka). Post menopausal status was defined as 1 year of amenorrhoea or 50 years of age, if previously had undergone hysterectomy. Pre-menopausal status was considered as the state outside the aforementioned criteria.

In investigative method, 2 ml of peripheral venous blood sample was obtained with full aseptic precaution by disposable syringe from each patient within 10 days preoperatively. Blood was drawn for the single time from each patient and was poured into a clean glass test tube. Then the sample was allowed to clot at room temperature and the serum was separated. S.CA125 was determined by the technician using commercial kit (IMX, Abbott laboratories, USA) by Microparticle Enzyme Immuno Assay (MEIA) technique at the department of clinical pathology, BSMMU, Dhaka.

Immediately after surgery the resected specimen was sent to the department of pathology preserving in formalin solution. The examination was performed by the pathologist.

Definitive diagnosis was based on histopathological finding. In one case of ectopic pregnancy, the surgical diagnosis was assumed to be correct as histopathological examination was not performed on patient's request which was an illegal pregnancy.

Data was analyzed using SPSS program of computer with the help of statistician. SD was taken as a measure of variation and frequency of data was expressed as mean $\pm$ SD. Student's 't' test was used to test the differences in distribution of age, parity, serum CA125 among the patients with benign and malignant adnexal mass. Chi-square test was applied in testing differences in distribution of socio-economic and menopausal status in the same groups. Level of significance was expressed as p value and values showing <.05 was considered as significant to assess the performance of serum CA125 to discriminate malignant from benign adnexal mass.

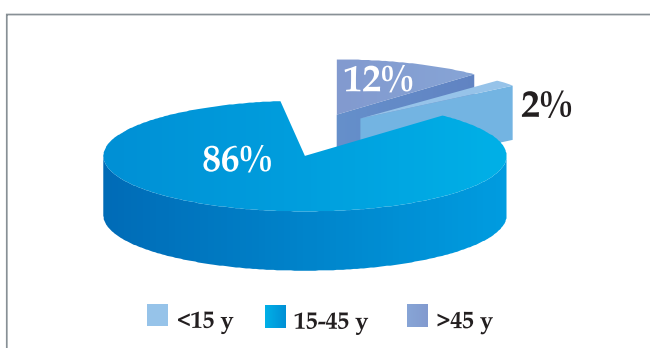
The sensitivity, specificity, positive predictive values (PPV) and negative predictive values (NPV) were calculated at different cut-off values.

Results

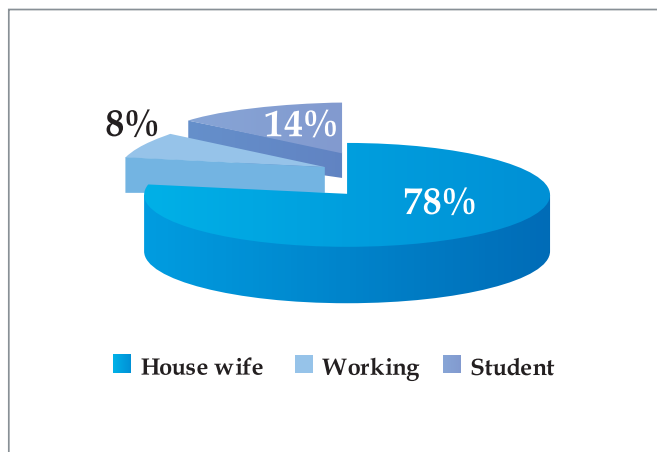
Though 57 patients were initially enrolled for the study, three were dropped out due to refusal of surgery by patient herself in one and decision of giving primary chemotherapy in the rest two. Later on another five were excluded from the study where four were proved to be non-adnexal malignancy (uterine leiomyosarcoma - 2, fibrosarcoma - 1, and malignant fibrous histiocytoma - 1) and one to be uterine leiomyoma on histopathological examination. Thus, 49 patients comprised the study of population.

Out of 49 patients, 9 (18%) had ovarian malignancy, where majority (3) were serous cystadenocarcinoma. On the other hand, 40 (82%) benign adnexal mass were detected. Majority (9) were functional cyst followed by serous cystadenoma (7), ovarian endometrioma (6), dermoid cyst (5) and the rest were other benign pelvic conditions.

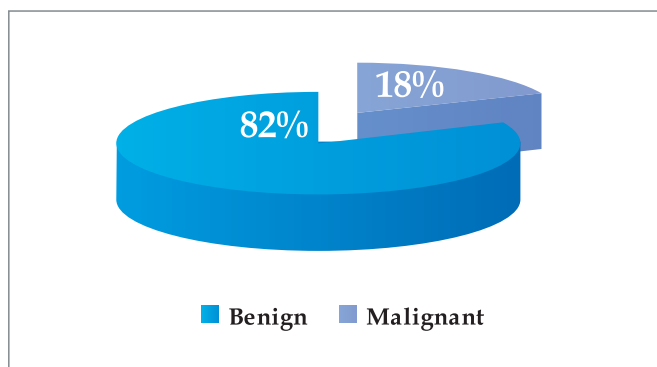
Data regarding the patient characteristics and relevant informations have been presented in the following different Tables and Figures.



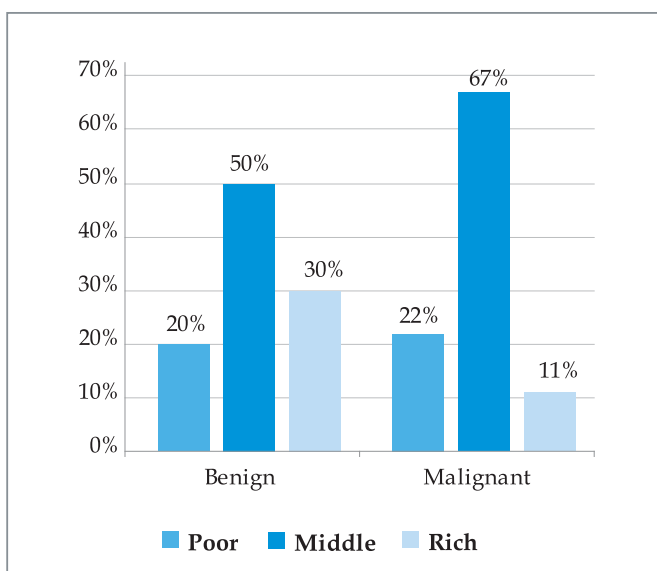
Pie chart 1: Age distribution of the study patients (n=49)



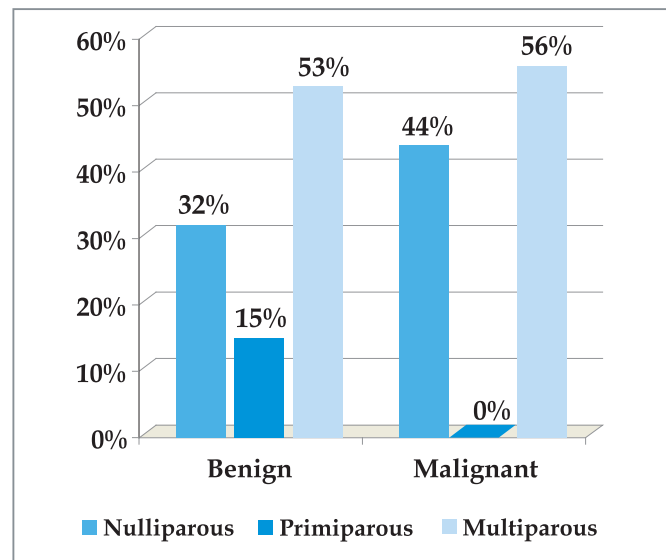
Pie chart 2 : Occupation distribution of the study patients (n=49)



Pie chart 3 : Distribution of Benign and Malignant Adnexal Mass (n=49)



Graph 1 : Distribution of Socio-economic Status in Benign and Malignant Adnexal Mass



Graph 2 : Distribution of Parity in Benign and Malignant Adnexal Mass

Table I : Distribution of Serum CA125 levels in Benign Adnexal Mass (n=40)

Diagnosis	Number	≥35 U/ml	>35 U/ml
	40 (82%)	27 (68%)	13(32%)
Functional cyst	9	8	1
Serous cystadenoma	7	6	1
Mucinous cystadenoma	2	2	0
Dermoid cyst	5	3	2
Parovarian cyst	3	3	0
Ovarian endometrioma	6	3	3
Inflammatory T-O mass	2	0	1
Tubercular pseudocyst	3	0	3
Residual ovarian syndrome	2	1	1
Tubal pregnancy	2	1	1

Table II : Distribution of Serum CA125 levels in Malignant Adnexal Mass /Ovarian malignancy (n=9)

Diagnosis	Number	<35 U/ml	>35 U/ml
	9(18%)	1(11%)	8 (89%)
Serous cystadeno-Ca	3	0	3
Mucinous cystadeno-Ca	1	0	1
Endometroid adeno-Ca	1	0	1
Granulosa cell tumour	1	0	1
Dysgerminoma	1	1	0
Endodermal sinus tumour	1	0	1
Mixed Germ cell tumour	1	0	1

Table III: Distribution of Age, Parity, Socio-economic Status in Adnexal Mass (n=49)

Parameters	Benign (n=40)	Malignant (n=9)	P Value	Statistical Tests
Age (years)				
Range	17-80	11-60	0.950 ^{NS}	Unpaired Student's 't' test
Mean $\pm$ SD	33.42 $\pm$ 12.63	33.11 $\pm$ 16.51		
Median	30	30		
Parity				
Range	0-10	0-9	0.630 ^{NS}	Unpaired Student's 't' test
Mean $\pm$ SD	2.20 $\pm$ 2.49	2.67 $\pm$ 3.12		
Median	2	2		
Socio-economic status^a				
Poor	8 (20%)	2 (22%)	0.499 ^{NS}	Chi-Square test
Middle	20 (50%)	6 (67%)		
Rich	12 (30%)	1 (11%)		

a: Values were expressed in frequency

NS: Not Significant

Table IV : Distribution of Serum CA 125 Level in Adnexal Mass (n=49)

Parameters	Benign (n=40)	Malignant (n=9)	P Value	Statistical Tests
S. CA 125 (U/ml)				
Range	1.96-600	9.47-600	.000 ^{***}	Unpaired Student's 't' test
Mean $\pm$ SD	63.01 $\pm$ 116.80	292.59 $\pm$ 249.46		
Median	21.2	214.64		

*** Significant at p <.001

Table V : Sensitivity, Specificity, PPV & NPV of Serum CA125 in Diagnosis of Malignant Adnexal Masses

Parameters	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
S. CA125 (U/ml)				
> 30	89	58	32	96
> 50	78	70	37	93
> 70	78	78	44	94
> 90	67	85	50	92
> 120	67	88	55	92

Table V : shows sensitivity, specificity, PPV and NPV at different cut-off values of serum CA125 level. For serum CA125, with increasing cut-off values, sensitivity was decreasing at the expense of increasing specificity. PPV demonstrated similar trend to specificity and NPV to the sensitivity.

For serum CA125, best test performance has been obtained at cut-off value of >120 when 67%, 88% 55% and 92% were sensitivity, specificity, PPV and NPV respectively.

Discussion

Ovarian malignancy is a major cancer killer in gynaecological oncology throughout the globe including Bangladesh. Absence of pre-cancerous condition, silent nature or non-specific symptoms at earlier stages and low prevalence are responsible factors for the ineffectiveness of screening programme. Detection at earlier stages can at least reduce the cancer mortality by giving opportunity of primary cytoreductive surgery with accurate staging. But the diagnosis of this adnexal malignancy is difficult due to existence of wide varieties of adnexal pathologies including both the gynaecological and non-gynaecological. A reliable diagnostic method is very much demanding to reduce the problem. Because only then appropriate surgery by experienced gynaecologist at institution with adequate facilities locally or after referral may be possible.

In this study we evaluated the role of CA125 as a preoperative determinant of benign or malignant nature of adnexal mass. 8 out of 9 malignant masses (89%) were identifiable by raised S.CA125 (>35 U/ml). However, only 8 out of 21 patients (38%) with raised CA125 levels had malignant mass. These observations suggest that CA125 assay alone has only a limited role in determining benign or malignant nature of adnexal mass. On the other hand, only 1 of 28 adnexal mass (3%) associated with normal CA125 value were malignant. Thus normal S.CA125 by itself is a more reliable predictor of benignity than an elevated value in malignancy.

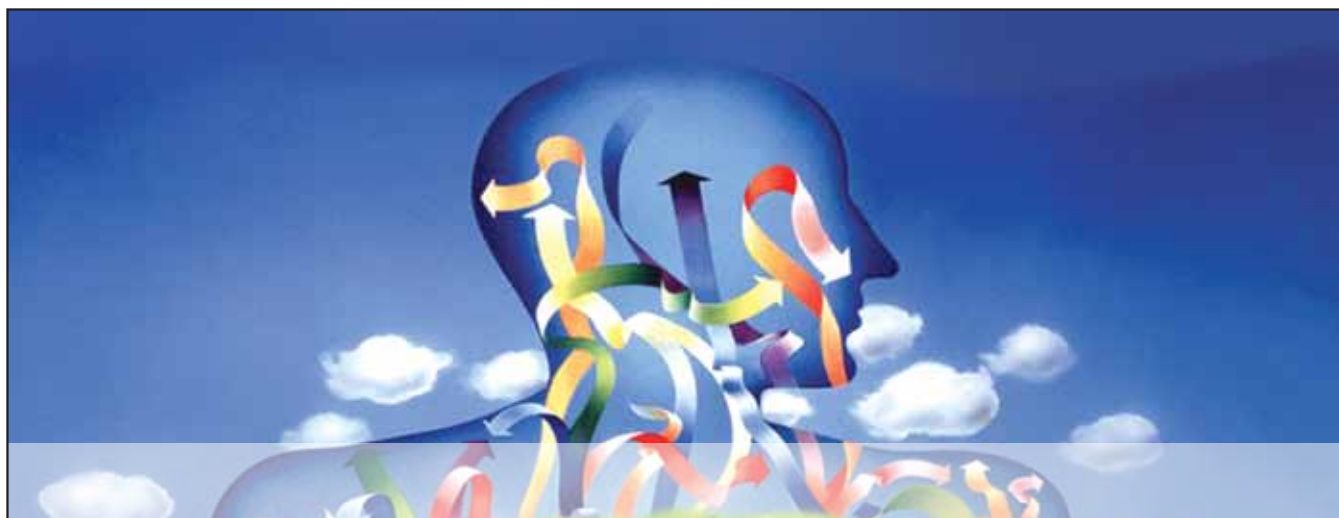
In present study, optimal cut-off value of serum CA125 was >120 U/ml in contrast to other studies, where the cut-off values ranges from 30-70 U/ml. The specificity (88%) of serum CA125 was acceptable and comparable to previous studies of Jacobs et al.¹⁵ and Davies et al.¹² it was 75% and 85% respectively. But somewhat lower sensitivity was found than those researchers (67% versus 81% and 70% respectively), which may be due to finding of lower number of malignant adnexal mass in this study (18% versus 29% in Jacobs et al. 1990 and 30% in Davies et al. 1993).

Conclusion

Established role of S.CA125 is to monitor the progression of non-mucinous ovarian carcinoma. Its role in preoperative assessment of adnexal mass is highly variable and should not be relied upon in isolation. Incorporation of sonographic evaluation of adnexal mass along with S.CA125 assay may improve diagnostic accuracy preoperatively in adnexal mass. Such studies in larger population are demanding.

Reference :

1. Sanfilippo JS and Rock JA. Surgery for Benign Disease of the Ovary. In: Rock JA and Thompson JD(editors). Te Linde's Operative Gynecology. 8th ed. Philadelphia: Lippincott-Raven Publishers , 1997: pp 625-644.
2. Tingulstad S, Hagen B, Skjeldestad FE, Onsrud M, Kiserud T, Halvorsen T, Nustad K. Evaluation of a Risk of Malignancy Index Based on Serum CA125, Ultrasound Findings and Menopausal Status in the preoperative Diagnosis of Pelvic Masses. Br J Obstet Gynecol 1996; 103:826-831
3. Shantha V. Malignant Epithelial Ovarian Tumour. In: Ratnam SS, Rao KB and Arulkumaran S (editors). Obstetrics and Gynaecology. Vol. 1, 2nd ed. Chennai : Orient Longman Ltd. 1999: pp. 395-405.
4. Einhorn N, Sjovall K , Knapp RC , Bast RC Jr. Prospective Evaluation of Serum CA 125 levels for early detection of Ovarian Cancer. Obstet Gynecol 1992;80: 14-18.
5. Young RC, Decker DG, Major F, Homesley H and Ellenberg S. Staging Laparotomy in Early Ovarian Cancer. J Am Med Assoc 1983; 250: 3072-3076.
6. Pettersson F. Annual Report on the result of treatment in gynecological cancer. Int J Gynecol Obstet 1990; 36 suppl : 238- 249.
7. Bell R, Petticrew M, Sheldon T. The performance of screening Tests for Ovarian Cancer: Results of a Systemic Review. Br J Obstet Gynaecol 1998;105:1136-1147
8. Gillis CR, Hole DJ, Still RM, Davis J, kaye SB. Medical Audit, Cancer Registration and Survival in Ovarian Cancer. Lancet 1991; 337: 611-612.
9. Cotran RS, Kumar V, Collins T. Robins Pathologic Basis of Disease. 6th ed. Philadelphia: WB Saunders Company, 1999: pp.260-327.
10. Delgado G, Dram DH and Petrilli EG. Stage III Epithelial Ovarian Cancer: The Role of Maximal surgical Reduction. Gynecol Oncol 1984; 18:293
11. Kehoe S, Powell J, Wilson S, Woodman C. The influence of the operating Surgeon's Specialization on Patient Survival in Ovarian Carcinoma . Int J Cancer 1994; 70:1014-1017.
12. Davies AP, Jacobs I, Woolas R, Fish A, Oram D. The Adnexal Mass: Benign or Malignant? Evaluation of a Risk of malignancy index. Br J Obstet Gynaecol 1993; 100:927-931.
13. Di-Xia C , Schwartz PE , Xinguo L and Zhan Y. Evaluation of CA125 Levels in Differentiating Malignant from Benign Tumors in Patients with Pelvic Masses. Obstet Gynecol 1988;72:23
14. Bast RC Jr, Klug TL, John E, Jenison E, Niloff JM, Lazarus H, Berkowitz RS et al. A Radioimmunoassay Using Monoclonal Antibody to Monitor the Course of Epithelial Ovarian Cancer. N Engl J Med 1983;309:883-887.
15. Jacobs I , Oram D, Fairbanks J, Turner J, Frost C, Grudzinskas JG. A Risk of Malignancy Index incorporating CA-125 Ultrasound and Menopausal Status for the Accurate Preoperative Diagnosis of Ovarian Cancer. Br. J Obstet Gynaecol 1990;97:922-929



 **Meromax[®]**
Meropenem USP 500 mg & 1 gm IV Injection

The full-spectrum coverage against severe & complicated infections

Arthroplasty in Bangladesh

Hossain MA¹

The ORION Medical Journal 2013 May;16-1(39): p13

Abstract

Different types of sever arthritis, trauma and age related wear and tear can lead to damaged joints which may cause sever pain and inability to walk. Joint replacement surgery or arthroplasty can relieve pain, mobility and function of the joint, increasing a patient's ability to take part in various physical activities and lead a normal life again.

What is Arthroplasty

Total joint arthroplasty also called total joint replacement surgery, involves removing a disease joint and replacing it with an artificial joint called prosthesis. It can be performed in both hip and knee joint. The implants used in replacement surgery are biocompatible meaning they are designed to be accepted by the body and they are made to resist corrosion, degradation and wear. There are 2 types of implants for hip joint cemented and uncemented.

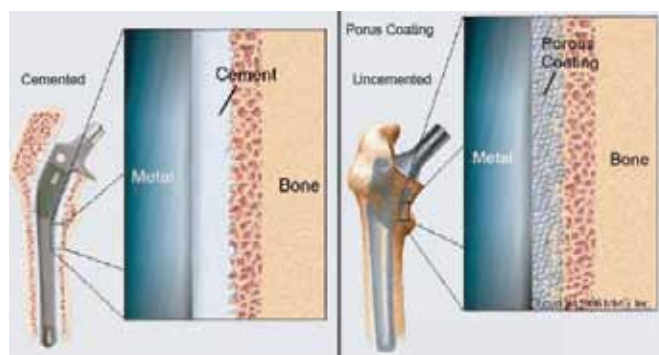


Figure: A cemented prosthesis (left image) is held in place by a type of epoxy cement that attaches the metal to the bone. An uncemented prosthesis (right image) has a fine mesh of holes on the surface area that touches the bone. The mesh allows the bone to grow into the mesh and "become part of" the bone.

Why is Arthroplasty done?

- Pain that keeps you awake at night.
- Little or no relief from pain medications or walking aids.
- Difficulty walking up or down the stairs.
- Trouble rising from a seated position.
- Too much pain which causes you to stop activities of daily living such as walking, sitting and standing.

Before thinking about surgery the doctor may recommend other treatment modalities such as pain medications, physical therapy, exercise and use of walking aids. If above modalities do not work well enough and then joint replacement surgery may be the right option.

Key words : Arthroplasty in Bangladesh, Arthroplasty

1. Prof. Dr. M. Amjad Hossain
Orthopedic surgeon and chief consultant,
Labaid Arthroplasty Center,
Labaid Hospital Ltd, Dhanmondi, Dhaka.

What is the risk of the surgery?

The risk and complications include:

- Risk related to anesthesia.
- Risk related to any type of surgery
- Risk specific to this type of surgery.

Total arthroplasty is generally safe but as with any surgery complications may occur. For example blood clot in leg veins can form as a result of decreased movement of the leg after surgery. For which blood thinning medications are usually prescribed after surgery. Exercise and physiotherapy and early mobilization can also reduce this risk. Infection can occur if surgery is done in hospitals without proper infection control system. Most infections are treated with antibiotics. Dislocation of new joint can take place. To avoid this, it is often recommended that after surgery the patient should not bend more than 90 degrees and should not cross legs across the midline of the body.

Preparation for surgery

Before surgery, the orthopaedic surgeon will ask about your medical history and current medications. After that a brief general physical examination is performed to make sure the patient is healthy enough to undergo surgery. The patient's affected joint is examined paying attention to the range of motion in the joint and the strength of the surrounding muscles. Investigations like some blood tests, X-ray, MRI or CT scan and others will be carried out as per the patient's requirement.

This preoperative evaluation is a good opportunity for the patient to ask questions about the procedure.

What is the cost?

The cost of hip and knee replacement surgery in Bangladesh is much lesser than that of the other hospitals of the world.

Country	Cost of hip & knee replacement
U.S.A	45,000-50,000 U.S.D
Singapore	25,000-30,000 U.S.D
Thailand	15,000-20,000 U.S.D
India	10,000-15,000 U.S.D
Bangladesh	3,000-5,000 U.S.D (2.5-4 lacs BDT)

Total arthroplasty or total joint replacement surgery is very successful in helping decrease pain and improve the quality of life. This operation is safe and carried out a better outcome. The patient should expect a new joint with wide range of movement and also reduced pain that he or she felt before surgery. A successful arthroplasty can bring the ability to swim, play golf, walk or ride a motor bike for the patient.

Before ending I just want to say "LIFE IS MOVEMENT AND MOVEMENT IS LIFE".

Treatment cost of surgically treated congenital anomaly patients in Dhaka Shishu (Children) Hospital

Akter J¹, Islam M S², Ahmed S M M³, Khan J G⁴

The ORION Medical Journal 2013 May;16-1(39): p14-18

Abstract

A cross-sectional descriptive study was conducted in Dhaka Shishu Hospital, to explore the treatment cost in patient perspective among the surgically treated congenital anomaly patients. During January 2009 to June 2009, an interview with parents of 87 cases and the treatment records of the children were observed. Non-probability purposive sampling was used to select 87 cases; of them 60.9%(53) were gastrointestinal anomalies, 33.3%(29) urogenital, 1.1%(1) sacrococcygeal teratoma and 4.6%(4) were craniofacial anomalies. About 57.5%(50) were single stage and 42.5%(37) were multistage surgeries. Near about 36% were belonging to families living on subsistence farming (chi-Square=17.391, $p>0.05$). If sample size was large, systematically, it could be significant that most of the patients were from low socioeconomic group. Mean monthly income of the family was Tk. 6318.42 $\pm$ 1862.75. With few exceptions monthly income of affected families were more towards the lower range. The study revealed the average total treatment cost per patient was Tk. 65086.04 $\pm$ 39148.61 whereas direct cost was 62% (40688.92 $\pm$ 32826.23) and indirect cost was 38% (24397.13 $\pm$ 14876.69). Long waiting serial for operation was revealed and the mean duration of hospital stay of the respondents (n=87) was 71.95 $\pm$ 48.70 days. Transport and tipping cost constituted important components in indirect cost. Surgical

treatment of congenital anomaly in Dhaka Shishu Hospital was found one of the costly treatment specially for the disadvantaged rural population. The study also suggested that increasing of surgical facilities would reduce waiting serial for operation and could minimize the economic burden to the families.

Introduction

About 3% of new borns have a "major physical anomaly", meaning a physical anomaly that has cosmetic or functional significance¹. Congenital disorders vary widely in causation and abnormalities. Ascertaining the incidence and spectrum of congenital anomalies along with the treatment cost in neonates born in a rural and urban in Bangladesh are essential. The country is in the process of achieving the Millennium Development Goals. National health policy of Bangladesh aims to make the health facilities available within the reach of every citizen by the year 2015. It is clear that at present our health services are neither sufficient nor efficient enough to cope with the challenge. There is ongoing race between the medical resources and increasing population. The debate on containing the cost of health care is mainly focused on the supply side and the financing of health care². Little attention is given to changes in population health, which is another important determinant of costs. This may be because the relation between disease and costs is not straight forward and relevant data are often lacking.

Surgical treatment of birth defects are one of the High-Cost users of Medical Care. In a study in South Africa it was found that the major structural anomalies occur in 2-3% of live born infants and an additional 2-3% are recognized in children by age of 5 years, for a total of 4-6%. Birth defects are leading causes of infant mortality, accounting for approximately 21% of infant death³. In Bangladesh infant mortality rate is 51 per thousand live births. 4% of neonatal deaths are due to congenital anomaly⁴.

Bangladesh is one of the poorest countries in the world with a population of more than 142 million. Most Bangladeshi are rural, living on subsistence farming. Nearly half of the population live with less than \$1 per day. Here monthly family income of taka 5000 or less, between taka 5,000-10,000 and over taka 10,000 are considered as low, middle and high- income group⁵.

Key words: Congenital Anomaly, Treatment Cost, Direct Cost, Indirect Cost, Low-Socioeconomic Group

1. Dr. Jamila Akter
MPH, Lecturer, Department of Community Medicine, Uttara Adhunik Medical College, Uttara, Dhaka.
2. Dr. Md. Shafiqul Islam
MSc (London) PhD (Cambridge), Associate Professor of Epidemiology, Department of Epidemiology National Institute of Preventive and Social Medicine (NIPSOM) Mohakhali, Dhaka 1212.
3. Professor S M Moslehuddin Ahmed
MPhil, MPH Professor(cc) and Head, Department of Community Medicine, Uttara Adhunik Medical College, Uttara, Dhaka.
4. Dr. Jaglul Gaffer Khan
M.C.P.S.(Surgery), M.S (Pediatric Surgery)
Medical officer, Department of Surgery
Dhaka Medical College & Hospital, Dhaka.

Dhaka Shishu Hospital is the only pediatric hospital in the country, performing approximately thousand operations each year. Since pediatric surgery is not easily available and not so developed in Bangladesh, many children die at birth from congenital malformation and most of those who survive lives with their anomalies.

Patients with important malformations such as anorectal, intestinal, urological and genital malformations are referred to Calcutta in India, where the patients are charged from \$ 1000- 2000 for the surgery, an enormous sum for a Bengali family whose daily income is \$1-2. The illness of the child is a catastrophic event that forces a family in to debt for several years. It is not rare to meet families that sold all their properties to pay the hospital bill for the cure of a congenital anomaly of their child. The missionary hospital Santa Maria Sick Assistance carried about 120 operations during their each mission with single operation cost of nearly \$200⁶. These operations are hardly affordable by low socioeconomic group. There is no evidence of cost accounting in this sector. A regular cost study can help to fix the cost at lower level which favors the people as well as the government and to establish a competition hospital to hospital, time to time⁷.

Materials and Method

This was a cross-sectional type of descriptive study. The study was conducted in Dhaka Shishu Hospital from January 2009 to June 2009; i.e. over a period of six months. All the congenital anomaly patients attending for follow up within three months of their complete treatment came at surgery out patient department were the target population for the study. Non probability purposive sampling was done to select 87 respondents. The data were collected by semi-structured questionnaire and observation check list. Data were analyzed by using computer software SPSS (Statistical Package for the Social Science) version-11.5.

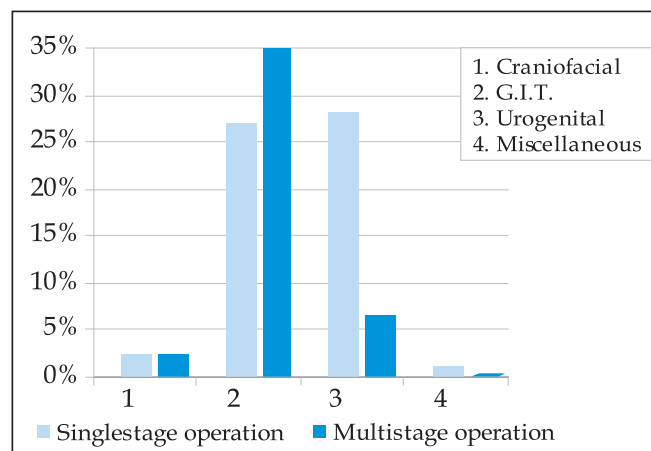
Result

Table 1: Frequency distribution of congenital anomaly types (n=87)

Type of congenital anomaly	Frequency	Percent
Craniofacial	4	4.6 %
Gastro intestinal	53	60.9 %
Urogenital	29	33.3 %
Miscellaneous	1	1.1 %
Total	87	100.0 %

Table 1 shows anomalies of gastrointestinal tract were predominant type with 60.9% cases followed by urogenital anomalies with 33.3% and craniofacial anomalies with 4.6% of total selected cases.

Graph 1 : Distribution of reconstructive surgery based on stages of operation (n=87)



Graph 1 shows single stage surgery were observed to be more common (57.5%), followed by multistage surgery (42.5%). Multistage surgeries were more common in gastrointestinal tract anomalies.

Table 2 : Father's occupation category

Father's occupation	Type of congenital anomaly				Total
	Craniofacial	Gastrointestinal	Urogenital	Miscellaneous	
Agriculture	3	18	10	0	31(35.63%)
Production	0	16	1	0	17(19.54%)
Trade and sale	0	9	8	0	17(19.54%)
Service	1	8	9	1	19(21.84%)
Other	0	2	1	0	3(3.45%)
Total	4	53	29	1	87(100%)

Table 2 reveals that the most of the respondents (35.63%) were belonging to agriculture based families (chi-Square = 17.391, $p > 0.05$). Fathers of the rest of the respondents were involved in jobs like production and transport, trade and sale, service professional, technical, managerial and worked in foreign country.

Table 3 : Distribution of families based on monthly income

Monthly income	Frequency	Percent
<5000 Tk.	4	4.6 0%
5000 -10,000 Tk.	68	78.2 0%
>10,000 Tk.	15	17.2 0%
Total	87	100.0 0%

Table 3 shows that 78.2% were middle class families. Minimum income found was taka 3000 and maximum income found was taka 15000. Mean income was taka 6318.42 ± 1862.75 . With few exceptions monthly income of affected families were more towards lower range.

Table 4 : Cost involvement in direct cost (n=87)

Type of surgery	Direct cost	No. of patient	Cost per patient
Craniofacial	84834.00	4	21208.50
Gastrointestinal	2887722.04	53	54485.32
Urogenital	553620.00	29	19090.34
Miscellaneous	13760.00	1	13760.00
Total	3539936.04	87	40688.92

Table 4 showing the mean direct cost which was Tk. 40688.92 ± 32826.23 . Direct cost included cost of medicine, investigation, hospital stay i.e. seat rent and diet cost, OT charge, admission fees and ticket fees. Total direct cost constituted 62% of total treatment cost

Table 5 : Distribution of cost incurred due to hospital stay

Type of surgery	No. of patient	Total duration of stay (in days)	Total cost (seat rent + diet cost)
Craniofacial	4	85	25500.00
Gastro intestinal	53	4920	1476000.00
Urogenital	29	1230	369000.00
Miscellaneous	1	19	5700.00
Total	87	6254	1876200.00

Table 5 displaying the total duration of hospital staying days for the selected patients which was found 6254 days and the total stay cost was taka 1876200. Average duration of stay per patient was 71.95 ± 48.70 days. Total cost incurred due to hospital stay constituted 55% of direct cost and 34% of the total treatment cost.

Table 6 : Cost involved in indirect cost (n=87)

Type of surgery	Indirect cost	No. of patient	Cost per patient
Craniofacial	47650.00	4	11912.50
Gastrointestinal	1624249.96	53	30646.23
Urogenital	442600.00	29	15262.07
Miscellaneous	8050.00	1	8050.00
Total	2122549.96	87	24397.13

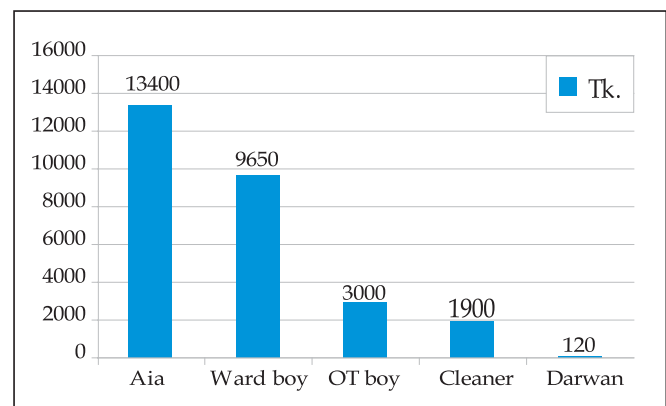
Table 6 shows that the total indirect cost was Tk. 2122549.96. The mean indirect cost for the selected cases (n=87) was Tk. 24397.13 ± 14876.69 . Indirect cost included cost for attendant's, cost for tips, transport cost, telephone bill, cost for lost work days. The total indirect cost constituted 38% of total treatment cost.

Table 7 : Distribution of transport cost (n=87)

Type of anomaly	Total transport cost
Craniofacial	9950
Gastrointestinal	226000
Urogenital	77600
Miscellaneous	1250
Total	314800

Table 7 reveals that the total transport cost for the selected cases was taka 314800. Transport cost per patient on an average was taka 3618.39 ± 3077.19 . This cost element constituted about 15% of total indirect cost.

Graph 2 : Distribution of cost for tips (n=87)



Graph 2 shows that the total cost for tips of the selected patients was taka 28070. The mean cost incurred was taka 322.64 ± 281.58 . Tips were given to the OT boy, Ward boy, Cleaner, Aia and Darwan.

Table 8 : Total treatment cost (n=87)

Type of surgery	Total direct cost	Total indirect cost	Total treatment cost	No. of patient	Cost per patient
Craniofacial	84834.00	47650.00	132484.00	4	33121.00
Gastrointestinal	2887722.04	1624249.96	4511972.00	53	85131.55
Urogenital	553620.00	442600.00	996220.00	29	34352.41
Miscellaneous	13760.00	8050.00	21810.00	1	21810.00
Total	3539936.04	2122549.96	5662486.00	87	65086.05

Table 8 showing the total treatment cost of 87 patients which on an average was Tk. 65086.05 $\pm$ 39148.61 per patient.

Discussion

Cost characteristics of hospital patients were analyzed on different studies to determine the demands on healthcare resources caused by different types of illnesses and variation with age and sex. In developing countries the health services absorb a significant portion of public expenditure and family budget. Economic evaluation is essential for proper management by improving allocation of health resources, increasing their efficiency, identifying more cost effective technologies and reducing the wastage. Basic financial data will help the authority to judge the merits of existing and proposed expenditure pattern, financial policies and their reform. This will help to ensure the countries scarce resources are to be allotted in such way as to maximize their contribution to the national objective and social welfare⁸.

To determine value of treatment, accurate measures of both outcomes and costs are essential, which may then be compared for the same provider or system over time or between providers, to foster improvement in health⁹. Because of long term tracking of patients, evidences about the cost-effectiveness of neonatal surgery is lacking¹⁰. In our country there are lacking of such studies.

In a study on "High-Cost Users of Medical Care" it was shown that on average, the high-cost 13 percent of patients consumed as many resources as the low-cost 87 percent. Repeated hospitalizations for the same disease were more characteristic of the expensive patients than were single cost-intensive stays, "intensive care," or prolonged single hospitalizations¹¹. In my study, Repeated hospitalizations for multistage surgery were more characteristic of the expensive patients in Dhaka Shishu Hospital.

The progress made in all fields of medicine, including neonatal surgery, has contributed to the rise in healthcare costs. Moreover it was found in a study, that the highest costs for congenital surgical treatment were lost income and transportation; and day care/babysitting for siblings was third¹². In my study in Dhaka Shishu Hospital, it was revealed that not only the direct cost but also indirect cost has contributed a lot in surgical treatment of congenital anomaly patients.

A study on "Risk Factors for Higher Cost in Congenital Heart Operations" showed the cost accounting system that relies on the hospital's internal data to track cost

(both direct and indirect) from the smallest product to broadest producer level. In that study financial risks for patients were not uniform. Most of these variability is in patient services some patients had a prolonged convalescence requiring extended hospital stay. Other patients incurred a much shorter hospital stay and could be repaired at low cost¹³. In another study it was suggested that, system improvement (eg; fewer hospital days until discharge, fewer laboratory studies) may further lower the cost¹⁴. In the present study, both single stage surgery and multistage surgeries were studied. A study on "Cost of refractory epilepsy in adults in USA" was conducted by Murray-MI in 1996. It was found that direct medical costs account for one-thirds of the total costs and the indirect medical costs constitute the remaining two-thirds¹⁵. In my study it was showed that always there is long serial for OT in routine cases. The average hospital staying days for every patient was 71.95 $\pm$ 48.70, which influenced the indirect cost significantly in Dhaka Shishu Hospital.

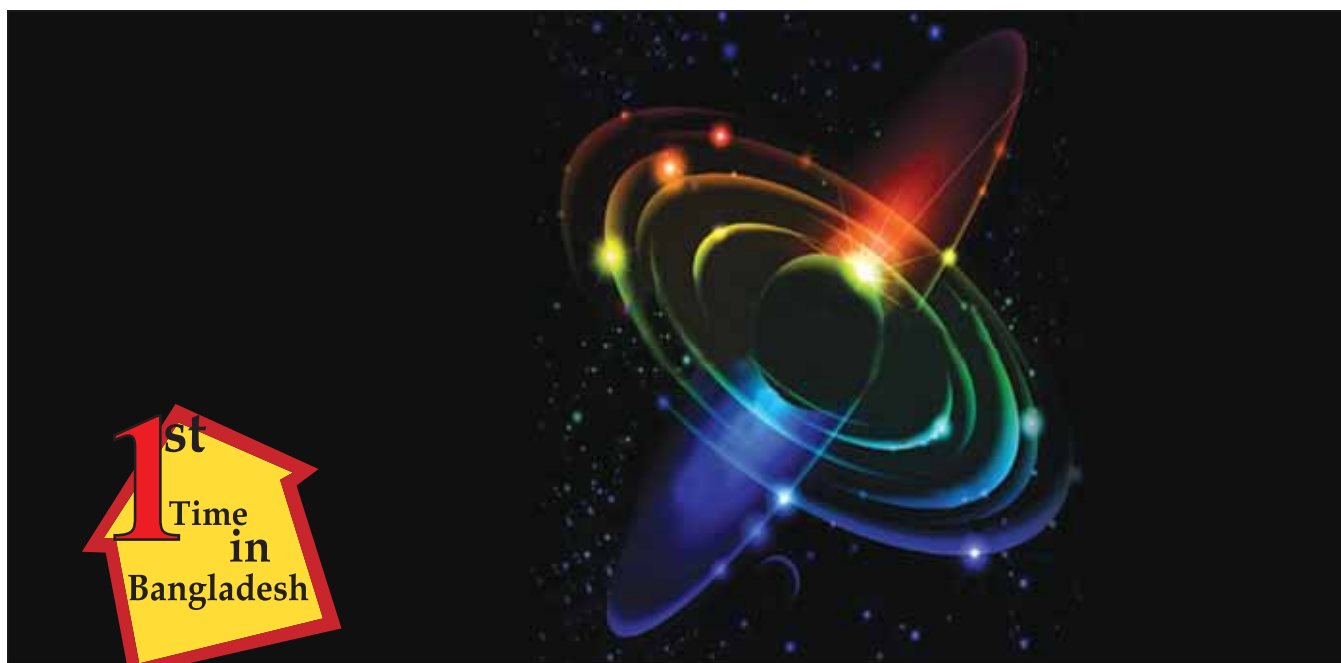
Conclusion

Surgical treatment of congenital anomaly is one of the costly treatment specially for the low socioeconomic group and disadvantaged rural population. In order to meet the challenge increasing of monetary fund as well as development of poor fund is essential. In addition improving the surgical facilities (eg. increasing the number of OT, consultant surgeon, consultant anesthesia and other posts), which would reduce the waiting serial for operation and could minimize the economic burden in treating congenital anomaly patients.

References

1. Kumar, Abbas and Fausto, eds., Robbins and Cotran's Pathologic Basis of Disease, 7th edition, p.470.
2. Aaron H, Schwartz WB. Rationing health care: the choice before us. *Science* 1990; 247: 418-422.
3. Bellisario D L, Edelstyn N. Congenital anomaly in South Africa: 5 year follow- up. *S Afr Med J* 2002;8(1):1-3.
4. World health organization. Child Health profile 2007. Available from: www.who.int/child_adolescent_health/data/media/cah_chp_bangladesh.pdf.
5. Bangladesh Bureau of Statistics. Statistical pocket book Bangladesh 2005.
6. Rossi C D, Fontechiari S, Black R J, Krevsky B. Treatment of congenital anomalies in a missionary hospital in Bangladesh : result of 17 pediatric surgical missions. *Acta Biomed* 2008; 79 : 260-63.

7. Salahuddin AKM, Sinha R P. Financial management-Hospital cost analysis. In : SinghJ P, Ahmed P, editors. Manual for hospital Management. 2nd ed. Dhaka; 1991 : 81-84.
8. Kenneth L, Anne M. Developing countries, health and health economics. In : The economics of health in developing countries. Oxford, New york. Toronto : Oxford university press; 1985: 16-20.
9. Abbott MM, Meara JG. A microcosting approach for isolated, unilateral cleft lip care in the first year of life. Plast Reconstr Surg. 2011 Jan; 127(1): 333-9.
10. Ravitch M M, Barton B A. The need for pediatric surgery as determined by the volume of work and the mode of delivery of surgical care. Ann Intern Med 1974 June 1; 76(11): 754-63.
11. Christopher J. Zook, Ph.D. and Francis D. Moore, M.D. High-Cost Users of Medical Care. N Engl J Med 1980; 302:996-1002May 1, 1980
12. Gerber AU, Torre AH, Büscher G, Stock SA, Graf C, K, Lungen M. Direct non-medical and indirect costs for families with children with congenital cardiac defects in Germany: a survey from a university centre. Cardiol Young. 2010 Apr; 20(2): 178-85. Epub 2010 Mar 4.
13. Golladay k. Risk factors for higher cost in congenital heart operations (dissertation). Division of pediatric cardiology; Department of Nursing Services and office of Operations improvement; Duke University Medical Center, Durham, North Carolina 2007.
14. Davis J T, Allen H D, Cohen D M. Fiscal impact of a practice pattern for secundum atrial septal defect repair in children. Am J Cardiol 1994; 74 : 512-14.
15. Murray M I, Perez L, Allegue F, Alfonsin N G, Faberiro J M, Caeiro I L, et al. Cost of refractory epilepsy in adults in the USA. Br J Epilepsy 1996; 23(2): 139-48.



Tendonil[®]

Acemetacin BP 60 mg Capsule

Patient friendly
new NSAID in Bangladesh

Systemic Lupus Erythematosus (SLE) with pregnancy A successful outcome in a least facilitated health complex

Rassel A¹, Rahman S²

The ORION Medical Journal 2013 May;16-1(39): p19-20

Abstract

Systemic Lupus Erythematosus is a chronic inflammatory disease that can affect the multiple systems. It predominantly affects the young women of reproductive age being the male:female ratio is 1:9. Women with Systemic Lupus Erythematosus have no increased risk of infertility from the disease itself but at risk for various complications of pregnancy. Women with lupus disease are not less fertile than unaffected women. But quarries are there, regarding flare of SLE during pregnancy, fetal outcome, possibility of fetal loss, judicious use of various drugs. Multiple factors have been identified in association with less successful outcome, including lupus activity during pregnancy, previous nephropathy, maternal hypertension and positivity for antiphospholipid (aPL) antibodies. Better management and multidisciplinary care have meant that successful pregnancies are becoming the rule rather than exception in SLE. The case that will be discussed is exception one.

Case

Mrs. Fulpari 25 yrs old Para: 1+1(abortion), 3rd gravida house wife of very lower class family hailing from Pachupur, Atrai, Naogaon got herself admitted in Atrai Upzilla Health Complex on 8th oct, 2012 at 11.30 am at her 34 weeks of gestation with the complaints of lower abdominal pain, alopecia, butterfly rash, hypertension and swelling of the both legs. She had no history of antenatal care or even any sort of counseling about the disease those she posses.



Figure: Alopecia

Key words: SLE, Systemic Lupus Erythematosus

1. Dr. Mohammad Aftab Rassel
Assistant surgeon, Atrai Upzilla Health Complex, Naogaon.
2. Dr. Sadia Rahman
FCPS (Gyn&obs) Medical officer, Atrai Upzilla Health Complex, Naogaon.



Figure: Butterfly rash

On quarries she mentioned irregular intake of Prednisolone, NSAIDs, herbal medications. After admission, on examination her BP was 160/100 mm of Hg, pulse was 98 b/min regular, tender oral ulceration and bilateral leg edema, with extreme alopecia. Height of uterus was less than her gestation and fetal heart rate 136 b/min. Her vaginal examination revealed 4 cm dilatation with 60% effacement, urine albumin(++), As the patient was very poor, on the basis of clinical suspicion, considering other circumstances, we became enthusiastic to manage the case with limited facilities. Methylodopa and stress dose of Prednisolone (1.5 mg/kg/day) was started. On 10th Oct. at 9.00 am a male baby weighing about 2.1 kg with APGAR score 6/10 was delivered vaginally. There was no post partum complication. We tried our best to manage these two critical patients (mother with SLE & baby with low birth weight) with our limited facilities and great enthusiasms. Proper assurance, maternal and fetal monitoring during and after delivery and counseling regarding family limitation at the least facilitated institution was the key part of our management.

Key notes related to SLE with pregnancy:

- ❑ Systemic Lupus Erythematosus may flare at any time during pregnancy; even some women may experience a flare of SLE after delivery^{2,1}. Flare is more likely if disease has been active within 6 months of conception⁶.
- ❑ Fertility rate in lupus patients is similar to general population².

- ❑ It is difficult to distinguish between discomforts of pregnancy and symptoms of lupus pregnancy, such as fatigue, ankle edema, joint pain, breathlessness etc.
- ❑ As pregnancy in women with SLE is a high risk, so it best undertaken when disease is quiescent^{2,5}.
- ❑ Women with SLE have an increased incidence of miscarriage, pre-eclampsia, prematurity and IUGR (Intrauterine growth retardation)².
- ❑ After 28 weeks of pregnancy monitoring must be frequent, every one or two weekly¹.
- ❑ Fetal monitoring may include a biophysical profile and non-stress test^{1,4}. Although neonatal SLE is rare (2%), carries a significant mortality & morbidity when the fetal heart is targeted organ like CHB (congenital heart block)⁴.
- ❑ All lupus patients intending to become pregnant to be screened for anti-Ro and anti-La antibodies².
- ❑ Hydroxychloroquine, NSAIDs (Ibuprofen), Prednisolone, Azathioprine can be continued during pregnancy if the condition of mother's SLE so warrants^{2,1}.
- ❑ Aspirin and/or subcutaneous heparin should be considered for those who have recurrent miscarriages and positive antiphospholipid antibodies³.
- ❑ Prednisolone and Hydroxychloroquine compatible with breast-feeding. Breast-feeding in nursing mother on Azathioprine Cyclophosphamide, Methotrexate, Cyclosporine^{1,2}.

Discussion

SLE is an autoimmune disease, associated with significant fetal and maternal morbidity. Patients of SLE have normal fertility and should not be discouraged at all from having children. Close counseling with a rheumatologist and high risk obstetrical provider is essential regarding optimal timing of conception, maternal and fetal complications during

pregnancy and their consequences, risk of neonatal lupus

syndrome in those patients with positive anti-Ro and anti-La antibodies. Women who have required steroids to control SLE during pregnancy need an increased dose, called a "stress dose" during delivery. The increased dose helps the body respond normally to the physical stresses of child birth. Most women with lupus are able to have an uncomplicated vaginal delivery.

Conclusion

Pregnancy in SLE should be planned and a management strategy should be agreed in full consultation with the patient, prior to conception leads to a successful pregnancy outcome.

References

1. www.uptodate.com ,Treatment of Systemic lupus erythematosus, patient information: Systemic lupus erythematosus and Pregnancy (Beyond the basics)
2. R. Handa,U.Kumar,JP Wali, Systemic lupus erythematosus and Pregnancy japi.june 2006.vol.54
3. Petri M. Systemic lupus erythematosus and pregnancy.Rheum Dis Clin North Am 1994;20:87-118
4. Clark CA, Spitzer KA, Laskin CA: Decrease in pregnancy loss rates in patients with Systemic lupus erythematosus.J.Rheumatol 2005;32: 1709.
5. Hayslett JP. Maternal and fetal complications in pregnant women with Systemic lupus erythematosus Am J Kidney Dis 1991;17:123
6. Khamashta MA, lupus research unit,The Rayne institutions ,King's College London School of Medicine. Systemic lupus erythematosus and pregnancy, Best Pract Res Clin Rheumatol 2006;August 20(4):6:85-94.
7. Lima F, Buchanan N, Khamashta M, Kerslake S, Hughes G, obstetric outcome in Systemic lupus erythematosus. Semin arthritis Rheum 1995;25:84-92.

Information for Authors

The followings are the minimum requirements for manuscripts submitted for publication-

The MANUSCRIPT should be prepared according to the modified Vancouver style as proposed by the International Committee of Medical Journal Editors (ICMJE). The entire uniform requirements document was revised in 1997 which is available in the Journal of American Medical Association (JAMA. 1997;277:927-934) and is also available at the JAMA website. Sections were updated in May 1999 and May 2000. The following section is based mostly on May 2000 update.

THREE COPIES of the manuscript should be sent in a heavy paper envelope. Manuscripts must accompany a covering letter signed by all authors. This must include (i) information on prior or duplicate publication or submission elsewhere of any part of the work as defined earlier in this document (ii) a statement of financial or other relationships that might lead to a conflict of interest (iii) a statement that the manuscript has been read and approved by all the authors, that the requirements for authorship have been met and (iv) the name, address, telephone number and email address of the corresponding author, who is responsible for communicating with the other authors about revisions and final approval of the proofs. The letter should give any additional information that may be helpful to the editor.

A CD (Compact Disc) must accompany the printed copies of the manuscript containing an electronic copy of the manuscript prepared in Microsoft Word 6.0 or later version.

For further information please visit our official website
www.orion-group.net/medicaljournal for "Information for Authors"
 or see previous volume of "The ORION" Medical Journal.

ACTH dependent Adrenal Adenoma

Qureshi NK¹, Shefin SM², Amin F³, Ferdous HS⁴, Pathan F⁵, Latif ZA⁶.

The ORION Medical Journal 2013 May;16-1(39): p21-25

Abstract

A 24-years-old, unmarried female admitted in the Endocrinology department of BIRDEM with the complaints of gradual weight gain, excessive facial hair, acne and generalized weakness for two years. On examination, patient had signs of Cushing's syndrome. Investigations revealed hypercortisolemia, high ACTH in the face of hypercortisolemia, adrenal adenoma, pituitary hyperplasia and primary hypothyroidism. Patients was diagnosed a case of ACTH dependent adrenal adenoma variety of Cushing's disease with primary hypothyroidism. As patient refused neurosurgical treatment, bilateral adrenalectomy was done and had an uneventful recovery. Histopathology revealed left sided adrenal adenoma.

Introduction

Chronic glucocorticoid excess, whatever its cause, leads to constellation of symptoms and physical features known as Cushing's syndrome. It is commonly iatrogenic, caused by chronic glucocorticoid therapy. "Spontaneous Cushing's syndrome" is caused by tumors that produce cortisol or adrenocorticotrophic hormone (ACTH)¹.

Cushing's disease refers to one specific cause, a tumor (adenoma) in the pituitary gland that produces large amounts of ACTH, which in turn elevates cortisol. It was described by Harvey Cushing in 1932. He reported

series of 12 patients who manifested signs of hypercortisolism during their lifetime. On the basis of the demonstration of pituitary basophilic adenomas in six of the eight patients at autopsy, Cushing concluded that there was a causal relationship between the pituitary tumor and the characteristic bilateral adrenocortical hyperplasia².

Cushing's syndrome is classified as either ACTH dependent or ACTH independent type. ACTH dependent types of Cushing's syndrome which include Cushing's disease and ectopic ACTH syndrome, characterized by chronic ACTH hypersecretion. Chronic ACTH excess results in hyperplasia of adrenal zona fasciculata and reticularis which results in increased secretion of cortisol and androgens³. ACTH independent Cushing's syndrome is caused by adrenal adenoma, carcinoma or nodular adrenal hyperplasia that is characterized by cortisol excess with suppressed pituitary ACTH secretion.

Among patients with Cushing's disease as many as 80 percent have a pituitary adenoma. Other rare varieties of pituitary lesions reported in association with the disease include diffuse or multinodular hyperplasia of corticotrophs; multiple, separate pituitary adenomas; coexisting corticotrope hyperplasia and adenoma; and gangliocytoma and adenoma^{3,4}.

Most epidemiological studies have suggested that spontaneous Cushing's syndrome is an unusual disorder. A population based study in Denmark found incidence of 2 cases per 1 million inhabitants per year⁵. Clinical features of Cushing's syndrome include central obesity with sparing the limbs (90%) with "moon face", hypertension (85%), plethora (70%), hirsutism (75%), striae (50%), bruising (35%), menstrual disorder (70%), and weakness (65%) etc³. Patients with Cushing's disease have androgen excess that causes hirsutism, acne and amenorrhoea^{3,6}.

Patients with unusual features for age (e.g. osteoporosis, hypertension), patients with multiple and progressive features, particularly those who are more predictive of Cushing's syndrome, children with decreasing height percentile and increasing weight, patients with adrenal incidentaloma compatible with adenoma should be screened for Cushing's syndrome⁷. For screening purpose serum basal cortisol, Circadian rhythm of serum cortisol, 24 hours urinary free cortisol,

Key words: ACTH, Adrenal Adenoma, Cushing's Syndrome

1. Dr. Nazmul Kabir Qureshi
MD (EM), BIRDEM Academy, Dhaka, Bangladesh.
2. Dr. Sultana Marufa Shefin
MD(EM), Registrar, Department of Endocrinology,
Ibrahim Medical College & BIRDEM hospital, Dhaka, Bangladesh.
3. Dr. Md. Firoz Amin
MD(EM), Assistant Professor, Department of Endocrinology,
Ibrahim Medical College & BIRDEM hospital, Dhaka, Bangladesh.
4. Dr Hossain Shahid Ferdous
DEM, Associate Professor of Endocrinology, Department of
Endocrinology, Ibrahim Medical College & BIRDEM hospital, Dhaka,
Bangladesh.
5. Professor Md. Faruque Pathan
MD(EM), Professor of Endocrinology, Department of Endocrinology,
Ibrahim Medical College & BIRDEM hospital, Dhaka, Bangladesh.
6. Professor Zafar Ahmed Latif
FCPS, Professor and Head of the department, Department of
Endocrinology, Ibrahim Medical College & BIRDEM hospital, Dhaka,
Bangladesh.

late night salivary cortisol, overnight 1 mg dexamethasone suppression test, two days low dose dexamethasone suppression tests are done. After establishing the diagnosis, Plasma ACTH level should be done to divide ACTH dependent and ACTH independent form. Further tests include high dose dexamethasone suppression test, CRH stimulation test, inferior petrosal sinus sampling, adrenal vein sampling, and imaging of pituitary & adrenal glands⁸. Treatment options of Cushing's disease currently include pituitary microsurgery, various forms of radiotherapy and pharmacological inhibition of ACTH secretion. Before introduction of pituitary microsurgery, bilateral adrenalectomy was the preferred treatment and may still be employed in whom other therapies are unsuccessful or not available³. For adrenal adenoma, open or laparoscopic adrenalectomy can be done. For adrenal carcinoma both operative and medical treatments (mitotane, ketoconazole, metyrapone etc) are available. In case of ACTH dependent macronodular hyperplasia of adrenal gland, treatment option is like that of Cushing's disease.

Case

A 24-years-old, unmarried female admitted in the Endocrinology department of BIRDEM with the complaints of gradual weight gain, excessive facial hair, acne and generalized weakness for two years.

According to the statement of the patient she was reasonably well 2 years back. Then she noticed gradual increase of her weight. Her weight was initially around 65 kg. Then it started increasing and during the last six months she experience rapid weight gain of around 6-7 kg which made her worried. She had scanty fine pale hair over her upper lip before but for the last one and half years those were becoming thick, dark, and coarse and were increasing in number. She has also developed coarse hair under her chin during this period. On query, she mentioned about gradual coarsening of her body hair mostly over arms, legs, chest for the last one year with increasing severity for the last six months. For the last one and half year she has also been suffering from acne on her face.

Meanwhile, she developed generalized weakness more in lower limbs which made it a bit difficult for her to get stand up from squatting position. Her appetite was normal and she was suffering from constipation. She did not take steroid in any preparation prior to onset of this illness.

During the course of her illness she visited several local doctors. Her initial diagnosis was hypertension with suspected case of Cushing's syndrome. She was also seen by gynecologist as she had excessive menstrual

bleeding. For further evaluation she was referred to an endocrinologist and subsequently she got admitted into BIRDEM on February 2010. On examination, there was moon facies, facial plethora with acne, hirsutism (Ferriman-Gallway score more than 8) and mild frontal baldness (Figure-1).



Fig. 1: Cushingoid appearance of the patient.

Buffalo hump and supraclavicular fat pad were present. BMI was 30.06 kg/m². Waist circumference was 91 cm. Patient was mildly anemic, pulse 80 b/min regular, BP 135/80 mm of Hg (on treatment).

Mild pitting ankle edema was present. Her skin was paper thin, with multiple pale purple striae over lower abdomen directed upwards laterally and over upper thigh measuring more than 2 cm in diameter.



Fig. 2: USG showing enlarged left suprarenal gland.

investigations e.g. FT₄, TSH, S. electrolyte, S. ACTH, Lipid profile, HbA1C, Hb% and to do MRI of sella and parasellar region after 1 year.

Discussion

Establishing the cause of Cushing's syndrome is one of the most challenging processes in clinical endocrinology. No existing test has sufficient diagnostic accuracy when used alone. Biochemical testing, including measurement of plasma ACTH, high dose dexamethasone suppression test, and CRH stimulation test, is the integral to the differential diagnosis. The adjunctive use of focused imaging, including CT, MRI can often provide a diagnosis. The causes of Cushing's syndrome can be divided broadly into ACTH-dependent or ACTH-independent forms. Sustained exposure to excess cortisol suppresses the normal production of CRH and ACTH. As a result, circulating plasma ACTH concentrations are low in primary adrenal disorders and normal or increased in excess ACTH secretion from a pituitary tumor (Cushing's disease or ectopic source). These physiological differences lead to measurement of plasma ACTH as the initial focus of differential diagnosis.

Plasma ACTH should be measured by sensitive assay to differentiate ACTH-dependent from ACTH-independent hypercortisolism. It is prudent to measure ACTH on multiple occasions. Plasma ACTH suppression (<5 pg/ml) identifies ACTH independent primary adrenal causes of Cushing's syndrome. No further biochemical testing is needed⁹. In the face of hypercortisolism, a normal or elevated ACTH (>15 pg/ml) level is consistent with an ACTH producing tumor¹⁰. Again in the face of hypercortisolism, an intermediate ACTH concentration between 5 to 15 pg/ml is generally consistent with ACTH-dependent Cushing's syndrome¹⁰.

Pituitary MRI should be obtained in all patients who have ACTH-dependent Cushing's syndrome. It has 50% to 60% sensitivity. A false negative study may result from small tumor size or signal characteristics of ACTH-secreting tissue that are similar to normal pituitary tissue¹¹. Patient may rarely have diffuse hyperplasia of pituitary gland rather than adenoma. In a series of Pituitary adenomas from 15 patients with Cushing's disease were studied who underwent micro-surgical exploration of the pituitary gland. Two of them had diffuse hyperplasia of pituitary gland rather than discrete adenomas⁴.

Pituitary dependent bilateral adrenocortical hyperplasia (Cushing's disease) is present in 70 to 80 percent of all

patients with Cushing's syndrome. In 20 to 40 percent of patients with Cushing's disease, macroscopic adrenocortical nodules, surrounded by hyperplastic cortical tissue, are found, usually in both adrenal glands (macronodular hyperplasia). Most probably, macronodular hyperplasia is a late stage of diffuse hyperplasia, developing under the influence of long-standing endogenous hyperadrenocorticotropism.

In recent years it has been shown that in some patients with pituitary-dependent Cushing's syndrome, a unilateral adrenal nodule suggestive of a cortical adenoma can develop¹². Thin section of CT or MRI of adrenal glands shows atrophy of contralateral gland or remaining involved adrenal gland in adrenal adenoma. In the absence of atrophy of contralateral gland or the remaining involves gland, the biochemical diagnosis should be reconsidered. If the diagnosis is affirmed, ACTH-dependent micronodular or macronodular adrenal hyperplasia should be considered¹³. When a pituitary adenoma produces excess ACTH it usually leads to hyperplasia of both adrenal glands. This occasionally may result in macronodular hyperplasia that is one or more functional nodules that are nonetheless not autonomous. Micronodular hyperplasia also occurs but not seen on imaging¹⁴. It is important to note that atrophy of the normal limbs of the adrenal glands does not always occur with a hyperfunctional adrenal adenoma, but normal or thickened adrenal limbs and an adrenal nodule, in the clinical setting of Cushing syndrome, should raise concern about ACTH-dependent Cushing syndrome¹⁴. If the remainder of the glands is hyperplastic, the possibility of an ACTH-dependent macronodular hyperplasia with a unilaterally dominant nodule should be considered¹⁵.

In conclusion it is prudent to mention that, the evaluation of patient of suspected Cushing's syndrome is a challenging process that requires a combined biochemical and imaging strategy for tumor localization. When hypercortisolism has been established, the first step in the diagnostic algorithm is to determine whether the patient has ACTH-dependent or ACTH-independent hypercortisolism. In the ACTH-independent Cushing's syndrome imaging of adrenal glands is usually sufficient to localize adrenal pathology. However, in ACTH-dependent case, no noninvasive biochemical tests offer sufficient sensitivity for diagnosis when used alone. Most patients require combination of all biochemical and imaging modalities. Focused imaging using MRI, CT or nuclear imaging can facilitate tumor localization in patient who has ectopic ACTH secretion.

References

1. Kumar, Abbas, Fausto. Robbins and Cotran Pathologic Basis of Disease, 7th ed. Elsevier-Saunders; New York, 2005.
2. Cushing HW. The basophil adenomas of the pituitary body and their clinical manifestations (pituitary basophilism); Johns Hopkins Hospital Bull 1932; 50: 137-95.
3. Gardner DG, Shoback D. Greenspan's Basic and Clinical Endocrinology. 8th ed 2007; 10:346-95.
4. Raffel C, Boggan JE, Lawrence F, Richard L, Wilson CB et al.. Pituitary adenomas in cushing's disease: Do they arise from the intermediate lobe? Surgical Neurology 1988;30(2):2125-130.
5. Lindholm J, Juul S, et al. Incidence and late prognosis of Cushing's syndrome: A population based study. J Clin Endocrinology Metab 2001;86(1):117-23.
6. Pivonello R, Faggiano A, Lombardi G, Colao A. The metabolic syndrome and cardiovascular risk in Cushing's syndrome. Endocrinol Metab Clin N Am 2005;34:327-39.
7. The diagnosis of Cushing's syndrome: An Endocrine Society clinical practice guideline. J Clin Endocrinol Metab 2008; 93: 1526-1540.
8. Findling JW, Raff H. Diagnosis and differential diagnosis of Cushing's syndrome. Endocrinol Metab Clin North Am 2001;30(3):729-47.
9. Raff H, Findling JW. A new immunoradiometric assay for corticotropin evaluation in normal subjects and patients with Cushing's syndrome. Clin Chem 1989;35(4):596-600.
10. Arnaldi G, Angeli A, et al. Diagnosis and complications of Cushing's syndrome: a consensus statement. J Clin Endocrinol Metab 2003;88(12):5593-602.
11. Colombo N, Loli P, Vignati F, et al. MR of corticotropin-secreting pituitary microadenomas. AJNR Am J Neuroradiol 1994;15(8):1591-5.
12. Hermus AR, Pieters G, Smals AG, Pesman GJ, Lamberts SW, Benraad T, Haelst U, Kloppenborg PW. Transition from Pituitary-Dependent to Adrenal-Dependent Cushing's Syndrome. N Engl J Med 1988; 318:966-970
13. Newell-Price J, Trainer P, et al. The diagnosis and differential diagnosis of Cushing's syndrome and pseudo-Cushing's state. Endocr Rev 1998;19(5):647-72.
14. Doppman JL, Miller DL, et al. Macronodular adrenal hyperplasia in Cushing's disease. Radiology 1998;166:347-352.
15. Aron DC, Findling JW, Fitzgerald JW, et al. Pituitary ACTH-dependency of nodular adrenal hyperplasia in Cushing's syndrome: report of two cases and review of the literature. Am J Med 1981; 71:302-306.

Publisher's Note

Contents of articles published in this journal are those of authors and do not necessarily reflect those of its editors or of Orion Pharma Ltd.

Published by:

Chief Editor, The ORION Medical Journal

ORION House; 153-154 Tejgaon Industrial Area, Dhaka-1208

Tel: PABX: 880-2-8870133, 8870134

Fax : 880-2-8870130, 880-2-8870108

Web : www.orion-group.net/medicaljournal

E-mail : journal@orion-group.net



A complete supplement for healthy & strong bone

Maxical[®]
Calcium and Vitamin D Tablet

Maxical[®] Plus
Calcium, Vitamin D, C, E & Multimineral Tablet

Twisted ovarian tumor often confused with malignant ovarian tumor

Munni N¹, Shaheen N².

The ORION Medical Journal 2013 May;16-1(39): p26-27

Abstract

Background: Serous Cystadenoma of ovary is the commonest epithelial ovarian tumor account for 30% of benign ovarian neoplasm. They are mostly seen in women at their reproductive age. Torsion of the pedicle is a common complication of ovarian tumor, accounts for 10-15% of cases at operation.

Case: Ms. Lipi Akter 16 years old lady was admitted in East West Medical College Hospital with H/O chronic dull aching pain for 6 months with a lump followed by severe pain for 3 days. Her USG report revealed Rt. adnexal solid mass (9.5 × 6.2 cm) and serum CA 125 was 128 U/ml. Per abdominal findings was a tender hard fixed lump. After laparotomy, a twisted gangrenous Rt. ovarian tumor was found. Rt. sided oophorectomy was done and her histopathological report revealed twisted papillary serous cyst adenoma. The patient was physically all right at the time of discharge.

Conclusion: Twisted ovarian tumor sometimes confused with malignant ovarian tumor because signs symptoms are similar to malignant ovarian tumor.

Introduction

Serous cystadenoma have been reported in all age groups and are responsible for approximately 30% of all epithelial ovarian neoplasm's.¹ It is usually a unilocular cyst with papilliferous processes on the inner surface and occasionally on the outer surface.² Ovarian tumors are usually painless unless any complication arise. Pain may be due to rupture, intracystic hemorrhage, venous congestion or torsion. Torsion may be sudden onset, or of a more chronic nature.³ The axial rotation is found in about 10-15% of cases of operation. The complication is more common in dermoid and serous cystadenoma where the tumor is moderate size, freely mobile and having long pedicle.⁴ With progressive torsion venous and lymphatic obstruction occurs.

Key words: Twisted Ovarian Tumor, Serous Cyst Adenoma, Malignant Ovarian Tumor

1. Dr. Najnin Munni

MBBS, FCPS, MCPS.

Assistant Professor, Department of Obstetrics & Gynaecology
East West Medical College Hospital

2. Dr. Nasima Shaheen

MBBS, FCPS, DGO.

Associate Professor, Department of Obstetrics & Gynaecology
East West Medical College Hospital

Interruption of the arterial supply may follow, resulting in hypoxia narcosis fever and leukocytosis.¹

The clinical presentation depends on the extend of interference with ovarian blood supply. Patient may present with acute abdominal pain or chronic followed by acute abdominal pain.³

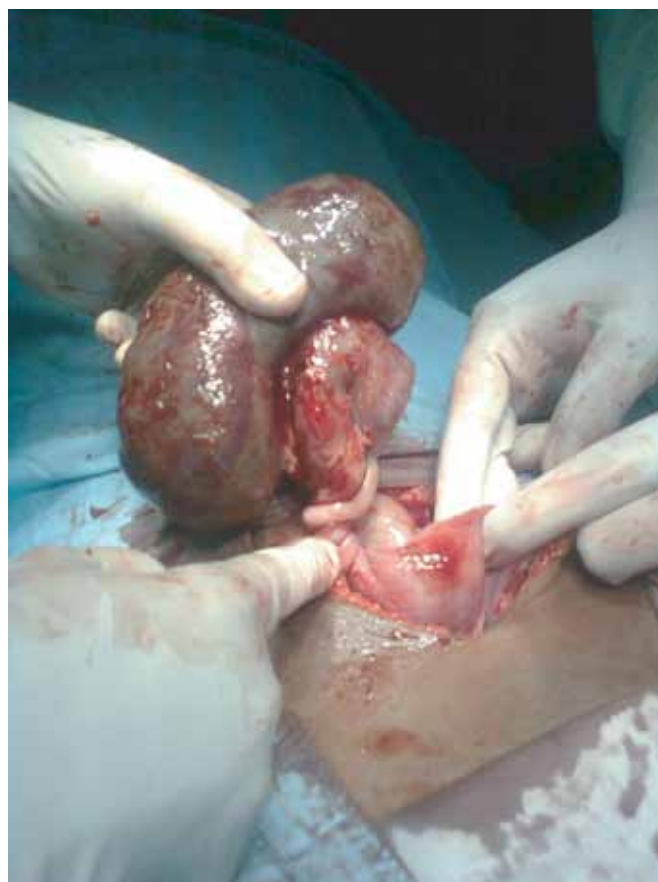


Fig.: Twisted Ovarian Tumor

On abdominal examination tender, tense, cystic mass with restricted mobility situated in the hypogastrium. Investigation usually done sonography and tumor marker. Treatment is laparotomy followed by oophorectomy or cystectomy (if the ovarian tissue is viable).⁴

Case

Ms. Lipi Akter 16 years, a garments worker of low socio-economic class, healing from Kamarpara Turag, Dhaka. She was admitted in the dept. of Obstetrics & Gynaecology of East West Medical College Hospital on 26 December 2011

with the complaints of a lump in the Rt. side of lower abdomen for 6 months, pain in the lower abdomen for 4 months (excessive for the last 10 days) and vomiting for 2 days.

She was a regularly menstruating women with average flow and duration. 6 months back she was reasonably alright. Then she developed a lump in the Rt. lower abdomen, which was gradually increased in size and become painful for the last 4 months. The pain was continuous dull aching in nature without any radiation. For her problems she consulted with local doctor. But her condition became worse with increased pain intensity and vomiting. Then she was admitted in this hospital for further management.

On examination she was found to be ill looking, cachectic, anemic, pulse 100 b/min, BP 80/50 mm of Hg. Per abdominal examination revealed tender, hard, fixed lump in the Rt. iliac fossa measuring about 10X8 cm. Per rectal examination confirms the findings of abdominal examination, USG of whole abdomen revealed Rt. adnexal solid mass 9.5X6.2 cm. and serum CA 125 level was 128 U/ml.

The pt. was treated preoperatively with analgesics, antiemetic and I/V fluid infusion. All the pre-operative investigations were done. Peroperatively, peritoneal fluid was hemorrhagic, there was a twisted Rt. ovarian tumor which was shaggy looking kidney shaped without any adhesion and the pedicle was twisted 6 turns. Uterus was normal in size and opposite ovary was healthy. Rt. sided salpingo oophorectomy was done. After peritoneal washing with normal saline abdomen was closed in layers. The specimen was sent for histopathology and the report showed twisted papillary serous tumor.

Post operatively the pt. was treated with 1 unit of whole blood, antibiotics, analgesics. She was discharged on 6th post

operative day. The pt. came for follow up in Gynae outdoor after 1 month and at that time she was almost alright.

Discussion

Twisted ovarian tumor is common in serous cystadenoma. In this case, preoperatively, the findings were more toward malignant ovarian tumor. Because most of the cases pt. present with sudden severe lower abdominal pain with a lump.¹ In this case pt. presented with dull aching lower abdominal pain with a lump followed by severe pain for 3 days. On examination In case of malignant ovarian tumor patient is usually cachectic and anemic, On local examination the mass is solid, with restricted mobility and tender. In our case the pt. had the similar findings. USG usually reveals solid or cystic mass and Serum CA 125 is more than > 35 U/ml is suggestive of malignancy. In this case USG revealed solid mass and Serum CA 125 was > 128 U/ml. As the above findings were more toward malignant ovarian tumor, we had a discussion with the attendance of the patient about the mode of treatment preoperatively. And also informed that the mode of treatment may be differ on laparotomy findings.

Conclusion

Ovarian tumor in adolescent group poses difficulty in diagnosis & management. Because sign symptoms of twisted ovarian tumor & malignant ovarian tumour is nearer to similar. So, proper counseling regarding the mode of treatment is necessary before operation.

References

1. Current diagnosis & treatment; 10th edition, Alan H. Duchene, Lower Nathan; page - 657, 305.
2. Gynecology by ten teacher; 18th edition; page- 121.
3. Dewhurst's textbook of obstetrics and gynecology; 7th edition; page- 612.
4. Jeffcoate's principles of Gynecology ; 7th edition; page- 518.
5. D.C Duta. Textbook of Gynecology; 5th edition; page- 361.



Procap[®]
 Omeprazole
 20 mg / 40 mg Capsule
 40 mg IV Injection



The perfect antiulcerant

Launching of New Products

Refeel

Solution for romantic relation

To ensure solution for romantic relationship Orion Pharma Ltd. has launched Refeel 10 (Tadalafil INN 10 mg tablet) & Refeel 20 (Tadalafil INN 20 mg tablet). Tadalafil is a USFDA approved drugs for Erectile Dysfunction & has documented superiority over conventional treatment options. It shows quicker onset of action (16 minutes) & longer duration of action (36 hours). The recommended starting dose of Refeel in most patients is 10 mg, taken prior to anticipated sexual activity. The dose may be increased to 20 mg. The maximum recommended dosing frequency is once per day. Refeel-10 is available as 2x4's tablets in blister strips at Tk. 240/ box and Refeel-20 is available as 2x4's tablets in blister strips at Tk. 400/ box.



Fulfeel

Solution for passionate relation

Orion Pharma Ltd. has launched Fulfeel (Sildenafil INN 50 mg) tablet to ensure solution for passionate relationship. Sildenafil is the 1st USFDA approved drug for Erectile Dysfunction and has the documented superiority over conventional treatment options with



satisfactory safety profile. Its onset of action is 14 minutes and duration of efficacy remains up to 4 hours. The recommended starting dose of Fulfeel in most patients is 50 mg, taken prior to anticipated sexual activity. The dose may be increased to 100 mg. The maximum recommended dosing frequency is once per day. Fulfeel is available as 2x4's tablets in blister strips at Tk. 240/ box.

Arovent-5

With better control & greater compliance for children

To treat asthmatic children with better control & greater compliance Orion Pharma Ltd. has launched Arovent-5 (Montelukast INN 5 mg) 5 mg chewable tablet in mango flavor. Arovent-5 is indicated for Asthma, Exercise-induced bronchoconstriction (EIB), Seasonal allergic rhinitis (SAR) and Perennial allergic rhinitis (PAR). In Bangladesh, the prevalence of asthma in children is higher and a greater percentage of children showed higher willingness to continue Montelukast than the total population. The dosage of Arovent-5 is 5 mg chewable tablet in every evening. Arovent-5 is available as 2x10's chewable tablet in Alu-Alu blister pack at MRP Tk. 140.00/box.



Megalax

The Dual Relief Laxative

For effective relief from constipation Orion Pharma Ltd. introduced Megalax (Magnesium Hydroxide BP 6 gm and Liquid Paraffin BP 25 ml per 5 ml) 100 ml Emulsion. Megalax is dual relief laxative as the osmotic action of Magnesium Hydroxide and lubricating action of Liquid Paraffin ensure a pronounced action for effective relief from constipation. Megalax is indicated for Constipation, Hyperacidity with constipation, anorectal disorder, Post-operative constipation, Constipation associated with chronic Cholecystitis. The dosage of Megalax 100 ml Emulsion includes: for adults 3-6 teaspoonful (15-30 ml) before breakfast or at bedtime, for children over 7 years: 1.5-3 teaspoonful (7.5 ml-15 ml) at bedtime & for children 3-7 years: 1-2 teaspoonful (5-10 ml) at bedtime. Megalax is available as 100 ml emulsion in glass bottle at MRP Tk. 85.00/ bottle.





Sir John Gurdon wins Nobel prize in medicine for his pioneering work in cloning and stem cells

Sir John Gurdon, 79, of Cambridge University was the first person to clone an animal from a single cell and in doing so ignited a slow fuse on the long development of stem cell technology which promises to revolutionise medicine in the 21st Century.

Sir John shares the 2012 Nobel Prize in Physiology or Medicine with Shinya Yamanaka of Kyoto University and the Gladstone Institute in San Francisco who demonstrated for the first time that it was possible to clone animals from skin cells that had been genetically engineered with just four additional genes. Cloning is seen as critical in proving that a fully-developed, specialised cell from an adult mammal contains all the necessary genes for the entire complement of specialised cells in the body. It means that a patient's skin cell could in theory be turned into any specialised tissue for repairing the brain, eye, kidney or heart. Sir John was publishing a scientific report in 1962 showing that it was possible to take the nucleus from the cell of a frog's gut, implant it into an unfertilised egg cell that had its own nucleus removed and get it to behave as if it was a normal fertilised egg to develop into complete tadpoles and frogs.

Sir John's cloning work on nuclear transfer was adapted in 1996 to produce the first clone of an adult mammal in the form of Dolly the sheep. However, producing stem cells by nuclear transfer cloning requires a supply of unfertilised egg cells and results in the production of viable embryos, which some people consider to be ethically wrong when applied to human tissue.



Poor Sleep Can Cause Symptoms of Schizophrenia

The findings, came from a study led by the University of Bristol, the Lilly Centre for Cognitive Neuroscience, which examined the association between poor sleep and schizophrenia by measuring electrical brain activity in several areas of the brain during sleep. Prolonged disruptions in sleep may actually be one of the causes of the disorder, and not just an outcome of its weakening effects. Sleep disturbances are well-documented in the disease, though often regarded as side effects and poorly understood in terms of their potential to actually trigger its symptoms.



The team analyzed a rat model of the disease for their research. Their recordings demonstrated that during sleep, there was desynchronization of the waves of activity that usually go from the front part of the brain to the back part. The information being passed on between the hippocampus, which is in charge of forming memories, and the frontal cortex, which is in charge of making decisions, seemed to be interrupted. The distinct irregular sleep patterns that the authors recorded are extremely comparable to the sleep patterns in schizophrenics. Decoupling of brain regions involved in memory formation and decision-making during wakefulness are already implicated in schizophrenia, but decoupling during sleep provides a new mechanistic explanation for the cognitive deficits observed in both the animal model and patients: sleep disturbances might be a cause, not just a consequence of schizophrenia. In fact, abnormal sleep patterns may trigger abnormal brain activity in a range of conditions. Medications are not always effective in treating cognitive deficits, such as reduced short term memory and attention span, because they are typically resistant. This research, however, gives insight into new techniques for neurocognitive therapy in schizophrenia and other associated psychiatric diseases.



Antibodies in cow's milk prevent HIV, study says

Researchers in Australia have found that cow's milk can be used to produce antibodies that can protect against HIV infection. Antibodies are proteins used by the immune



system to recognize and neutralize viruses or bacteria. Scientists at the University of Melbourne conducted their research on a small group of pregnant cows. They studied colostrum, also known as the first milk, which is produced by mammals and humans in late pregnancy.

Pregnant cows have the capacity to generate high capacities of antibodies in their first milk. If the calf doesn't receive those first antibodies in the very first colostrum, it is very susceptible to infection and usually dies.

The problem with HIV is that the virus has many different strains. One individual has as many different genetic versions of HIV. Very few humans make antibodies that respond to and recognize all of these (strains), but the cows can do this.

Unlike humans or primates, cows cannot be infected with the HIV virus. More than 34 million people in the world have HIV. With their research on cow's milk, the Australian scientists could make a significant contribution discovering a vaccine to halt the spread of the virus and, ideally, wipe it out.

Researchers develop vaccine to treat nicotine addiction

Researchers have developed a vaccine that successfully treated nicotine addiction in mice. With just a single dose, the vaccine protected mice against nicotine addiction for the rest of their lives, the researchers said. The vaccine works by prompting the animal's liver to act as a 'factory' that continually produces antibodies. The antibodies then absorb the nicotine as soon as it hits the bloodstream, preventing it from reaching the brain or the heart.

According to the study's it normally takes nicotine about six to 10 seconds to cross the bloodstream, reach the brain and bind to receptors. This is what produces the calm or relaxed feelings that drive nicotine addiction. By blocking nicotine from reaching the brain, the antibodies prevent those pleasurable feelings from occurring.

Importantly, the vaccine allows the body to build up its own immunity against nicotine, making it more effective and consistent than vaccines developed in the past.

Previous nicotine vaccines likely failed because they directly injected nicotine antibodies into the body, rather than prompting the body to build its own antibodies. This meant these 'passive' vaccines had to be injected multiple times, because they only lasted for three to four weeks, and the dosage level required may have varied from person to person—particularly if the person started smoking again.

On the other hand, the researchers knew the second main type of vaccines, known as 'active' vaccines, wouldn't protect against nicotine addiction either. However, nicotine molecules are too small for the immune system to recognize.



As a result, the researchers had to develop a third kind of vaccine: a genetic vaccine, which works by binding the genetic sequence of a nicotine antibody to a non-harmful virus. The virus is directed to go to the liver cells, and the genetic sequence of the antibody then inserts itself into those cells, causing the cells to produce a stream of the antibodies along with the other molecules they make.

The vaccine doesn't appear to have any negative side effects, though it still must be tested in rats and non-human primates for efficacy before it reaches human trials. If the vaccine continues to show promise in animal trials, it will likely be tested in humans in the next two years.



Medical Services Department (MSD) of Orion Pharma Ltd. Successfully arranged momentous number of Scientific Seminar, Round Table Meeting and Clinical Meeting in different venues of Bangladesh.

Scientific Seminar (SS)

Orion Infusion Ltd. has been arranged significant number of Scientific Seminar all over Bangladesh for establishing the colloid solution as an absolute and vital part of fluid management preparation for the patient prior to spinal anesthesia. The seminars were arranged at the tertiary level of different venues:

Mymensingh Medical College, Mymensingh

A program was arranged by the Bangladesh Society of Anesthesiologists' Mymensingh Branch on 16th October, 2013 to tribute the "World Anesthesia Day" at the seminar room of the Department of Anesthesiology of Mymensingh Medical College Hospital. The program was presided over by the Anesthesiologist Prof. (Dr.) Md. Manirul Islam. A panel of guests Dr. A.F.M Rafiqul Alam, President BMA, Mymensingh Branch, Brig. Gen. Md. Fashiur Rahman, NDC, Director, MMCH and Dr. A.N.M Fazlul Hoq Pathan, Asso. Professor,



ICU Incharge, MMCH were present and made the remarkable discussion about this memorable day. Dr. Shafiqur Rahman, Manager, Medical Service Department spoke on the "History of Anesthesia" on behalf of ORION Pharma Ltd. The program was conducted by Dr. Tridib Kanti Biswas.

Jahurul Islam Medical College, Dhaka

On 22th March, 2013 a scientific seminar was arranged by the Jahurul Islam Medical College Hospital at the conference room on "SAB Induced Hypotension & it's Management". Prof. (Dr.) Md. Rafiqul Islam, Professor & Head Department of Anesthesiology & ICU over the meeting presided.

Rangpur Medical College, Rangpur

On 2nd October 2012 a Scientific Seminar was arranged by the Rangpur Medical College Hospital on "Preparation of a Patient for Spinal Anesthesia". Anesthesiologist Dr. Md. Arman Ali



appeared as the speaker and Dr. MA Salam Khan, Head of the Department of Anesthesiology enlightened the chair of the president.

Shaheed Ziaur Rahman Medical College, Bogra

"Preparation of a Patient for Spinal Anesthesia" an interesting discussion has been taken by the department of Anesthesiology, Shaheed Ziaur Rahman Medical College Hospital on 26th November, 2012 at Hotel Naz Garden. The meeting was presided over by Prof (Dr.) Md. Latifur Rahman, Head of the Department, Department of Anesthesiology. Dr. Abdul Haque Turin, Anesthesiologist spoke clinical effects of spinal anesthesia during operation.

Chittagong Medical College, Chittagong

"Safety of Anesthesia" an fascinating discussion has been taken by the department of Anesthesiology, Chittagong Medical College Hospital on 14th November, 2012 at Hotel Tower Inn. The meeting was presided over by Prof. (Dr.) Mashood Ahmed, Head of the Department of Anesthesiology. Dr. Sanjida Hasan appeared as the speaker.

Comilla Medical College, Comilla

A Scientific Seminar on "Preparation of a Patient for Spinal Anesthesia" was arranged by the Department of Anesthesiology of Comilla Medical College Hospital on 24th September, 2012 at Auditorium of Department of Anesthesiology. Dr. Moh Shinuzzamzn Chowdhury, Head of Department of Anesthesiology took the chair of the seminar. Dr. Tofail Ahmed, Anesthesiologist delivered speech as speaker.



Dhaka Medical College, Dhaka

A Scientific Seminar was arranged on 11th September, 2012 by the Department of Anesthesiology, Dhaka Medical College &



Hospital. "Peri-operative Fluid Therapy" was the key topic of the meeting on which Consultant Dr. Mofizul Islam discussed ins and out of the topic to all the members of the department. Brig. Gen. Mostafizur Rahman, Director, DMCH enlightened the meeting as the chairperson.

Sher-e Bangla Medical College, Barisal

On 8th October, 2012 a Scientific Seminar was arranged by the Sher-e Bangla Medical College Hospital on "Peri-operative Fluid



Therapy". Dr. Mizanur Rahman was discussed about the key topic.

Enam Medical College, Dhaka

A Scientific Seminar on "Treatment Option of Anemia" was arranged by the Gynae Department of Enam Medical College & Hospital on 20th October 2012 in Luctor hall. Register Dr. Mahmoda Iffeat Sharmin appeared as the speaker and Prof. (Dr.) Khadiza Najnin, Head of the Department of Gynae adorned the seat of chairperson.

Round Table Meeting (RTM)

Khulna Medical College, Khulna

A Round Table Meeting was arranged on 27th September 2012 by the Department of Medicine of Khulna Medical College Hospital. "Back Pain and Its Management" was the key topic of the meeting on which Assistant Professor Dr. SM Kamal discussed about the topic to all the members of the Department. Later Dr. Shafiqur Rahman, Manager, Medical Service Department of ORION Pharma Ltd. made a remarkable discussion about the Management of Back Pain.

Dhaka Medical College, Dhaka

Physical Medicine Department of Dhaka Medical College Hospital arranged a round table meeting on 26th May 2012 on "Management of Gout". Medical Officer Dr. Ruhul Amin spoke about the management of gout. Dr. Shoheli Rahman, Head of the Department was chaired the seat of the chairperson.

Mymensingh Medical College, Mymensingh

On 26th April 2012 a round table meeting was arranged by the Gastroenterology Department of Mymensingh Medical College Hospital at the Young King Hotel on "Hyperacidity & Its Management". Assistant Professor (Dr.) Chittoranjana Debnath were present as the chairperson and he spoke about the management of hyperacidity.



Onium®

Tiemonium Methylsulphate INN 50 mg Tablet,
5 mg/2 ml Injection & 10 mg/5 ml Syrup

Freedom from visceral pain



Novelta®

Magaldrate USP 480 mg & Simethicone USP 20 mg

A Novel Antacid



Suger free



100 ml



200 ml



Chewable tablet

P Omeprazole[®]
Procap[®]
20 mg / 40 mg Capsule
40 mg IV Injection

The perfect antiulcerant



In Search of Excellence

ORION
Pharma Ltd.
Dhaka, Bangladesh

Registration of Copyright Certificate : 10072-COPR
A production of MSD & Creative pool (Liton), Orion Pharma Ltd.