Journal of Bangladesh College of Physicians and Surgeons

Vol. 24, No. 2, May 2006

Official Journal of the Bangladesh College of Physicians and Surgeons
BCPS Bhaban, 67 Shaheed Tajuddin Ahmed Sarani
Mohakhali, Dhaka-1212, Bangladesh

PUBLISHED BY

Professor Md. Abul Faiz
on behalf of the Bangladesh College of Physicians and Surgeons

PRINTED AT

Asian Colour Printing
130 DIT Extension Road, Fakirerpool
Dhaka-1000, Phone: 9357726, 8362258

ANNUAL SUBSCRIPTION

Tk. 300/- for local and US$ 30 for overseas subscribers

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Journal of Bangladesh College of Physicians and Surgeons
ISSN 1015-0870

Published by the Editor-in-Chief three times a year in January, May and September

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Overseas	$	=	30.00

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JOURNAL OF BANGLADESH COLLEGE OF PHYSICIANS AND SURGEONS

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EDITORIAL

Guillain-Barré Syndrome

Some of the neurological diseases are common causes of disability and death world wide. Among them, stroke and degenerative diseases are of importance. But the acute conditions like infection and vascular phenomenon usually carries good prognosis whereas chronic illnesses like motor neuron disease and Parkinson's disease give rise to more disability. Guillain-Barré syndrome (GBS) is one of the commonest causes of acute symmetrical flaccid paralysis of limbs in much of the world.[1,2] The basic pathogenesis of this disease is the involvement of nerve roots by antigen and antibody mediated reaction. The disease is often preceded by an antecedent, either upper respiratory tract infection (URTI) or gastroenteritis by virus or bacteria. The antigens of these organisms have molecular mimicry with that of gangliosides of nerve roots. The antibody produced against the organism's antigen interacts with the gangliosides of nerve root and results either demyelination or axonopathy or both[3,4,5].

The diagnosis of GBS is usually straightforward on the basis of its triad of presentation like-acute symmetrical ascending paralysis of limbs, areflexia and albumino-cytological dissociation in CSF[6,7,8,9]. The electro-physiological diagnosis is useful in the early stage and in typing of GBS.

Under the description of GBS there are varieties of presentations like acute inflammatory demyeleniting polyradiculopathy (AIDP), acute motor axonal neuropathy (AMAN) and acute motor sensory axonal neuropathy (AMSAN) and a mixed variety AIDP+AMSAN. The differentiation into those types is done on the basis of their presentations and prognosis. AIDP carries good prognosis and AMAN carries poor prognosis. The others are in between the two[10,11]. The commonest type of GBS in the western world is AIDP following URTI. But from the northern China and India the commonest variety reported is AMAN following gastroenteritis by *Campylobacter jejuni*[12,13]. In Bangladesh, it is anticipated that the predominant type of GBS may be AMAN, but there had been two case studies which showed conflicting results, AIDP in one and AMAN in the other. In Bangladesh, GBS is the commonest cause of polyradiculopathy in the hospital. No age or sex is immune, but the commonest age of involvement is young adults and male sex. It is observed that there is a little higher admission of GBS in summer season.[14]

There is no specific treatment of GBS. But the use of intravenous immunoglobulin[19] in the first week in selected cases may slow the progress of the disease and thus enhance recovery, shorten the hospital stay and minimize the need of a ventilator. The use of Inj. Methyl Prednisolone alone is not recommended and the combination of IVIg and Inj. Methyl Prednisolone also has no benefit. Plasmapheresis is another option but its benefit is like IVIg in addition to many limitations of its use. Physiotherapy is still the mainstay of treatment in all cases[15,16]. The prognosis of GBS is good, 80% recover, 10% remain disabled and 10% die[17].

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(J Bangladesh Coll Phys Surg 2006; 24: 42-43)

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Oral Versus Vaginal Misoprostol for Induction of Labour

N SULTANA[a], S ROUF[b], M RASHID[c]

Summary:

It is sometimes difficult to select the most effective, easy to use, safest, widely accepted and less expensive method for induction of labour and thereby spontaneous vaginal delivery. Prostaglandin E_1 analogue ie misoprostol as a successful method both in oral and vaginal form has been used for induction of labour. The present study was conducted with an aim to compare the efficacy and safety of oral and vaginal administration of misoprostol tablets for cervical ripening and induction of labour in pregnant women using similar dosing regimen in two groups of pregnant women. A prospective randomized trial was done on one hundred pregnant women for the purpose. They were between 37 and 42 weeks of gestation with singleton pregnancy, cephalic presentation and unfavourable cervix (modified Bishops score of 4 or less) in the department of Obstetrics and Gynaecology of Dhaka Medical college Hospital during the period between February 2003 and March 2004. The mode of delivery did not vary significantly between the two groups. Mean induction delivery interval, mean doses of misoprostol, number of women delivered within 24 hours, oxytocin requirement and mean time to delivery were nearly similar in the two groups. Only nulliparous women in oral group took longer time to deliver than vaginal group though it was not statistically significant. The mode of delivery also did not differ significantly. The proportion of emergency caesarean section was high in vaginal group than oral group. Neonatal outcome was satisfactory and the results were comparable.

(J Bangladesh Coll Phys Surg 2006; 24: 44-49)

Introduction:

In the everyday practice of obstetrics we need to induce labour whenever it becomes mandatory. Induction of labour in indicated wherever there is risk to mother, foetus or both, if pregnancy is further continued.

The outcome of induction depends largely on if the cervix is ripe or not. In approximately 10% of all pregnancies, women have unfavourable cervix, and when labour is induced in an unripe cervix, it is associated with higher than normal incidence of failure of induction, prolonged labour, instrumental delivery and caesarean section.

So, induction of labour and thereby spontaneous vaginal delivery needs the most effective, easy to use, safest, widely accepted and less expensive methods to be applied.

Among the prostaglandins, prostaglandin E_1 analogue is tested for cervical ripening. Originally it is marketed for the treatment of peptic ulcer under different name such as Cytoteck, Cytomis. The first indication for its uterotonic properties came from Latin America when it was utilized to terminate pregnancy. Several studies showed intravaginal misoprostol comparing favourably with dinoproston and oxytocin[3-5]. Also, well-controlled studies indicated its efficacy and safety via the oral route[6].

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The aim of present study was to compare the efficacy and safety of oral and vaginal administration of misoprostol tablets for cervical ripening and induction of labour in pregnant woman.

Materials and method:

Hundred pregnant women between 37 and 42 weeks of gestation were randomly selected and assigned to one of two equal groups. They were gravida 1-3 and para 0-2. All of the cases had a single viable pregnancy in vertex presentation with a Bishop score of 4 or less. This randomized clinical trial was performed in the department of Obstertics an Gynaecology of Dhaka Medical College Hospital during the period between February 2003 and March 2004. There were no contraindications for labour induction by prostaglandin administration. Group I received oral misoprostol and group II received vaginal misoprostol.

An informed consent was obtained form each of the women after proper explanation of the aim and procedure of induction of labour.

Same dosing regimen of misoprostol was used both for oral as well as for vaginal groups. Hundred microgram (100 μg) of misoprostol (halving 200 μg tablet prepared by the Incepta Pharmaceutical, Bangladesh) was given to the pregnant women to ingest with 30 ml of water. The same dosing ie 100 μg of misoprostol was inserted intravaginally (in the posterior vaginal fornix).

After initial dose (100 μg), it was repeated every four hours until the occurrence of progressive labour (as evidenced by a Bishop score of 7 or more), a contraction pattern of three every 10 minutes each lasting 40 seconds, and evidence of foetal intolerance or delivery. If an insufficient response was noted with the first application, subsequent doses to a minimum of 600 μg (3 tablets), were administered until adequate contractions were achieved. If labour was progressing, then the subsequent misoprostol was withheld and labour was observed.

Information was obtained from both groups on medical and obstetrical history, clinical examination findings and outcome of labour, and were recorded on computerized coding sheets. Induction was considered failed if established labour that is any of the following: three contractions per ten minutes and Bishop's score more than or equal to 7 did not occur after 24 hours from induction. In case of failed induction, patients were offered to do oxytocin induction or caesarean section depending on the condition of the mother and the baby. Data were analysed using SPSS package.

Results :

The two groups were closely similar to each other regarding age, gestational age and initial Bishop's scoring. (Table-I). The differences in parity (0.74+0.96 vs 0.38+0.67) and gravidity were significant between the two groups.

Indications of induction of labour in two groups were different although the difference was not statistically significant. Highest percentage of women was induced for post dated pregnancy in both groups. Preclampsia and eclampsia were the second highest cause for induction of labour (Fig.-1).

Table-I

Demographic characteristic of the patients in two groups

Characteristics	Oral group (n=50)	Vaginal group (n=50)	Significance (P value)
Age (years)	23.26 (0.418)	22.34 (3.16)	NS (0.218)
Gravidity	1.82 (0.92)	1.48 (0.74)	S-.044, t (90) = 2.043
Parity	0.74 (0.96)	0.38 (.67)	S- .033, t (98) = 2.170
Gestational age (in wks)	39.93 (1.42)	40.19 (1.38)	NS (0.355)
Initial Bishop's Score	2.1 (1.23)	1.8 (1.12)	NS (0.207)

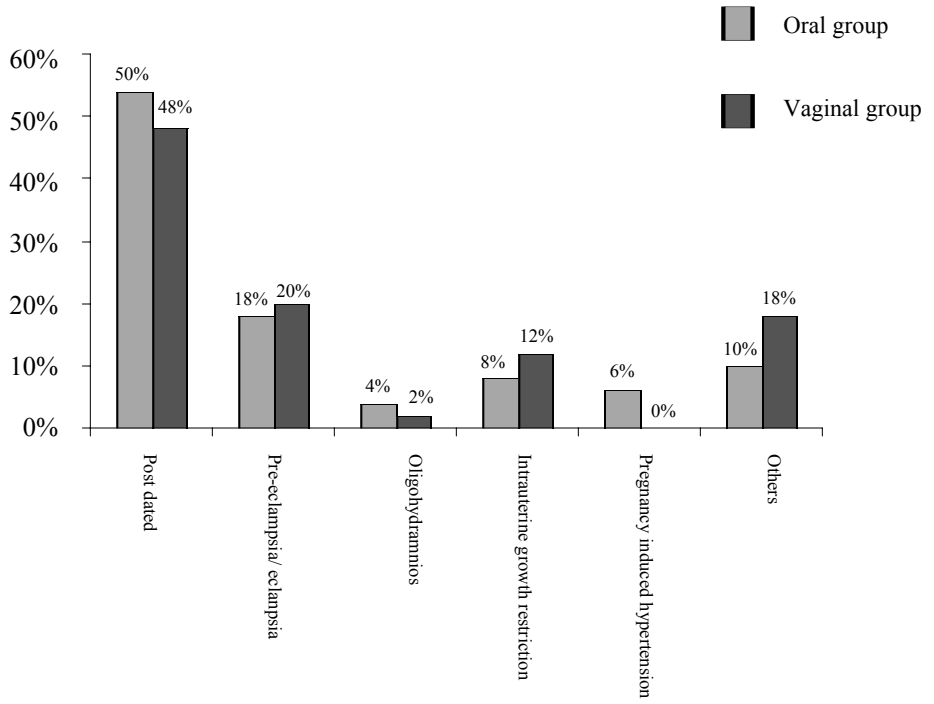

Fig.-1: *Bar chart showing indication of induction of labour in two groups.*

The mode of delivery did not vary significantly between the two groups (Table- II). Almost equal number of patients delivered vaginally spontaneously in both groups. There was no association between route of administration and mode of delivery. Mean induction delivery interval, mean doses of misoprostol, number of women delivered within 24 hours, oxytocin requirement and mean time were nearly similar in the two groups. Only nulliparous women in oral group took longer time to deliver than vaginal group though the difference was not statistically significant.

Table-II

Mode of delivery after induction of labour in oral and vaginal groups

Mode of Delivery	Oral Group (n=50)	Vaginal group (n=50)	Significance (P value)
Parity			
Nulliparity	27 (54%)	35 (70%)	
Multiparity	23 (46%)	15 (30%)	
Spontaneous vaginal delivery	33 (66%)	32 (64%)	NS (.789)
Forceps	0 (0)	0 (0)	
Ventouse	2 (4%)	1 (2%)	
Caesarean Section	15 (30%)	17 (34%)	

Table-III

Indication of caesarean section in two groups:

Indication	Oral Group	Vaginal Group	Significance (P value)
Failed induction	3 (6%)	4 (8%)	
Foetal distress	10 (20%)	9 (18%	
Uterine hyper tonicity	-	2 (4%)	NS .644
Nausea, Vomiting	2 (4)	1 (2%)	
Uncontrolled preeclampsia	-	1 (2%)	

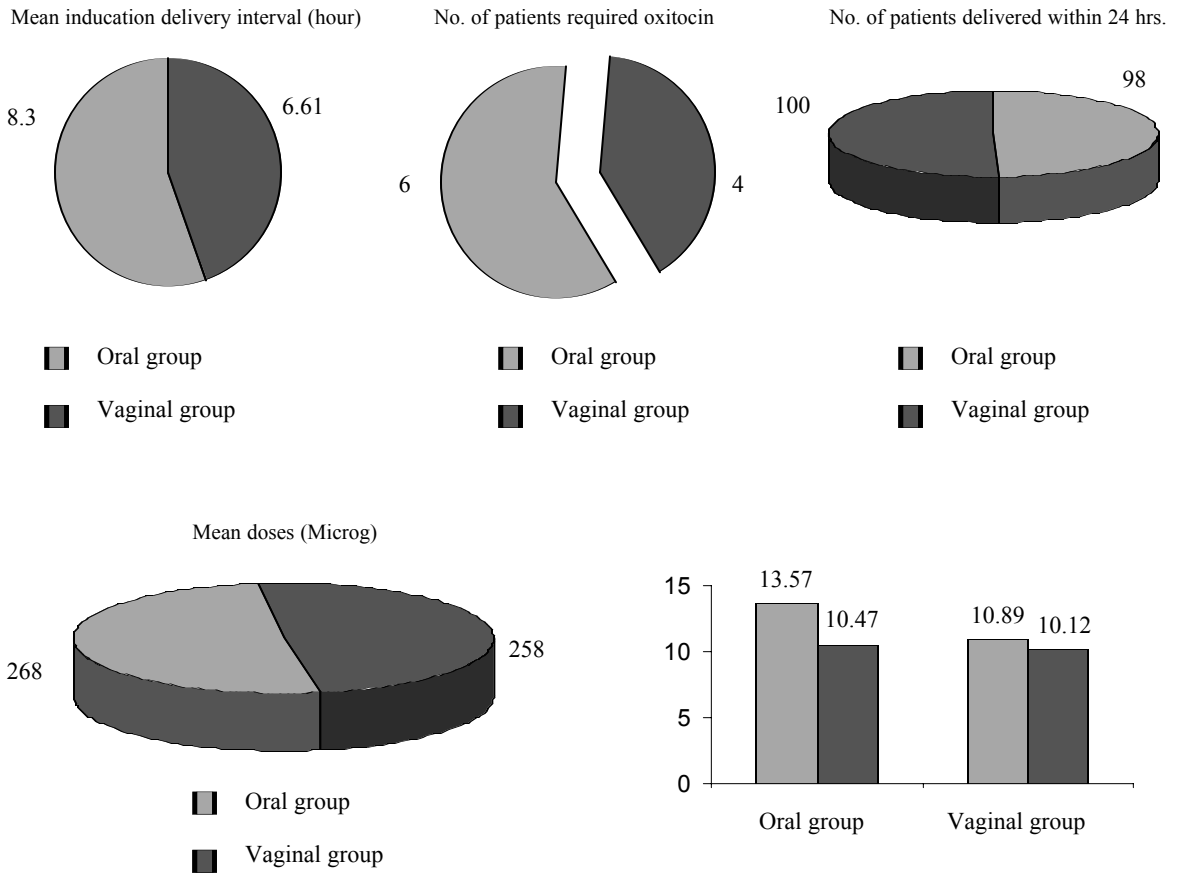

Fig.-2: *Showing outcome of labour in oral and vaginal group with regard to spontaneous vaginal delivery*

Neonatal outcome was very satisfactory and the results were comparable in two groups. No neonatal infection occurred. Apgar score at one minute as well as at five minutes was good in two groups. None of the babies died.

Women in the study groups developed very few complications. Nausea and vomiting were more in oral group (4% vs 2%) and uterine hypertonicity developed in the vaginal group only (4%). They were then delivered by caesarean section. One patient in oral group developed post-partum atony that responded to injection methergin.

Table-IV

Neonatal outcome in oral and vaginal group

Characteristics	Oral Group (n=50)	Vaginal group (n=50)	Significance (P value)
Apgar score:	8.58	8.7	
In one minute	10	9.92	NS (0.365)
In five minutes			NS (0.156)
Birth weight (kg)	2.92	2.88	NS (0.536)
	0.39	0.35	
Meconium passed	1	0	
Admission to ICU	1	2	
Neonatal infection	0	0	

Discussion:

In the present study, same dose schedule that is hundred micrograms four hourly was used for the oral as well as for the vaginal group. Induction of labour occurred in most of the cases in both groups. Spontaneous vaginal delivery occurred in 66% in oral and 64% in vaginal group. This is consistent with Hall *et al*[8] study (70% in oral group vs 70% in vaginal group), whereas in Toppozada *et al* [7] study it was 73% vs 77%. Failed induction occurred in both the groups though nearly equal in percentage (6% in oral group and 8% in vaginal group). In others[7-13], they increased the dose in both groups if the response was not satisfactory. Therefore, failed induction was not reported to occur in their study.

Almost equal number of patients delivered vaginally spontaneously in both groups. There was no association between the route of administration and mode of delivery. Mean induction delivery interval, mean doses of misoprostol, number of women delivered within 24 hours, oxytocin requirement and mean time for delivery were nearly similar in two groups. Only nulliparous women in oral group took longer time (13.57% hours vs 10.49%) to deliver than vaginal group though it was not statistically significant. It may be due to that nulliparous uterus is less sensitive to induction than the previously pregnant uterus in multiparous women.

The indication of labour induction did not vary between the two groups significantly and this finding was similar to other studies[7-13]. Time interval between start of induction and to delivery was less in vaginal group than in oral group. Parity and gravidity was significantly different in the two groups (P= 0.033 and P= 0.044).

Mean dose requirement was similar in vaginal and oral group (268+ 136.4 µg in oral group vs 258+ 144.41 µg in vaginal). This finding is consistent with Hall *et al*[8] study. Know *et al* [11] study result differs in that vaginal administrations were less in number than the oral group. The percentage of caesarean section was less in case of oral group than in vaginal group though this was not statistically significant (30% in oral group and 34% in vaginal group). This is similar other studies[8,10,11]. In this study, vaginal group developed hypertonicity and emergency caesarean section was done. Toppozada *et al* [7] found similar result in their study. The hypertonicity was probably due to higher dose or some direct access via the vaginal route.

Conclusion:

Several researchers worked on misoprostol to find out its safety and efficacy during both vaginal and oral administration. Different regimen was used and doses were increased to achieve desired effects. From this study, it is found that the safety and efficacy of oral misoprostol is comparable to vaginal misoprostol. Yet, more studies are needed to find out the optimum oral and vaginal dose. It can be used for induction of labour under close monitoring in a facility where emergency caesarean section is possible.

The present study was carried out in a small group of patients. It is suggested that long term clinical trial with a bigger sample size should be carried out to assess the safety and efficacy of this new induction method.

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Journal of Bangladesh College of Physicians and Surgeons
Vol. 24, No. 2, May 2006

Clinico-Pathological Study on Haemophilia: An Analysis of 50 Cases

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Summary:

A prospective study was carried out on the patients presenting with history of recurrent joint swelling and wound bleeding in outpatient department of Haematology, Bangabandhu Sheikh Mujib Medical University (BSMMU) and Armed Forces Institute of Pathology (AFIP), Dhaka Cantonment from January 2000 to December 2000. Fifty patients were studied. The predominant age group affected were between six and 15 years (44%). Recurrent joint swelling was the predominant presenting symptom (100%) followed by wound bleeding (52%) and bleeding after tooth extraction (38%). Thirty (60%) patients had positive family history of bleeding. Coagulation screening tests showed that 40 (80%) patients had prolonged activated partial thromboplastin time (APTT). Amongst these 40 patients, 32 (80%) were diagnosed as haemophilia-A and eight (20%) as haemophilia-B. Eighteen (45%) patients had mild haemophilia, 17 (42.50%) moderate haemophilia and five (12.50%) patients had severe haemophilia. Spontaneous bleeding history was present in seven (17.50%) patients, and 16 (35.50%) patients with moderate haemophilia and 17 (47%) patients with mild haemophilia had bleeding following trauma or surgery.

(J Bangladesh Coll Phys Surg 2006; 24: 50-53)

Introduction:

Inherited disorders of coagulation usually are the result of a deficiency or abnormality of a single plasma protein. As a consequence, these disorders provide a unique opportunity to study the phenomena of blood coagulation. With the exception of Von Willebrand's disease, the inherited coagulation disorders associated with bleeding produce similar signs and symptoms, regardless of the particular factor that is lacking[1].

A severe and often fatal haemorrhagic diathesis that affected the male children of certain families recognized in antiquity. This is evident from the writings of Rabbi Simon ben Gamaliel (Second century AD) in the Thalmud, and those of Maimonides, the Hebrew physician and philosopher, and Albucasis, the Arab (Twelfth century)[2,3].

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Haemarthrosis is the most common, the most painful, and the most physically, economically, and psychologically debilitating manifestation of the inherited coagulation disorders, especially haemophilia A[4,5]. The aim of this study was to find out the incidence of haemophilia among the patients presented mainly with recurrent joint swelling and to compare the findings with other studies of similar nature.

Materials and method:

This study was conducted in the Department of Haematology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka and Armed Forces Institute of Pathology (AFIP), Dhaka Cantonment during the period of January 2000 to December 2000. Fifty patients attending with history of recurrent joint swelling, wound bleeding, and prolonged bleeding after tooth extraction and circumcision in out-patient department were included in this study. A thorough history including family history and physical examination was done in every case. Diagnosis was made on the basis of history, physical examination and laboratory investigations such as bleeding time (BT), clotting time (CT), prothrombin time (PT), activated partial thromboplastin time (APTT), thrombin time (TT) and coagulation factor assay such as factor VIII and factor IX. BT was measured by Ivy's method. Nine volume of blood (4.5 ml) was

added to one volume of 3.8% trisodium citrate (0.5 ml) in a plain test tube to measure PT, APTT, TT and coagulation factor assay was done by semi-automated coagulometer. Complete blood counts including peripheral blood smears were also made to see blood cell morphology and platelet count. Results of the investigations were recorded and analyzed.

Results:

In this study, 50 cases attending with a history of recurrent joint swelling, wound bleeding and prolonged bleeding after tooth extraction and circumcision in the Department of Haematology, BSMMU and AFIP, Dhaka Cantonment were included. The predominant age groups affected were between six and 15 years (44%) (Table-I). Recurrent joint swelling was the predominant presenting symptoms (100%) followed by wound bleeding (52%), bleeding after tooth extraction (38%), bleeding after circumcision (18%) and signs of arthritis (40%) (Table-II). The patients had more than one symptom. Thirty (60%) patients had positive family history of bleeding (Table-III). Complete blood count and X-ray of the affected joint of all patients were done. Out of 50 patients, 40 patients had positive findings in X-ray which was characteristic of chronic Haemarthosis. Complete blood count was found almost normal in every case. Results of coagulation screening tests showed that 40 (80%) patients had prolonged APTT and 10 (20%) had normal screening tests. So, 40 patients had been suffering from inherited coagulation disorders (Table-IV). Reduced activity of factor's VIII and IX was observed in 32 (80%) and in eight (20%) patients respectively. So, amongst 40 patients having prolonged APTT, 32 cases were diagnosed as haemophilia A and eight cases as haemophilia B (Table-V). Eighteen (45%) cases had mild haemophilia, 17 (42.50%) moderate haemophilia and five (12.50%) cases were diagnosed as severe haemophilia (Table-VI). Spontaneous bleeding history was present in all severe haemophilic patients and two patients with moderate haemophilia (17.50%). Sixteen (35.50%) patients with moderate haemophilia and 17 (47%) patients with mild haemophilia had bleeding following trauma or surgery (Table-VII).

Table-I

Age distribution of the patients (n=50)

Age (years)	Number of patients (%)
0-5	09 (18)
6-15	22 (44)
16-30	19 (38)

Table-II

Signs and symptoms of the patients (n=50)

Signs/Symptoms	Number of patients (%)
Joint swelling	50 (100)
Wound bleeding	26 (52)
Bleeding after tooth extraction	19 (38)
Bleeding after circumcision	09 (18)
Signs of arthritis	20 (40)

* The patients had more than one symptom.

Table-III

Results of coagulation screening tests (n=50)

Name of the test	Result	Number of patients (%)
Bleeding time (BT)	Normal	50 (100)
Coagulation time (CT)	Prolonged	40 (80)
Prothrombin time (PT)	Normal	50 (100)
Activated partial thromboplastin time (APTT)	Prolonged	40 (80)
Thrombin time (TT)	Normal	50 (100)
Platelet count	Normal	50 (100)

Table-IV

Results of the factor assay (n=40)

Factor VIII level	Factor IX level	Number (%)
Reduced	Normal	32 (80)
Normal	Reduced	08 (20)

Table-V

Severity of haemophilia (n=40)

Factor activity (Normal level Factor VIII and IX l 60%-150%)	Number of patients (%)
Mild (6-30%)	18 (45)
Moderate (1-5%)	17 (42.5)
Severe (<1%)	05 (12.5)

Table-VI

Type of bleeding among the hemophilic patients (n=40)

Type of bleeding	Number (%)
Spontaneous bleeding	07 (17.5)
Bleeding following trauma/ surgery	33 (82.5)

Discussion:

After initial coagulation screening tests, out of 50 cases 10 cases were excluded from the study because of negative screening tests.

Regarding age distribution of the patients, 22 (44%) patients presented with symptoms in the age group of 6-15 years and 19 (38%) in the age group 16-30 years in this study. Salim's study showed 71.4% patients presented with symptoms after the age of six years. This difference may be due to the inclusion of paediatric groups in that study[7].

Recurrent joint swelling was the predominant clinical finding followed by wound bleeding in this study. Although recurrent joint swelling was present in 100% cases but chronic haemarthosis characteristic of joint bleeding was present in 80% cases, which is almost similar to two previous studies[6,7]. Salim in another study found haemarthosis only in 42.8% cases[8]. The reason for this difference of joint bleeding with the latter study may be due to restriction of study on children only. The increased incidence of joint bleeding in this series may be due to the inclusion of mainly referred cases presenting with recurrent joint swelling.

The incidence of wound bleeding in this study was 52%. In two another studies, wound bleeding was found in 45.50% and 43% cases, which are almost similar to this study[6,8]. Hoyer found wound bleeding in 48% cases[9]. Other symptoms such as bleeding after tooth extraction and bleeding after circumcision were present in 38% and 18% case respectively in this study, which is similar to Gilbert's study[10]. Roberts found bleeding after tooth extraction in 42% cases and bleeding after circumcision in 20.20% cases[11]. Salim AFM's study showed bleeding after tooth extraction in 24.80% cases which differs from this study and also from Roberts's study.

This study showed that out of 50 patients, 30 (60%) had positive family history of bleeding, whereas Salim found 57.50% patients had positive family history of bleeding and Rahman in another study showed 55.50% cases to have positive family history of bleeding[6,8]. Amongst the relatives, history of bleeding was found in maternal uncles, brothers and cousins in studies. These findings are almost similar to this present study.

In this study, complete blood count and X-ray of the affected joint of all patients were done. Out of 50 patients, 40 patients showed changes in X-ray, which is characteristic of chronic haemarthosis. Coagulation profiles were done in 50 patients, 40 (80%) patients showed prolonged APTT and 10 (20%) showed normal results. Out of 40 patients having prolonged APTT, 32 (80%) cases were diagnosed as haemophilia A and eight (20%) cases as haemophilia B. Rahman's study showed almost the similar incidence of haemophilia A (80%) and haemophilia B (20%)[6]. Pasino et al, also showed almost similar incidence of haemophilia A and haemophilia B[12].

Mild haemophilia was found in 18 (45%) cases whereas moderate and severe haemophilia were found in 17 (42.50%) and five (12.50%) cases respectively. These findings are almost similar to those of Rahman who found 45.50% cases as mild, 45.50% as moderate and 9% cases as severe haemophilia[6]. But in another study, Rodgers found 20% cases as mild, 30% as moderate and 50% cases as severe haemophilia[1]. The reason of increased incidence of severe haemophilia in Rodgers study is difficult to interpret but may be due to more indepth investigations.

Spontaneous bleeding history was present in all severe haemophilic patients and two (11.7%) patients

with moderate haemophilia, and no history of spontaneous bleeding was found in mild haemophilia in this study. Railton found 98.2% cases of severe haemophilia to have spontaneous bleeding, and 7.4% cases of mild haemophilia had spontaneous bleeding and 40 % cases had bleeding after trauma[13]. Lusher in another study found 84% cases of severe haemophilia and 8% cases of moderate haemophilia to have spontanues bleeding[14]. These findings are almost similar to this present study.

Bleeding after injury is an everyday experience for healthy people and it can be very difficult to decide whether or not apparently excessive bleeding is due to a blood disorder. Serious congenital conditions, such as severe haemophilia, usually become obvious in early childhood but can be misdiagnosed as non-accidental injury. Milder bleeding disorders can remain undetected into old age, especially in those who have not undergone surgery in earlier adult life. It is the frequency and persistence of blood loss together with the minimal severity of injury required to produce it which should alert the physician to the likelihood of a haemostatic defect, while volume of loss is a poor guide.

Haemophilia A has been recognized in all areas of the world where adequate information is available. In Bangladesh, a number of studies were carried out on haemorrhagic disorders including haemophilia. In this study an attempt has been made to find out the incidence of haemophilia among those presented with the history of recurrent joint swelling, and to compare the clinical and laboratory findings with other studies of similar nature. However, more extensive studies of similar nature should be done in this country to generate a better result.

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Journal of Bangladesh College of Physicians and Surgeons
Vol. 24, No. 2, May 2006

Electrophysiology in the Guillain-Barré Syndrome: Study of 30 Cases

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Summary:

Thirty consecutive patients diagnosed clinically as Guillain Barré Syndrome (GBS) were enrolled in this study to see the electrophysiological patterns of GBS in Bangladeshi community. Among 30 patients, 25 were male (M: F = 5:1) and 47% patients were between 16 and 25 years of age. An antecedent event was present in 67% of patients. An elevated protein was present in 90% of cases and a cell count of up to five was present in 94% of patients. Acute inflammatory demyelinating polyradiculopathy (AIDP) was commonest (33.35%) followed by acute motor axonal neuropathy (AMAN) which constitute 26% of patients in electrophysiological study of the enrolled patients. Acute motor sensory axonal neuropathy constitutes 14% of cases in this series.

(J Bangladesh Coll Phys Surg 2006; 24: 54-60)

Introduction:

The term Guillain-Barre syndrome (GBS) defines a recognizable clinical entity that is characterized by rapidly evolving symmetrical limb weakness, loss of tendon reflexes, absent or mild sensory signs, and variable autonomic dysfunction[1]. Guillain-Barre syndrome is now the commonest cause of acute neuromuscular paralysis worldwide affecting patients of all ages and both sexes [2].

The earliest descriptions of what we know today, as Guillain-Barre syndrome are probably that of Wardrop and Ollivier, in 1834. In 1916 Guillain, Barre, and Strohl described two French soldiers with motor weakness, areflexia and "albuminocytological dissociation" in the cerebrospinal fluid[3]. Subsequently several cases with similar manifestations were reported and this clinical entity was named after Guillain and Barre. The Guillain-Barre syndrome, as recognized clinically, was frequently been equated with acute inflammatory demyelinating polyradiculopathy (AIDP), the pathological entity most extensively studied and most frequently reported in older studies [4-5] and in contemporary reports [6-7]. However, several lines of evidence suggest that the pathological basis for the Guillain-Barre syndrome, as clinically diagnosed, can be broader, as recently reviewed [8-9]. Some suggests that axonal degeneration can be the dominant process [10-11]. In the United States, Europe and Australia, the predominant form is AIDP. The concept of axonal

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Guillain-Barre syndrome was first raised by Feasby et al, who found early axonal degeneration of motor and sensory fibers in five patients with clinically defined Guillain-Barre syndrome. This pattern of Guillain-Barre syndrome, termed acute motor sensory axonal neuropathy (AMSAN), is usually associated with a worse prognosis than demyelinating Guillain-Barre syndrome. Studies in northern China and India [12] have identified another form of axonal Guillain-Barre syndrome, termed acute motor axonal neuropathy (AMAN) [13]. It is suggested that AMAN is associated with pure motor axonal involvement, anti-ganglioside GM1 antibodies, or preceding *Campylobacter jejoni* infection [14-16]. Chinese patients with AMAN are reported to often develop hyperreflexia during the early phase of recovery [17]. Preserved or exaggerated tendon reflexes do not usually occur in patients with AIDP or in patients with other peripheral neuropathies.

F wave represent method of looking at the proximal segments of motor nerves and as such can be very important in certain circumstances (e.g. GBS). The absence of F wave has been interpreted as demyelinating conduction block in the proximal nerve segments when distal compound muscle action potentials are preserved. In Guillain-Barre syndrome, peripheral nerve conduction studies are normal in 10% to 20% of patients. However, electrophysiological evidence of nerve dysfunction may be present in the proximal portion of the peripheral nerves and thus absence or slowing of F wave may be an isolated conduction abnormality, especially in the early stage of illness.

Materials and method:

Place of study:

This study was carried out in the department of neurology, Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital during the period of July 2000 to March 2002.

Type of study:

This was a prospective clinical and electrophysiological study.

Inclusion criteria:

Patients who met the diagnostic criteria for Guillain-Barre syndrome (Asbury and Cornbalth, 1990) as describe below were included in this study.

I. Features required for diagnosis:
   A. Progressive motor weakness of more than one limb.
   B. Areflexia.

II. Features strongly supportive of the diagnosis:
   A. Clinical:
   1. Progression within four weeks
   2. Relative symmetry
   3. Mild sensory symptoms or signs
   4. Cranial nerve involvement
   5. Recovery within four weeks of progression stopping
   6. Autonomic dysfunction

Subject: Thirty consecutive patients (25 male and five female) were included in this study. The youngest patient in this series was a 12 years old boy and the eldest case was 67 years old male.

Method: After admission into the Neurology department of BSMMU Hospital, a thorough history including the history of any antecedent events was taken from the patient or patient's attendant. In every case a careful neurological examination was done including the autonomic nervous system. Patients were followed up for respiratory function, blood pressure, pulse, and muscle power. Each of the patients, who were diagnosed clinically as GBS, was investigated for confirming diagnosis by doing cerebrospinal fluid (CSF) study and electrophysiological study. CSF study was done after tenth day of illness and was sent for biochemical, bacteriological and cytological examination. Electrophysiological study was done irrespective of duration of illness. All measurements were done with surface electrodes and measurements were recorded in a form used by Neurology department in BSMMU. Nerves were stimulated using 1ms electrical pulses at a repetition rate of one per second with intensity sufficient to elicit maximum amplitude of compound muscle action potential (CMAP) and sensory nerve action potential (SNAP). In addition to distal latency, amplitude and nerve conduction velocity nerves were tested for F wave. Besides these, some other investigations were done for example, serum electrolytes, blood sugar etc. to exclude any possible secondary causes of muscle weakness, Data were collected by using a questionnaire and analyzed by appropriate statistical method.

Operational definition at electrophysiology:

Acute Inflammatory Demyelinating Polyneuropathy (AIDP):

Reduced conduction velocity;

Conduction block or temporal dispersion;

Prolonged terminal latency; and

Absent F wave or prolonged F wave latency.

Acute Motor Axonal Neuropathy (AMAN):

Absent or reduced compound muscle action potential (CMAP);

Normal motor terminal latency and conduction velocity; and

Normal sensory nerve action potential (SNAP).

Acute Motor Sensory Axonal Neuropathy (AMSAN):

Absent or reduced SNAP amplitude;

Absent or reduced CMAP amplitude; and

Normal motor terminal latency and nerve conduction velocity.

Results:

The study population consisted of thirty (30) patients, twenty-five were male and five female. The age distribution of patients is shown in Table-I. The youngest case in this series was a 12 year old boy and the eldest was a 67 year old male. However, most

(46.67%) of the patients were in between 16 and 25 years of age. A history of antecedent event was present in 19 (66.33%) cases while 11 (33.66%) patients failed to give any preceding history of an antecedent event. Fever alone or in combination with loose motion was the commonest antecedent event (36.66%) followed by loose motion (23.33%). No associated condition like trauma, surgery, lymphoma, vaccination history was present in this study group.

Table-I

Showing the distribution of patients according to age groups (N=30)

Age group in years	No of patients
0-15	03 (10%)
16-25	14 (46.65%)
26-35	03 (10%)
36-45	06 (20%)
46-60	03 (10%)
>60	01 (3.33%)

Seventh cranial nerve was the commonest nerve (36.66%) involved in this series and it was bilateral in two third cases. Sensory involvement was present in five (16.60%) patients in the form of impairment of pain and touch sensation. Autonomic involvement like tachycardia, bradycardia, hypertension, hypotension or constipation was present in 27% cases.

Cerebrospinal fluid protein was elevated in 90% patients. In 28 (93.3%) cases cerebrospinal fluid total cell count was up to 5 cells/mm^3 and in only two (6.7%) patients total cell count was up to 15 cells/mm^3 (Table-II).

Table-II

Showing results of CSF study in Guillain-Barré syndrome patients

Parameter	Elevated	Normal
Protein	27 (90%)	3 (10%)
Cell count	2 (6.70%)	28 (93.30%)

The commonest pattern (33.33%) in electro-physiology was AIDP followed by AMAN and combination of AMAN and AIDP patterns, both constitute about 26.66% of cases. Acute motor sensory axonal neuropathy constitute about 14% of patients (Table-III). In Table-IV and Table - V details of nerve conduction study and findings of CSF examination of selected patients are presented.

Table-III

Showing electro physiologically defined groups of Guillain-Barré syndrome

Electro physiologically defined group	Number of patients
AMAN	04 (13.33%)
AMSAN	08 (26.66%)
AIDP	10 (33.33%)
AMAN and AIDP	08 (26.66%)

Table-IV

Showing the figures of nerve conduction study (NCS) at median nerve of few Guillain-Barré syndrome cases

Case No	NCS Summary	Motor Study			Sensory Study
		NCV	Amplitude	F wave	Amplitude
1	Axonal (motor) & demyelinating	50.23 msec	5.5 mv	Absent	17.1 mv
2	Axonal motor sensory	52.10 msec	4.9 mv	26.3	8.50 mv
3	Demyelinating	32.80 msec	12mv	Absent	18.20 mv
5	Axonal motor	52.10 msec	4.7 mv	26.7	20.21 mv
13	Demyelinating	37.23 msec	11.4 mv	27.1	17.2 mv
22	Axonal (motor) & demyelinating	51.12 msec	4.7 mv	41.24	17.4 mv
24	Axonal motor	52.15 msec	4.6 mv	26.15	21.5 mv
30	Demyelinating	39.12 msec	12.10 mv	Absent	14.20 mv

Table-V

Showing the summary of nerve conduction study at median nerve and figures of CSF study of Guillain-Barré syndrome cases

Case No.	NCS Summary	CSF Study Protein (mg/dl)	Days from onset	Sex	Age
1	Axonal (motor) and demyelinating	100	12	M	32
2	Axonal motor sensory	180	13	M	20
3	Demyelinating	200	10	M	56
5	Axonal motor	75	12	M	60
9	Demyelinating	28	15	M	33
22	Axonal (motor) and demyelinating	145	11	M	8
23	Demyelinating	136	12	F	25
30	Axonal motor	32	14	M	36

F wave was absent or F wave latency was prolonged in four (50%) patients among eight cases in whom it was done within seven days of onset of illness. F-wave parameters were abnormal in eight (36.36%) cases among patients who presented after seven days of onset of the disease. Compound muscle action potential (CMAP) was abnormal in three cases (37.50%) out of eight patients who presented within seven days of illness, and in 17 (77.27%) patients out of 22 CMAP were of low amplitude when it was done after seven days (Table-VI).

Table-VI

Evolution of nerve conductive study changes in Guillain-Barré syndrome cases

Changes	Day 1 to 7 (n=8)	Day 7 to 21 (n=22)	Total number of patients (n=30)
F waves:			
Abnormal	04 (50%)	08 (36.36%)	12 (40%)
Absent	03 (75%)	06 (75%)	09 (75%)
Prolonged	01 (25%)	02 (25%)	03 (25%)
Normal	04 (50%)	12 (63.64%)	16 (60%)
SNAP response:			
Abnormal	01 (12.5%)	04 (18.18%)	05 (16.67%)
CMAP response:			
Low amplitude			
>2 Nerves	03 (37.5%)	17 (77.27%)	20 (66.67%)

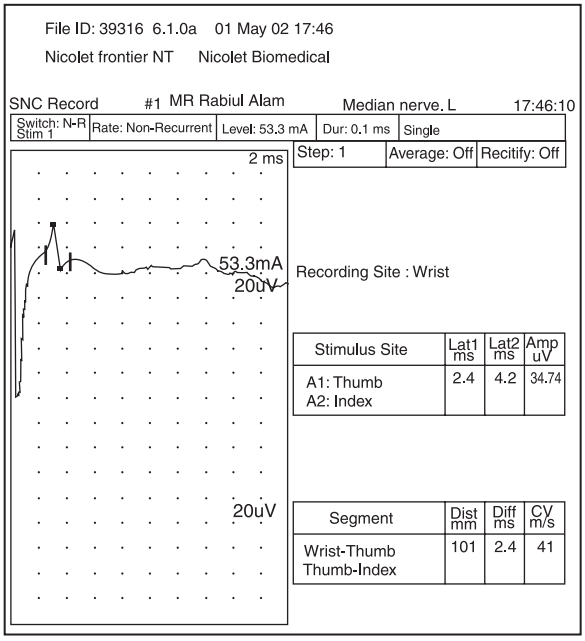

Fig.-1: *Showing sensory nerve conduction in a patient of Guillain Barre syndrome.*

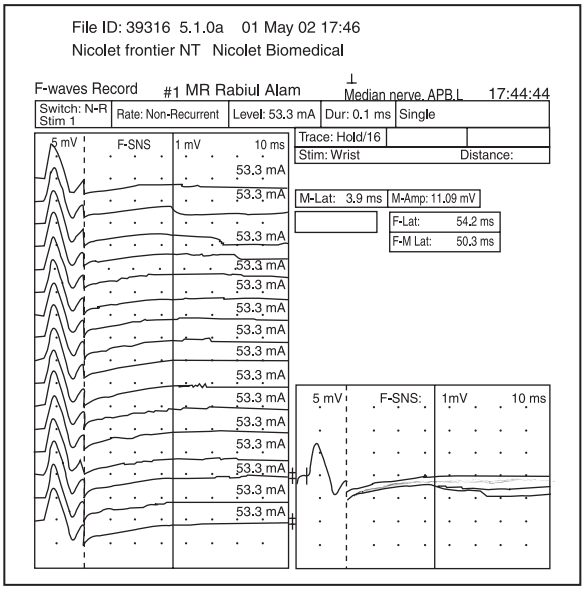

Fig.-2: *Figure-2 : Showing F-waves recording of a patient of Guillain-Barré syndrome.*

Discussion:

The present study was undertaken to evaluate the electrophysiological changes in Guillain-Barre syndrome patients in Bangladeshi population. The standard values used at BSMMU electrophysiology laboratory were taken as control.

Male patients outnumbered female patients, as this study showed males suffered as much as five times (M: F=5:1). Though some studies showed males appeared to be affected more commonly [18-19], the outstanding male predominant involvement in this study was quite remarkable. This may be a chance finding or may be explained on the facts that female patients fail to reach to a tertiary center, like this, for treatment because of customs and religious background or other social factors.

The age distribution curve showed 47% of patients were between 16 and 25 years of age. The next common age of presentation was between 36 and 45 years (20%). This was corroborated with other studies where the investigators showed that the young adults between 15 and 25 years are peak age group for suffering from Guillain-Barre syndrome [18, 20].

The presence of antecedent events was present in two third of patients (67%) in the preceding weeks (one to four weeks) and this finding was well in association with other studies [21-22].

Cranial nerve involvement was present in 46.66% cases and seventh cranial nerve was the commonest (78.50%) and it was bilateral in two third cases. This finding is consistent with two other studies, [23-24] where cranial nerve involvement was present in 55% and 53% of cases respectively.

Features of autonomic nerve involvement such as sinus tachycardia and bradycardia, hypertension and postural hypotension, constipation, anhydrosis or excessive sweating were present in 27% of patients. This finding is quite low when compared with the study carried out by Singh et al where they showed two third of their cases had features of autonomic nerve involvement [25]. However, these features should be considered carefully during patient management to avoid catastrophe.

Cerebrospinal Fluid study revealed presence of elevated protein in 90% of cases, which were more or less well correlated[22]. The cell count in cerebrospinal fluid was up to 5 cells/mm^3 in 94% of patients and in only 6% of cases it was up to 15 cells/ mm^3. This study restated the old saying "cyto-albumino dissociation" is a characteristic feature of GBS.

F wave was absent or F wave latency was prolonged in four (50%) patients among eight cases in whom it was done within seven days of onset of illness. F-wave parameters were abnormal in eight (36.36%) cases among patients who presented after seven days of onset of the disease. Thus this study showed that F-wave abnormalities are more useful in assessing Guillain-Barre syndrome patients in early days.

Acute inflammatory demyelinating polyradiculopathy is the most prevalent form of GBS in western countries and accounts for 85-90% of cases[26]. AIDP was found in 85% of cases and acute axonal forms of GBS in 15% of cases in a series reported by Hahn[27]. In this series, AIDP was the commonest electrophysiological variant of GBS (33.35%). This is quite low in comparison to the western studies as mentioned [3-6]. This study revealed that in 14% cases there were presence of both motor and sensory axonal damage and this finding was well correlated with other published reports[28].

In this study, AMAN and a combination of AMAN and AIDP closely follows AIDP, each group constituted about 26% of cases. This was slightly higher than other reported studies especially from China [28-29]. That is in about, 26% cases there were presence of both demyelination and axonal changes in the same patient.

As axonal regeneration takes long time, the functional recovery after Guillain-Barré is delayed in whom the axon is the main target of damage. On the other hand remyelination occurs much quickly and thus the chance of recovery following GBS is much better in whom only myelin sheath is involved. Thus the ultimate outcome depends mainly on the pattern of involvement.

This study shows that acute inflammatory demyelinating neuropathy is still the predominant GBS variant in Bangladeshi population but axonal involvement and injury constitute a substantial percentage of GBS cases, which should be sought in clinical and electrophysiological study to foresee the ultimate outcome in GBS.

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Journal of Bangladesh College of Physicians and Surgeons
Vol. 24, No. 2, May 2006

Malignant Biliary Obstruction: Clinical Outcome of Endoscopic Intervention - An Experience of Tertiary Centers

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Summary:

Most patients with malignant obstructive jaundice present at a stage when they are beyond the scope of curative surgery. Endoscopic stenting is the approach of choice worldwide to improve quality of life and survival of such patients. The aim of this study was to find out overall clinical outcome of endoscopic intervention in malignant obstructive jaundice. This prospective study done in two tertiary gastroenterology centers in Dhaka included consecutively admitted 79 adult patients with malignant biliary obstruction for endoscopic stenting, followed by a follow-up period of six months. Outcome evaluation included success rate of stenting and drainage, complications, and mortality rate at one-month, and survival up to six-months. ERCP revealed carcinoma of pancreas, periampullary carcinoma, cholangiocarcinoma, carcinoma of gallbladder, and metastasis in the biliary trees in 22 (27.8%), 22 (27.8%), 20 (25.3%), 11 (13.9%), and 04 (5.1%) cases respectively. Successful stenting and drainage could be achieved in 62 (78.5%) and 58 (73.4%) cases. Stent blockage (23.9%) and cholangitis (19.4%) were the main complications. Total death at one-month was nine of 55 (16.4%), and 21 (38.2%) patients survived up to six-months, with no difference in one-month mortality rate among the malignancies (P>0.05). Stenting prolonged six-month (88.2%) and mean survival (121.2±67.7 days) only in patients with periampullary carcinoma (P<0.001).

Endoscopic stenting can safely be done in malignant biliary obstruction to offer palliation with an outcome, which is not unsatisfactory.

(J Bangladesh Coll Phys Surg 2006; 24: 61-68)

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Introduction:

Surgery is the standard treatment of malignant biliary obstruction, the second most common cause of obstructive jaundice. Unfortunately in only 20% patients these malignant lesions are resectable, except ampullary tumours[1-7]. With inoperable biliary tumours the prognosis is poor in terms of survival and quality of life[8, 9]. Endoscopic biliary drainage is an established procedure of palliation in such situation to relieve jaundice, and to help maintain a good quality survival[10-19]. Lower procedure-related complications and the relative non-invasive nature of endoscopic treatment have relegated surgical management to a subsidiary role[20-28].

Endoscopic retrograde cholangiopancreatography (ERCP) is done in several centers in Bangladesh for more than one and half decade**.** With malignant obstructive jaundice patients are admitted at the 'Bangladesh Institute of Research & Rehabilitation in Diabetes, Endocrine & Metabolic Disorders' (BIRDEM) Hospital, and other institutions, and during ERCP many of them receive endoscopic stenting, if found unfit for surgery. Hasan et al[29] reported their experience of diagnostic ERCP in a study done in Dhaka. However, till now there is no published report on the outcome of endoscopic

intervention in patients with malignant obstructive jaundice. A study was therefore conducted on 79 patients, and we report the experiences on success rate of endoscopic stenting, successful drainage achieved, about early and late complications, and the impact of endoprosthesis implantation on quality of life and survival.

The purpose of this study was to obtain the results of endoscopic palliation in patients with malignant biliary obstruction.

Materials and method:

Irrespective of sex, consecutively admitted 79 adult patients with features of malignant obstructive jaundice were included in this prospective study during April to December 2000. This study was done in the Bangladesh Institute of Research & Rehabilitation in Diabetes, Endocrine & Metabolic Disorders (BIRDEM) Hospital, and in Gastro liver Hospital & Research Institute, Dhaka, the tertiary gastroenterology centres of this country. The purpose of this study was explained to every patient, and they were included after they gave their verbal consent. Common bile duct diameter of more than 8 mm in ultrasonogram was considered as an evidence of biliary obstruction[30]. Besides ultrasonography and before ERCP liver function and relevant biochemical tests, CT scan of abdomen was done in all the patients. Duodenoscope (Fujinon, 400 series) with a working channel of 4.2 and 3.8 mm. were used for ERCP. Biopsy was obtained only in case of suspected periampullary carcinoma, or carcinoma of head of the pancreas infiltrating the duodenum. In all other cases diagnosis was done correlating cholangiographic findings with clinical and laboratory features. Neither collection of juice from common bile duct (CBD), nor any brush cytology was included for histological diagnosis. Irrespective of type or site of lesions endoprosthesis implantation was the objective. Plastic stents, 10Fr., or in some cases 7Fr. (Amsterdam type), with flaps on either end were used for this purpose. In case of hilar obstruction, the aim was to implant only unilateral stenting. Successful endoscopic stenting and drainage were defined respectively as passage of endoprosthesis across the stricture with restoration of bile flow, and at least a 30% reduction of serum bilirubin within 10 days of intervention, with recovery from cholangitis, if any. Early complication and one-month mortality were defined as those events occurring within 30 days of the first attempt of endoscopic intervention.

After discharge from the hospital, follow up of all the patients were done at the interval of 15 to 30 days, for six months. Follow up included history taking, physical examination, and laboratory investigations, if needed. Monitoring was done over telephone in case any patient was unable to attend the outpatient department. No one was lost to follow up. After recurrence of biliary obstruction a review ERCP was done, followed by restenting, if needed.

Outcome evaluation included success rate of stenting and drainage, morbidity of the procedure, patient's mortality at one-month, and survival up to six month.

Exclusion criteria:

Patients with malignant biliary obstruction, but having marked narrowing of the duodenal channel or any other morbid diseases were not included in this study.

Statistical Analysis: Statistical analysis was done using SPSS software. The significance level in comparison between variables was set at 0.05.

Results:

Entry characteristics:

Of the 79 patients, 50 (63.3%) were male and 29 (36.7%) female with an age range of 23-85 years (mean 56.3±12.0yrs). Majority patients were in the age group of 51–70 years (59.5%) [Table-I]. Major clinical features were pruritus (74.7%), abdominal pain (65.8%), weight loss (49.4%), weakness (48.1%), anorexia (35.4%), fever (25.3%), and nausea (24.1%). Mean duration of jaundice was 67±26.7 days, with their serum bilirubin and alkaline phosphatase level of 12.5 ± 5.9 mg/dl and 1132 ± 802 IU/L respectively.

Table-I

Patients characteristics- at entry & after ERCP.

	At entry Age Range				
Gender	23-30	31-50	51-70	≥71	Total
Male	01 (1.3)	15 (19)	29 (36.7)	05 (6.3)	50
Female	02 (2.5)	08 (10.1)	18 (22.8)	01 (1.3)	29

	Findings after ERCP									
Characters	Periam-carcinoma		Carcinoma-pancreas		Cholangio Carcinoma-		Carcinoma-gallbladder		Metastasis	
	M	F	M	F	M	F	M	F	M	F
≤50 (yrs) (25)	09	02	02	02	05	02		02		01
≥51 (yrs) (54) †	07	04	13	05	08	05	05	04	01	02
Mean age (years)	51.64±11.5		59.6±12.1		57.1±10.9		59.9±10.8		49.5±17.8	
Age range (years)	29-75		26-85		45-78		40-78		23-61	

† Male sex P≤0.05, [between two different age range ≤50 and ≥51]

Findings after ERCP:

ERCP was done in all the 79 patients. Findings were suggestive of carcinoma of pancreas, periampullary carcinoma, cholangiocarcinoma, carcinoma of gallbladder and biliary tree in 22 (27.8%), 22 (27.8%), 20 (25.3%), 11 (13.9%) and 04 (5.1%) cases respectively. Higher distribution of these malignancies, except periampullary carcinoma, was seen after the age of 50 years, but, significantly, only in case of male (43%) (P<0.05) (Table-I). Of the 20 cases of cholangiocarcinoma, twelve were seen in the perihilar region (type I-one, type II-three, type IIIb-two, and type IV-six), and rest eight were in the extra-hepatic bile duct. Biopsy obtained in 27 patients from obvious lesions in ampullary region revealed periampullary carcinoma in 22 cases, carcinoma of pancreas in four, and cholangiocarcinoma in one.

Endoscopic intervention and outcome:

In three patients with periampullary carcinoma papillotomy was done with no stenting, which restored adequate biliary drainage. Endoscopic palliation was not attempted in 12 patients due to unsuitable cholangiographic picture, and in five patients attempt of stenting was unsuccessful. However, it was done successfully in rest 59 patients that included 18 cases with periampullary carcinoma, 18 with carcinoma of pancreas, 12 with cholangiocarcinoma, 10 with carcinoma of gall bladder and one with biliary metastasis [Table-II]. Within two days of stenting two patients expired, and there was no improvement in another two. With an intention to treat basis successful stenting, and drainage could be done in 62(78.5%), and 58(73.4%) cases respectively.

After unsuccessful attempt of stenting in five patients three of them were treated by PTBD (percutaneous transhepatic biliary drainage). Two of the 12 patients, not included for endoscopic intervention also received PTBD. Rest 12 patients left abandoned without any intervention died within one month. Within the same period there was death of one patient after PTBD. Following successful stenting Whipple's operation was done in four cases with periampullary carcinoma, and two with carcinoma of pancreas. However, two days after surgery, one patient died of

Table-II

Post-ERCP endoscopic management, showing distribution in relation to malignancy & age-range

Malignancies	Papillotomy and stenting		ERCP abandoned		ERCP Failed		P * value
	≤ 50	≥ 51	≤ 50	≥ 51	≤ 50	≥ 51	
Periampullar-ca ‡	11	10		01			
Ca-pancreas	03	15	01	02		01	≥ 0.05
Cholangiocarcinoma	05	07	01	04	01	02	
Ca-gallbladder	02	08	01	00			
Metastasis	01	0	0	02		01	
Total	22	40	3	09	01	04	
	(27.8)	(50.6)	(3.8)	(11.4)	(1.3)	(5.1)	

‡ Papillotomy was done in three patients without stenting.

* Each procedure of two-age range [≤ 50, & ≥ 51]

adult respiratory distress syndrome (ARDS). But rest six survived for more than six months. After stenting, palliative surgery was done in a patient with cholangiocarcinoma, who had marked stricture in the common hepatic duct. (Table-IV). He also survived for six months.

Early complications and death after endoscopic intervention:

Different complications were seen in 11(16.4%) patients within 30 days of an attempt of intervention in 67 cases. During procedure significant bleeding started from papillotomy site in two (3.0%) patients, and perforation occurred in one (1.5%). Two days later, cholangitis, acute pancreatitis, and peritonitis were noticed in 03 (4.5%), 02 (3.0%) and 03 (4.5%) patients respectively; and all these complications were seen mostly with distal malignancies (Table-III). With conservative management they recovered well.

One month after endoscopic drainage total death was nine of 55 (16.4%), and there was no significant difference in patients' mortality rate with different malignancies (P>0.05) (Table-IV).

Late complications after endotherapy:

Forty-six patients were alive after one month of intervention. At variable intervals (median four months) 14 (30.4%) patients presented with jaundice and of them 10 (21.7%) with cholangitis (Table-III). Review ERCP revealed stent blockage in 11 (23.9%) cases. Restenting was done once in eight patients, and on two occasions in other three relieved biliary obstruction. Jaundice in rest three patients was due to blockage of bile flow at the CBD outflow tract by extension of tumour mass of periampullary carcinoma. This time they received their first stenting. Two (4.3%) patients suffering from cholangiocarcinoma presented with liver abscess as a late complication, but recovered with conservative management.

Survival at six month (after stenting)

Finally 21(38.2%) patients were alive after a six-month follow up. With carcinoma of gallbladder (10), and biliary metastasis (01) none survived up to six months (Table-IV). Mean survival with the former was 88.7±47.1 days; and with the later, the survival was 35 days only. With cholangiocarcinoma and carcinoma of pancreas, 04 (36.4%) and 02 (12.5%) patients were alive after six months, and mean survival with these malignancies were 114.5±77.2 and 97.6±64.5 days respectively. However, with periampullary carcinoma, 15 (88.2%) patients were alive after six months, a difference with others, which was statistically significant (P<0.001) (Table-IV). Age, sex, or site of lesion did not influence the outcome of endoprosthesis.

Table-III

Early and late complications after attempt of endoscopic intervention

Type of Complications	No. of patients / period after intervention				
	Early (≤30 days)		Late (≥31 days)		
	Periampullar-Ca	Ca-pancreao	Periampullar- Ca	Ca-pancreas	Cholangiocarcinoma
Bleeding	02				
Perforation		01			
Cholangitis	02	01	06	03	01
Pancreatitis	02				
Peritonitis		03			
Liver abscess					02
Stent blockage			05	05	01
Total	06	05	11	08	04

Table-IV

Survival of patients in days after different procedures / management

Diseases / Characters	Papillotomy/ stenting n=55		Abandoned / Failed ¶ n=12	Surgery n=07		PTBD φ n=5		P * value <0.001
	≤30 §	≥180	≤30	≤30	≥180	≤30	≥180	
Periampullar-ca	01(5.9%)	15(88.2%)	01	01	03			
Ca-pancreas	04(25%)	02(12.5%)	03		02			
Cholangio-carcinoma	03(27.3%)	04(36.4%)	06		01		01	
Carcinoma gallbladder	01(10%)							<0.001
Metastasis			02			01		
Total	09(16.4%)	21(38.2%)	12(15.2%)	01	06	01		
Mean survival ϕ (days)	121.2±67.7		12.1±8.3	154.6± 67.3		76.8±63.1		

§ P ≥ 0.05,

* Between malignancies (long-term survival)

φ PTBD (percutaneous transhepatic biliary drainage) done after attempt of stenting abandoned / attempt failed

¶ No sort of intervention was done

ϕ Mean of all the patients with individual management
Percentage done in each category of patients

Discussion:

This is the first study in this country to find out a data on the outcome of endobiliary prosthesis implantation which was conducted on 79 patients with jaundice of 67±26.7 days duration. Carcinoma of the pancreas, gallbladder, or bile ducts is the cause of malignant obstruction of the biliary trees[31, 32]. Some western studies have reported pancreatic malignancy as the most common cause[33, 34]. In this study carcinoma of pancreas, periampullary carcinoma and cholangiocarcinoma were found as the common biliary malignancies, which together comprised 81% of all the cases, with a prevalence rate varying from 25-28% for each of them. Kapoor and McMichael [35] reported a higher prevalence of carcinoma of gallbladder in north and central India. However, in our study carcinoma of gall bladder could be detected in 11(13.9%) cases only. This variation is not unexpected as this study was done on different race and population, and it is unusual that all the patients with obstructive biliary malignancies would come to us for palliation.

With an intention to treat basis the success rate of stenting and drainage, that was achieved in 78.5% and 73.4% cases respectively is relatively lower to others. De Palma et al[9] from Italy reported this outcome in 96.7% patients; and similar higher rate of success has even been reported by some other studies [6, 24-27]. One of the possible reasons was biliary obstruction of advanced duration, for which stenting had to be abandoned in 12 cases. However, the drainage that was achieved in 73.4% patients was successful as there was gradual improvement of pruritus, fever and anorexia followed by that of jaundice and general well being. Luman et al [25] and few others [15,24-25] reported a similar outcome on quality of life after endoscopic intervention. After stenting average hospital stay of these patients was three days on an average. Plastic stents were however in all these cases.

Apparently, no difference was found in morbidity pattern when compared it to others.[6-9] Early complications were seen in 11 (16.4%) cases, with cholangitis in 4.5% of them. Polydorou et al [8] in his study reported the same result in 19.1% and 7% cases respectively. Overall complications have even been reported in 19–27% patients [27-28]. Probably use of prophylactic antibiotic in each and every patient had a role in reducing the morbidity. One month mortality rate was 16.4%, which was relatively higher in patients with cholangiocarcinoma and carcinoma of pancreas than others. None of these findings differ from other published reports [8,36]. Similarly, if it is analyzed, 11(23.9%) patients presented with jaundice due to stent blockage, and 10 (21.7%) of them with cholangitis, a higher rate of late complications, as it appears. But some other studies have found the same morbidity in 30% and 16.3% cases respectively [9, 22-25] .

Long-term survival did not reveal a favourable finding as only 21 (38.2%) patients survived up to six months, including none with carcinoma of gallbladder and biliary metastasis. The outcome was even poorer with carcinoma of pancreas (12.5%). However, the picture was totally different with periampullary carcinoma, as six-month survival was 88.2%. This was probably due to relatively benign course of the disease. Polydorou et al[8] in his study reported shorter survival of patients with carcinoma of pancreas and biliary metastasis in comparison to others. In this study, in addition, the outcome was also worse with carcinoma of gallbladder. Weaver et al [18] in his study reported a long-term survival rate of 20.4% only. However, they did their follow up for over one year. In this study, out of survived 21 cases. If 15 (88.2%) with periampullary carcinoma are taken in consideration, then only six (10.9%) patients survived up to six month, a rate which is much lower to Weaver et al [18].

Overall clinical outcome achieved in this study is not comparable to those reported in western countries [8,9,15,21-24,27-28]. Whether biliary obstruction of advanced duration, and or re-use of accessories, or use of plastic stents affected the results remains to be explored, as there was no control group of patients. There are some of the limitations of this study. Follow up period was shorter, and there was no option of brush cytology or no biopsy was there to do a histological diagnosis for all the patients. However, the main goal was to find out a data of endoscopic intervention in patients with malignant biliary obstruction, and that was obtained. In that sense, this study has served the primary purpose.

In conclusion, it may be said that carcinoma of pancreas, periampullary carcinoma and cholangiocarcinoma are the common obstructive biliary malignancies in the patients with malignant obstructive jaundice. Endoscopic palliation reduces one-month mortality, and improves quality of life. However, long-term survival is not significantly prolonged, except in periampullary carcinoma. It may also be said that in patients with malignant jaundice endoscopic intervention can safely be done with an outcome, which is not unacceptable. This study provides a rationale to do properly designed further studies on a larger number of such patients.

Acknowledgements:

The authors are grateful to the authority of the following institutes in that they allowed to conduct this study.

1. Department of Gastrointestinal, Hepatobiliary & Pancreatic Disorders (GHPD), Bangladesh Institute of Research & Rehabilitation in Diabetes, Endocrine & Metabolic Disorders (BIRDEM) Hospital, Dhaka, Bangladesh.
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REVIEW ARTICLE

Chemotherapy in Colorectal Cancer - Past, Present and Future

MM HOSSAIN

(J Bangladesh Coll Phys Surg 2006; 24: 69-74)

Introduction:

Colorectal cancer (CRC) ranks fourth among the most commonly diagnosed cancers worldwide and second most frequent cause of cancer related deaths in USA. Every year about 1,023,000 new cases and 5,29,000 deaths are estimated to occur[1]. In 2005, USA alone will have 1, 45,290 new cases and 56,290 deaths.[2]

Pathological stage at presentation is the most important prognostic indicator in CRC. The TNM system of staging (by AJCC-American Joint Committee on Cancer) has now mostly replaced the original and modified Dukes' staging system. Five-year survival based on this TNM staging is reflected in Table-I. About 30% of patients with this malignancy present in advanced stage and 50% of those who present in early stage develop advanced recurrence during their life time.[3] Early stage disease can be managed with satisfactory long term results by surgery alone. Advanced stage disease poses particular problems and is incurable. It is the advanced disease which is responsible for most morbidity and mortalities related to CRC. In advanced disease, chemotherapy along with palliative radiotherapy constitute mainstay of management. Chemotherapy in CRC has undergone revolutionary changes during last 10 years or so after long domination of 5-FU in adjuvant and palliative setting. Systemic chemotherapy is the treatment of choice for patients with metastatic CRC to prolong survival, and to improve symptoms and quality of life. This holds true for middle aged and elderly people equally, contrary to the common belief resulting in older patients often being inadequately staged and fewer elective operations are performed[4], and they are less likely to receive adjuvant chemotherapy and/or radiotherapy. [5-8] Recently published meta-analysis [9]and population based analysis [6,8,10] showed that elderly patients with colon and rectal cancer benefit from adjuvant chemotherapy or radio-chemotherapy to the same extent as younger patients. 5-FU based treatment is generally offered to these patients.

Table-I

TNM staging system for colorectal cancer

Stage	TNM classification	Five-Year Survival%
I	T1-2, NO, MO	>90
IIA	T3, NO, MO	60-85
IIB	T4, NO, MO	
IIIA	T1-2, N1, MO	
IIIB	T3-4, N1, MO	25-65
IIIC	T (any), N2, MO	
IV	T (any), N (any), M1	5-7

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Chemotherapeutic drugs:

In the era of evidence based medicine, results of trials with agents used in advanced disease is applied to neo-adjuvant and adjuvant settings. It implies that the drugs in neo-adjuvant, adjuvant and advanced disease settings are almost similar. In neo-adjuvant setting the drugs utilized should be effective in reducing the bulk of the tumour and render inoperable tumour to be operable or undertake organ sparing surgery or allow radiotherapy to take care of the disease where inoperable. In adjuvant treatment the drug must prove its efficacy in extending overall or disease free survival. On the other hand, in advanced disease, the goal of therapy is palliation of symptom or prolongation of life, if possible. 5 FU/ LV, Xeloda[11,12,13], Irinotecan, Oxaliplatin all have efficacy in neo-adjuvant and adjuvant setting and in advanced CRC. Various combinations of these drugs are more effective in each of these settings. Even many of these combinations are effective as second line therapy after 5 FU/ LV failure.

5- Fluorouracil (5-FU), an antimetabolite, acts by inhibiting DNA synthesis. Until mid-90s 5-FU with its various schedule and biomodulated forms have been used as adjuvant therapy, and in metastatic CRC with prolongation of medium survival from approximately six months (without treatment) to about 11 months[14-18]. Biochemical modulation of 5-FU and/or administration as continuous infusion are achievements of the 1980s and have resulted in increased response rate and prolonged progression free survival (PFS), while the influence on overall survival (OS) has been limited[19-22].

Despite controversies about efficacy of 5-FU in adjuvant setting, recent meta-analysis demonstrated probability of remaining free of tumour recurrence after five years in stage-III disease from 42 percent to 58 percent and likelihood of five year overall survival from 51 percent to 64 percent.[23] Role of adjuvant therapy in stage-II disease is still controversial and is recommended only in high risk cases – tumour adhesion to adjacent organ, bowel perforation or obstruction[24-26]. Different regimens of 5-FU varies in doses and schedule. Mayo clinic regimen uses bolus administration of 5-FU and Leucovorin whereas de Gramont regimen utilizes continuous infusion of 5-FU. Though absolute gain in efficacy of one regimen over the other of these gamut of schedules has not been observed, toxicity profile varies considerably. de Gramonts one produces more hand-foot syndrome but less gastrointestinal and haematologic toxicity compared to bolus schedules, and is claimed to be moderately more effective than a rapid bolus approach[22]. Single agent activity of Irinotecan[15,27,28] and Oxaliplatin [29] in metastatic CRC led to their use in combination with 5-FU/LV for treatment of patients in advanced disease as well as in adjuvant setting.

Oral fluorinated pyrimidines, UFT, Eniluracil, S-1 and Capecitabine (Xeloda) have the advantage of avoiding hospital visits and admissions for administration. UFT, Eniluracil and S-1 have not been very popular but Capecitabine, a pro-drug of 5-FU, which is tumour activated, has shown promising response, at least as good as 5-FU, but impact on median overall survival is not significant.[13] In fact, it has replaced 5-FU as the backbone of many combinations in recent past because of its favorable safety profile, convenience and cost-effectiveness. Capecitabine's unique mechanism of tumour activation results in the generation of 5-FU preferentially in tumor tissues, minimizing systemic exposure to this drug[30], Moreover, its chemical structure prevents direct release of 5-FU in gastrointestinal tract and its associated toxicities. Capecitabine mono-therapy is an established treatment option for patients with anthracycline and taxane pretreated metastatic breast cancer [31,32] and is active in patients with metastatic CRC[11,13,33]. Two large phase-III trials have demonstrated that, as first line therapy for metastatic CRC, Capecitabine achieves significantly superior response rates, equivalent time to disease progression and equivalent survival compared with 5- FU/ LV[13,33,34]. Drugs approved by FDA for treatment of CRC is shown in Table-II.

Table-II

Glossary of treatments for colorectal cancer

***FDA-approved drugs:**

Fluorouracil

Capecitabine (Xeloda)

Irinotecan (Camptosar)

Oxaliplatin (Eloxatin)

Cetuximab (Erbitux)

Bevacizumab (Avastin)

FDA-approved combination regimens:

IFL: Irinotecan, bolus fluorouracil, and leucovorin – first-line therapy

FOLFIRI: Irinotecan, infusional fluorouracil, and leucovorin – first-line therapy.

FOLFOX: Oxaliplatin, infusional fluorouracil, and leucovorin – first-and second-line therapy

Intravenous fluorouracil and bevacizumab – first-line therapy.

Cetuximab and irinotecan – therapy for **EGFR-positive, irinotecan-refractory disease

*FDA - Food and Drug Administration, and **EGFR- epidermal growth factor.

Newer agents and combinations:

Irinotecan plus 5-FU/ LV (FOLFIRI or IFL) and Oxaliplatin plus 5-FU/ LV (FOLFOX) have demonstrated increased anti-tumour activity and efficacy compared with 5-FU / LV alone in phase-III randomized studies[35-38]. FOLFOX 4: Recent evidence suggest better disease free survival of stage II & III CRC patients with FOLFOX4 (Folic acid, 5-FU, Oxaliplatin) compared to 5-FU/LV (de Gramont regimen) administered as adjuvant therapy and reduced the risk of recurrence by 32%; probability of disease free survival at three years is 78.2% vs 72.9% (p= .002) [39]. This regimen had already doubled the response rates and prolonged progression free survival among patients with metastatic CRC[38] and is superior to IFL[40]. Furthermore, studies with Oxaliplatin plus 5-FU / LV have indicated that a highly active first line chemotherapy regimen may permit, in a small sub group of initially unresectable metastatic CRC patients, a radical approach to metastases after response to chemotherapy, and that approximately 30-40% of operated patients will survive without evidence of disease for greater than five years.[41,42] Therefore, these data indicate that, in metastatic CRC, a more active first line treatment can be more effective, and a meta-analysis of 15 randomized trials of first line treatment with standard bolus intravenous fluoropyrimidines versus experimental treatments (5-FU plus LV, 5-FU plus Methotrexate, 5-FU –CI) also support the relationship between tumour response to first line chemotherapy and survival[40]. The GERCOR study[43] compared FOLFIRI and FOLFOX in sequential order, FOLFIRI followed by FOLFOX vs. FOLFOX followed by FOLFIRI and found median survival of 20.6 months vs. 21.5 months, the highest survival times reported up to now in any randomized study of metastatic CRC. This study suggests that exposure of metastatic CRC patients to all these most active agents 5 FU/LV, Irinotecan and Oxaliplatin, is associated with promising survival which is also supported by study of Goldberg et al[40]. Another recent phase-III trial demonstrated that survival in MCRC is correlated with the proportion of patients who received all the three active drugs in the course of their disease, but not with the proportion of patients who received any second line therapy[44]. That is why upfront administration of all these three drugs in 100% patients, if feasible and tolerable, should be attempted. Moreover, no data is available supporting the hypothesis that patients progressing rapidly on a two drug combination (FOLFOX or FOLFIRI) will respond to a triplet (FOLFOXIRI) or any currently available chemotherapy. The initial FOLFOXIRI[45] and its better tolerable version[46] have demonstrated maximum efficacy of median progression free survival of 10.4 and 10.8 months and median overall survival of 26.5 months and 28.4 months respectively.

Targeted therapy:

Angiogenesis plays central role in growth and spread of many solid tumours. Attempt to inhibit these factors constitutes rational approach in causing tumour shrinkage and prevention of its spread. Of the different factors VEGF (vascular endothelial growth factor) and EGFR (epithelial growth factor receptor) received much attention**.** Bevacizumab (Avastin), a recombinant humanized monoclonal antibody against VEGF, was tried in combination with chemo-therapeutic agents in trials[47-49]. The study by Hurwitz and colleagues[44], who added Bevacizumab with IFL, revealed an impressive, statistically significant increase in median overall survival and a 4.7 months prolongation in median overall survival (to 20.3 months vs 15.6 months with IFL and placebo). A recent study, adding Bevacizumab to FOLFOX as compared to FOLFOX alone, in patients who previously received Irinotecan based therapy, demonstrated a statistically significant prolongation in median survival[50]. Of late, Bevacizumab received FDA approval for treatment of advanced CRC patients with any Fluorouracil containing regimen.[51] Thalidomide, as an angiogenesis inhibitor, has been in use for multiple myeloma and other solid tumours. Recent evidence suggests its role in CRC along with chemotherapeutic agents.[52] Cetuximab (Erbitux), a monoclonal antibody against EGFR, is approved in USA for treatment of metastatic CRC. Saltz and colleagues studied combination of Cetuximab and Irinotecan in advanced CRC unresponsive to Irinotecan alone , and found radiological objective tumour regression in 19% of patients.[53] Study by Cunningham and colleagues confirmed the above experience who found 23% disease regression in patients who received Irinotecan and Cetuximab compared to 11% in those who received cetuximab alone.[54] The FDA approved drugs/ regimens are shown in Table-II and impact of these agents on median survival, particularly in advanced disease, over the last decade, is reflected in Table-III.

Table-III

Trends in the median survival of patients with advanced colorectal cancer

Reference	Treatment Status	Median survival
Scheithauer et al[14]	Before any active chemotherapy	6 mo
Cochrane Database[55]	Fluoropyrimidine only	10-12 mo
Saltz et al[36] and	Fluoropyrimidine and one other active	14-16 mo
de Gramont et al[38]	cytotoxic chemotherapeutic agent (irinotecan or oxaloplatin)	
Goldberg et al[40]	Fluoropyrimidine, irinotecan, and oxaliplatin (in combination as sequential therapy) or	
Hurwitz et al[52]	Cytotoxic chemotherapy and targeted therapy	>20 mo

Adapted from Grothey et al[44].

Future:

Last decade has witnessed profound improvement in chemotherapy of CRC after long plateau in survival curve. Many ongoing trials are attempting to achieve further gain in treatment outcome. Along with currently available reasonably effective agents, greater focus is now directed towards targeted therapy either alone or in combination with chemotherapeutic agents. ZD1839(Irresa), OSI-774(Tarceva), COX-2 inhibitors, farnesyltransferase inhibitors (e.g Zarnestra), to name only few, among the novel agents which are being incorporated in therapy, with hope of and aspiration to increase survival and relieve symptoms in advanced disease as well as early and locally advanced disease.

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CASE REPORT

Lingual Dystonia Treated with Botulinum Toxin - A Case Report

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Summary:

A 42-year-old female presented in Neurology Department of Sir Salimullah Medical College with gradually worsening difficulty in talking and eating for the last four months. Examination revealed dystonic tongue, macerated lips due to continuous drooling of saliva and aspirated lungs. She had no history of taking anti-parkinsonian, neuroleptics or any other drugs causing dystonia. Chest X-ray revealed aspiration pneumonia corrected later by antibiotics. She was treated with botulinum toxin type-A. Twenty units of toxin was injected in six sites of the tongue. The dystonic tongue became normal by 24 hours. Subsequent 16 weeks follow up showed very good result and the patient now can talk and eat normally.

(J Bangladesh Coll Phys Surg 2006; 24: 75-78)

Introduction:

In the early sixteenth century, Brueghel faced problem with open mouths and contracted facial muscles, similar to those we now associate with cranial dystonia[1]. In 1899, Gowers described conditions producing tonic and clonic jaw contractions. His differential diagnosis of tonic spasms included tetanus, trauma, hysteria, brainstem lesions and hypothermia. Convulsions, rigors, paralysis agitans, facial pain and chorea were recognized as causes of clonic spasms.

In 1910, Meige reported a syndrome of spasms of the eyelids in addition to contractions of the pharyngeal, jaw and tongue muscles. Characteristic of dystonia, these spasms were often provoked by voluntary action (e.g. talking, eating), or lessened by humming, singing, yawning or voluntarily opening the mouth. Some of the patients with Meige syndrome developed other signs of dystonia including torticollis or writer's cramp. In 1976, Marsden concluded that blepharospasm and oromandibular dystonia were adult-onset segmental torsion dystonias[4]. Other reviews have supported this assertion[2-3] Recently, the term 'oromandibular dystonia' (OMD) is used to mean the dystonia of the masticatory, lower facial and tongue muscles with resulting spasms and jaw deviation.

Involuntary lingual movements occur in a number of the conditions. The intrinsic tongue muscles are a complicated bundle of interwoven muscles with connective tissue septa. They change the shape of the tongue for speaking and swallowing. The extrinsic muscles also modify tongue shape, but, more specifically, they pull the tongue forward, upward, backward and downward. Hyoglossus flattens the dorsum of the tongue,

Systemic drugs have been the mainstay of therapy for dystonia, with anticholinergics, benzodiazepines or baclofen[4] being most effective. The combination of the dopamine-depleting agent tetrabenazine with lithium carbonate is quite helpful. However, in most patients, there is an inadequate response to pharmacotherapy or there are unacceptable side effects. Many authors have reported success in managing jaw closing OMD and tongue dystonia with local injections of botulinum toxin type A[5-7].

After the emergence of botulinium toxin, there is a revolution in the management of dystonia. It is recommended that a neurologist, otolaryngologist and speech language pathologist should evaluate the patient before treatment, in order to confirm the diagnosis and assess other treatment options. A temporo-mandibular dysfunction specialist should be involved if there are signs or symptoms of temporomandibular joint dysfunction including joint pain and click or restricted jaw mobility.

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Treatment response could be assessed by rating scales. The disability rating scale-Columbia University Scale. This is a six-point rating scale. The second one is "The Global Clinical Rating Scale (percent of normal function scale)". This is a linear scale, which assesses response to therapy graphically, especially when accompanied by the homework sheet. Ask the patient: 'For the area of the body being treated, how would you rate your current level of function? Assume 0% represents fully disabled and no functional activity and 100% represents normal function.' When used with the diary, it becomes a visual, graphic representation of the patient's response to therapy and it can be enhanced by turning the diary counter-clockwise by 90 degree.

Correct muscle selection is the key to a good response to botulinum toxin treatment. Study the movements of the tongue to establish the muscles most likely to be involved and palpate them in different positions to determine which ones are contracting most actively.

Injection into orolingual structures requires a detailed knowledge of the local anatomy and of management of potential complications of therapy. Injections into the pterygoids need good experience or electromyographic (EMG) guidance as they can not be easily palpated. Other muscles could be injected by using anatomical knowledge and palpation but EMG guided injection gives more accuracy at the cost of more hazard. This is particularly important when performing follow-up injections. Gestures can help to target the toxin injection. They include opening the mouth when injecting the lateral pterygoid, and comparing opening the mouth versus protruding the tongue when injecting the digastric.

The dose should be adjusted according to the force of contractions, mass of muscle and weight of the patient.

All of the side effects resolved as muscle strength returned. There may be dysphagia in the tongue dystonia group and rarely which may be severe enough to need a change of diet.

Case report:

A 32-year-old right handed lady was admitted to Sir Salimullah Medical College Hospital in March 2005, complaining of gradual onset of difficulty in swallowing and talking for the last three months. Initially the problem was not severe and she could talk and swallow with some difficulty. The problem gradually became worsen. Drooling of saliva was added to the previous problem, which made the life uncomfortable. Due to excessive salivation the lower lip became macerated. Recurrent chest infection was the common problem for the last one month. It was due to aspiration of saliva resulting from defective swallowing of saliva and liquid food. She did not give any history of taking levodopa, anticholinergic, chlorpromazine, phenytoin or antidepressant drugs. She also had no history suggestive of stroke or family history of similar disease. She was a normotensive and non-diabetic individual. On general examination, her vital parameters were normal. Her pulse was 80 beats/minute and blood pressure in right brachial artery in supine position was 120/80 mm of Hg. All the peripheral pulses including the carotids were well felt. On central nervous system examination, she was conscious, cooperative, well oriented in time, space and person. Examination of the motor system, sensations and deep tendon reflexes were normal except the dystonic tongue. The planter reflex was flexor in both the lower limbs. There were no cerebellar signs. Examination of the other systems was unremarkable.

Her haemogram, routine urine, stool examination and blood chemistry were normal. Her ECG was normal. Radiograph of her chest and skull were normal. Her computer tomography revealed no hypodense lesions.

Treatment and follow up: Initially, she was treated with benzodiazepines, anti-depressants and levodopa. She also visited abroad for this problem but no response was there. Rather the problems were increasing more and more with the passage of time. Finally she attended the "Botox Clinic" of SSMC where she was enrolled for botulinum toxin therapy.

Pre-therapy education was given to her. Different modalities of treatment of tongue dystonia and side effects of botulinum toxin were discussed with the patient. The patient decided to have botulinum toxin injection. Twenty mouse units of botulinum toxin was injected in six sites of hyoglossus and genioglossus.

Patient tolerated the procedure well and immediately after completion of injection she started to show improvement. Patient could swallow and talk. She became almost normal after twenty four hours. She was discharged from the hospital after two days.The disability of the patient was measured in Colombia University Scaling system. Initially her scale was six. After 24 hours the scale became three and after seven days which became one. Subsequent six weeks follow up showed excellent result.

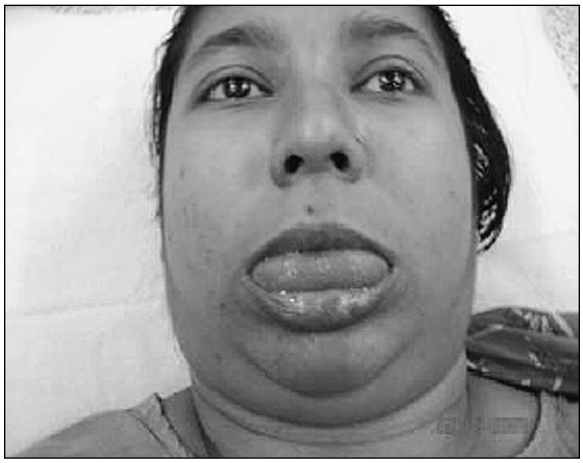

Fig.-1: *Before Botulinum toxin*

Fig.-2: *Seven days after Botulinum toxin*

Discussion:

The management of tongue dystonia has been revolutionized by the introduction of botulinum toxin[8]. Before the study of The Walton Centre for Neurology and Neurosurgery, Liverpool in 1984, there were no published guidelines for using Botox to treat focal dystonias[5-6]. In general, the approach should be empiric, beginning with small doses and titrating to the needs of the patient, selecting the muscles that on clinical examination had the greatest spasm.

The administration method as described by the Walton Centre for Neurology and Neurosurgery, Liverpool in 1984 was followed here and the result is consistent with those previously reported[9]. Smaller doses than Jankovic[10], and adverse effects were less in this case. It is postulated that one can give a lower dose of toxin with significant benefit. EMG may be more important during follow-up, in order to avoid injecting into islands of muscle wasting.

In patients with tongue dystonia, the initial treatment typically gave adequate relief and needed no additional treatment in 16 weeks. After the initiation phase of treatment, 'boosters' should be discouraged because of concern about antibody development[11]. The patient stopped other drugs and continued to benefit from Botox injection for the last 16 weeks.

In 1990, botulinium toxin therapy was recognized by the American Academy of Neurology, the American Academy of Otolaryngology[12] and the National Institute of Health as safe and effective for many patients with dystonia, including those with jaw closing and tongue dystonias. Most experts now agree that botulinium toxin is safe and effective for other forms of jaw dystonia.

Botulinum toxin therapy for tongue dystonia is effective and there may be an unacceptable adverse effects including dysarthria, dysphagia, aspiration pneumonia, and therefore recommendation for injections into lingual muscles should be judicious.

Dystonia is one of the difficult neurological disorders usually not responding to pharmacotherapy. Botulinum toxin has made a big revolution in it's management. Injections could be given in outpatients, except when patients who have severe jaw closing dystonia, need parenteral feeding until treatment permits resumption of oral feeding. Tongue dystonia is a very difficult situation and should be treated with 'Botox' if the patient is already unable to speak or swallow and can be very useful in the management of a protrusive tongue or painful spasms.

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Journal of Bangladesh College of Physicians and Surgeons
Vol. 24, No. 2, May 2006

Autogenous Tooth Transplantation from Ectopic Position: A Case Report and Review of Literature

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Summary:

Autogenous tooth transplantation, is the surgical movement of a tooth from one location in the mouth to another in the same individual. Once thought to be experimental, autotransplantation has achieved high success rates and is an excellent option for tooth replacement. Although the indications for autotransplantation are narrow, careful patient selection coupled with an appropriate technique can lead to exceptional esthetic and functional results. One advantage of this procedure is that placement of an implant-supported prosthesis or other form of prosthetic tooth replacement is not needed. This article highlights the indications for autogenous tooth transplantation using one case report as example. Reviews of previous works as well as success rates are also discussed.

(J Bangladesh Coll Phys Surg 2006; 24: 79-85)

Introduction:

One of the major breakthrough in medicine of the twentieth century was the ability to replace non functional kidney, liver, heart, lung or pancreas function through transplantation of a healthy organ. Although tooth transplantation began earlier, it was not very common in our routine dental practice.

The earliest reports of tooth transplantation involve slaves in ancient Egypt who were forced to give their teeth to their pharaohs[1]. However, allotransplantation transplantation of a tooth from one individual to another was eventually abandoned because of problems of histocompatibility and replaced with autotransplantation. Autogenous tooth transplantation, or autotransplantation is the surgical movement in one individual of a vital or endodontically treated tooth from its original location in the mouth to another site[2]. Autogenous tooth transplantation was first well-documented in 1954 by M.L. Hale[3]. The major principles of his technique are still followed today. The science of autotransplantation has progressed, as evidenced by the high success rates reported in studies over the past decade. These studies demonstrate that autotransplantation is a viable option for tooth replacement for carefully selected patients.

While there are many reasons for autotransplanting teeth, tooth loss as a result of dental caries is the most common indication, especially when mandibular first molars are involved. First molars erupt early and are often heavily restored. Autotransplantation in this situation involves the removal of a third molar, which may then be transferred to the site of an unrestorable first molar. Other conditions in which transplantation can be considered include tooth agenesis especially of premolars and lateral incisors, traumatic tooth loss, atopic eruption of canines, root resorption, large endodontic lesions, cervical root fractures, localized juvenile periodontitis as well as other pathologies[2,9-11]. Successful transplantation depends on specific requirements of the patient, the donor tooth, and the recipient site.

Candidate criteria:

Patient selection is very much important for the success of autotransplantation. Candidates must be in good health, able to follow post-operative instructions, and available for follow-up visits. They

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should also demonstrate an acceptable level of oral hygiene and be amenable to regular dental care. Most importantly, the patients must have a suitable recipient site and donor tooth. Patient cooperation and comprehension are extremely important to ensure predictable results.

Recipient site criteria:

The most important criteria for success involving the recipient site is adequacy of bone support. There must be sufficient alveolar bone support in all dimensions with adequate attached keratinized tissue to allow for stabilization of the transplanted tooth. In addition, the recipient site should be free from acute infection and chronic inflammation[12].

Donor tooth criteria:

The donor tooth should be in such a position that extraction will be as atraumatic as possible. Abnormal root morphology, which makes tooth removal exceedingly difficult and may involve tooth sectioning, is contraindicated for this surgery. Teeth with either open or closed apices may be donors; however, the most predictable results are obtained with teeth having between one-half to two-thirds completed root development. Surgical manipulation of teeth with less than one-half root formation may be too traumatic and could compromise further root development[1,6,7,9,12-16], stunting maturation or altering morphology. When root development is greater than two-thirds, the increased length may cause encroachment on vital structures such as the maxillary sinus or the inferior alveolar nerve[13]. Furthermore, a tooth with complete or near complete root formation will generally require root canal therapy, while a tooth with an open apex will remain vital and should continue root development after transplantation. In the latter case, successful transplantation without the need for further endodontic therapy is usually seen.

Case report:

A 28-year-old female came to the department of Conservative Dentistry and Endodontics, Faculty of Dentistry, BSMMU with the complaints of mild pain and discomfort in the anterior region of the lower jaw. On clinical examination she had retained deciduous canine on both sides of lower jaw. On palpation, she felt slight pain on the lower anterior region. Radiological examination reveals ectopic position of both permanent canines. The canines were vertically impacted near the root of the central incisors (Fig.-1, Fig.-13).

After discussion of all the treatment options with the patient and her guardian, it was decided to extract the retained deciduous canine (Figs.-6a, 6b) and to transplant the impacted permanent canine in their proper position (Fig.-8).

Surgical procedure:

With all aseptic precaution, the impacted right mandibular canine was gently extracted out under local anaesthesia (Fig.-2). Extra oral endodontic treatment was carried out (Figs.-5a, b, c, d) while the retained deciduous tooth on the same side undergone extraction (Figs.-4, 6a, b). The extraction site was pressed with gauze piece to maintain haemostasis (Fig.- 4). After extraction of the deciduous tooth, the depth and width of the socket was modified. Care was taken not to extend lengthy extra oral time.

As soon as the socket was prepared the tooth was transplanted in the prepared socket and fixation was done by functional splint (Fig.-10). A post-operative radiograph was taken (Fig.- 14).

Antibiotic (cap. Sefrad 500 mg eight hourly for seven days) was prescribed pre- and post-operatively, The patient was instructed to take soft diet, maintenance of oral hygiene and not to use the tooth for few weeks, and advised to come after two weeks. On the next appointment the transplanted tooth was examined clinically but there was no pain, discomfort and mobility, the tooth was firm in position and the radiograph revealed no signs of developing pathology (Figs.-11, 14). The splint was removed after four weeks and the patient was advised to come for the follow-up visit after three months, six months, then yearly for five years (Fig.-15).

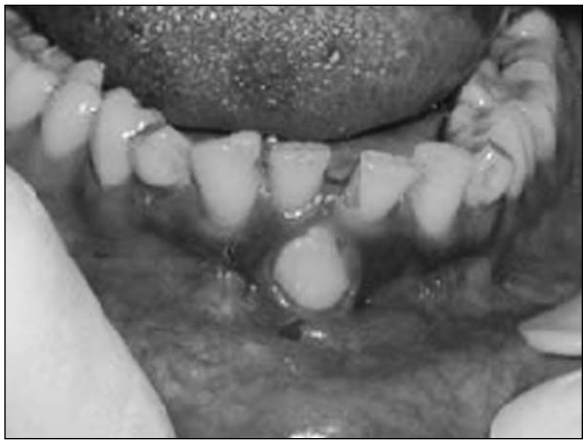

Fig.-1: *Pre-operative view of Impacted Canine in ectopic position.*

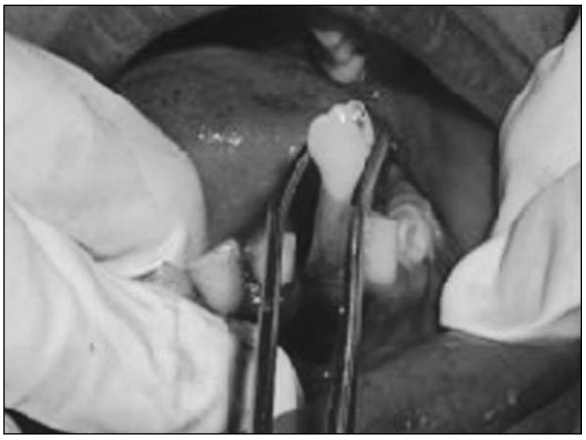

Fig.-2: *Extraction of Impacted anine.*

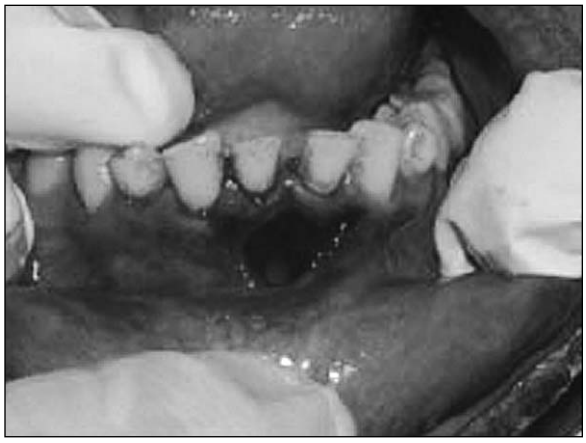

Fig.-3: *Open socket after extraction of Impacted canine.*

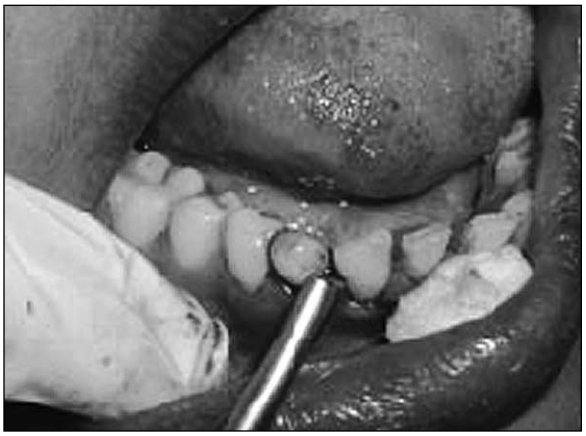

Fig.-4: *Haemostasis of open socket.*

Fig.-5 (a): *Extraoral endodontic preparation of extracted impacted canine.*

Fig.-5 (b): *Extraoral endodontic preparation of extracted impacted canine.*

Fig.-5 (c): *Extraoral endodontic preparation of extracted impacted canine.*

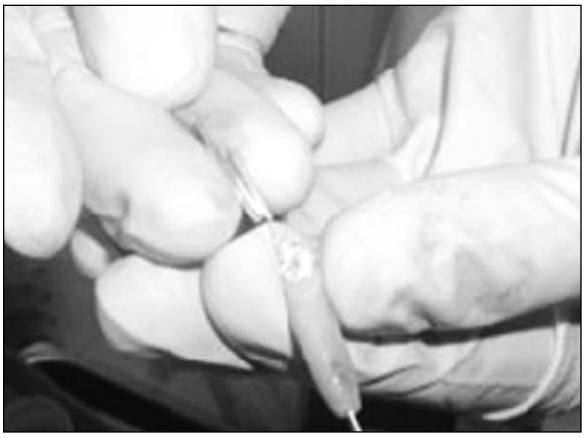

Fig.-5 (d): *Extraoral endodontic preparation of extracted impacted canine.*

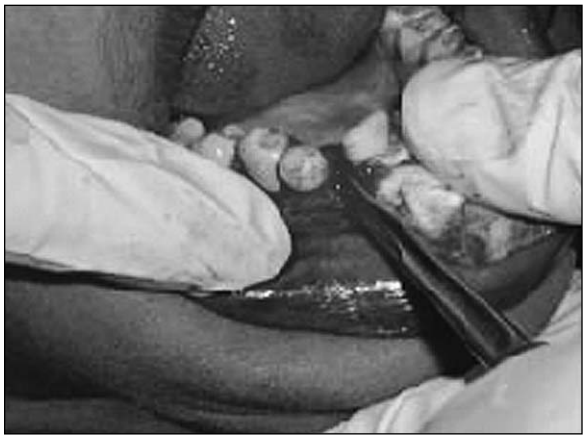

Fig.-6 (a): *Removal of retained deciduous canine and socket preparation.*

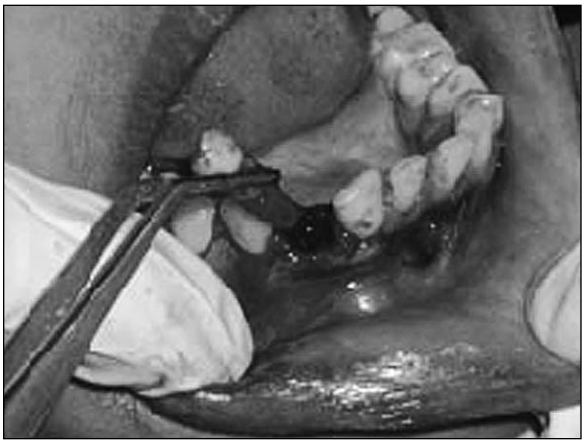

Fig.-6 (b): *Removal of retained deciduous canine and socket preparation.*

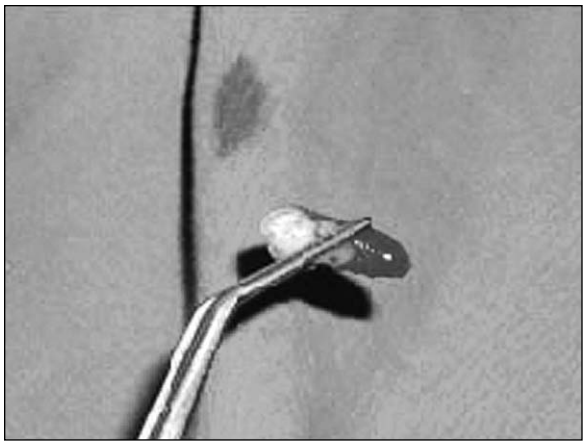

Fig.-7: *Removed retained deciduous canine from the socket.*

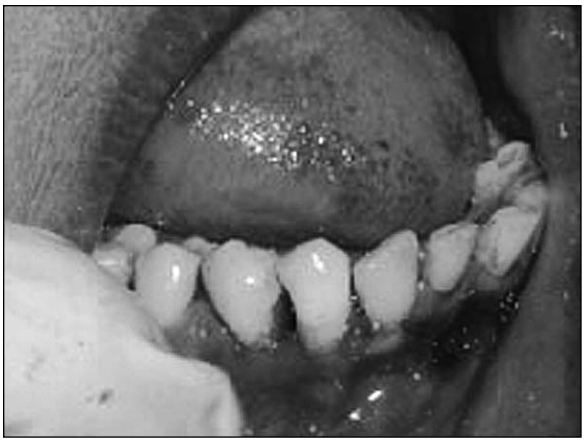

Fig.-8: *Immediately after transplantation.*

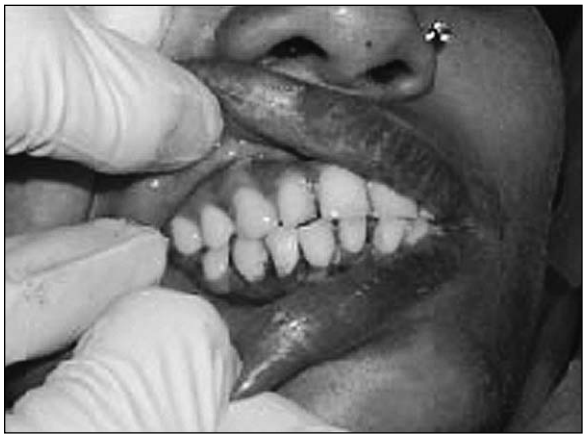

Fig.-9: *Tooth in occlusion.*

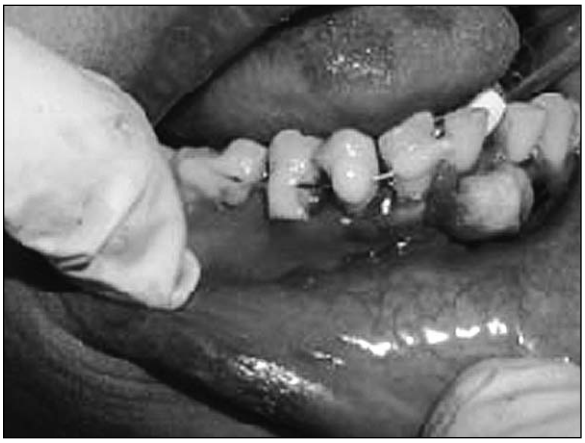

Fig.-10: *After functional splint.*

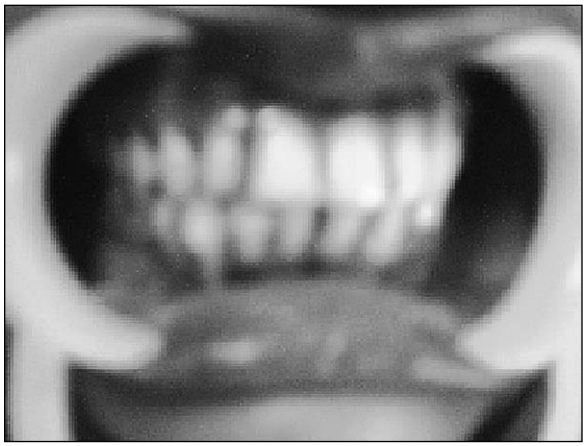

Fig.-11: *Follow-up.*

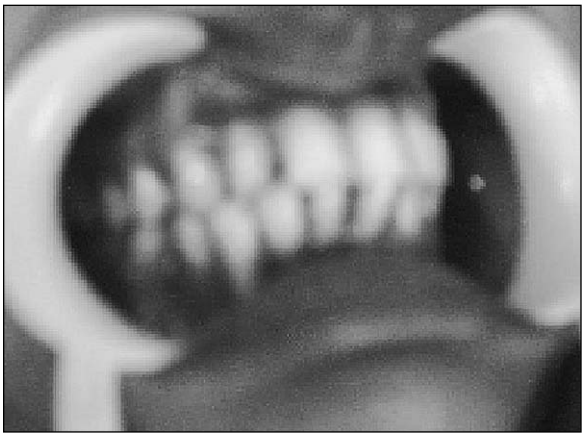

Fig.-12: *After removal of splint.*

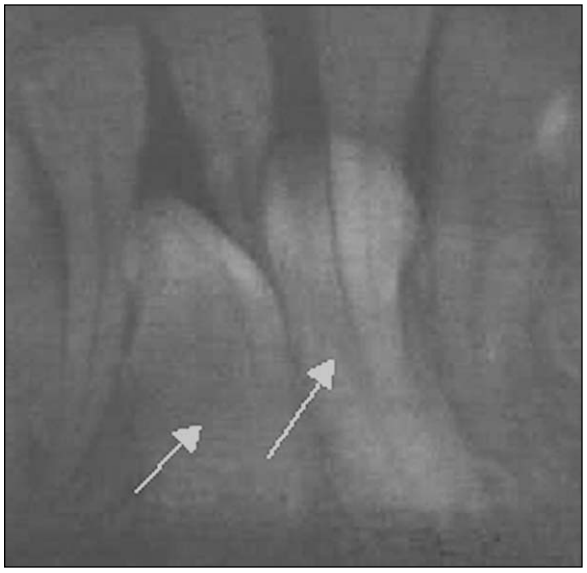

Fig.-13: *Pre-operative radiograph showing impacted permanent canines.*

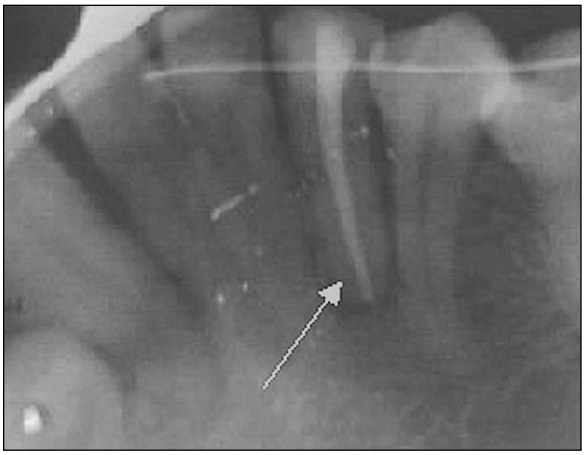

Fig.-14: *Radiograph immediately after treatment*

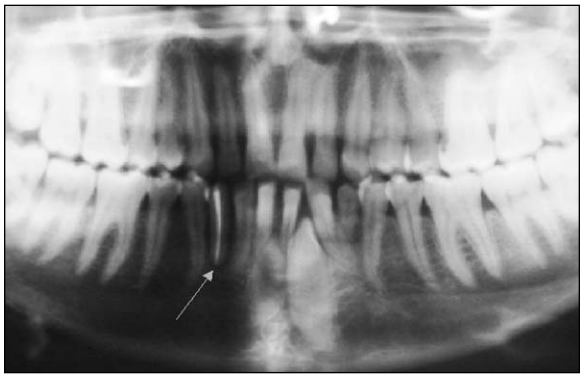

Fig.-15: *Post-operative radiograph of transplanted canine in correct occlusion.*

Discussion:

This is the first case report of autogenous tooth transplantation in Bangladesh. The case came out successful after periodic, immediate and long -term follow-up up to $1^1/_2$ years. The available literature reports excellent success rates following tooth transplantation when the appropriate protocol is followed. Andreasen[5] found 95% and 98% long-term survival rates for incomplete and complete root formation of 370 transplanted premolars observed over 13 years. Lundberg and Isaksson[6] had success in 94% and 84% of cases for open and closed apices respectively in 278 auto transplanted teeth over five years. Kugelberg[7] achieved success rates of 96% and 82% for 45 immature and mature teeth transplanted into the upper incisor region over four years. Cohen[1] showed success in the ranges of 98-99% over five years and 80-87% over 10 years with transplanted anterior teeth with closed apices. Nethander[4] found 5-year success rates of over 90% for 68 mature teeth transplanted with a 2-stage technique. Josefsson[8] found 4-year success rates of 92% and 82% respectively for premolars with incomplete and complete root formation.

These consistently high success rates are a contrast to the variable results reported in many older studies. Schwartz and others[16] showed success rates of only 76.2% at 5 years and 59.6% at 10 years. Similarly, Pogrel found that his success rate for 416 autotransplanted teeth was 72%. However, other investigators of that era had more positive results[13]. Kristerson, for example, obtained a success rate of 93% when 100 autotransplanted premolars were observed for a mean of 6.3 years[11].

The factors that lead to success have been extensively investigated. The most significant determinant for survival of the transplant is the continued vitality of the periodontal membrane. In cases where the periodontal ligament is traumatized during transplantation, external root resorption and ankylosis is often noted[1,13]. Schwartz[16] tried to link the loss of the graft to specific prognostic factors and found that success rates were highest when donor teeth were premolars, had one-half to two-thirds root development, and experienced minimal trauma and limited extraoral time during surgery. The experience of the surgeon also affects the success because this procedure is technique-sensitive.

Although retention of the tooth and restoration of the edentulous space is the desired outcome for patients, more specific parameters have been used to measure the health of the surviving transplant. These parameters include marginal periodontal attachment, mobility, pain, root resorption, root development, sensitivity to percussion, gingival pocket depth, presence of gingivitis, and presence of fistulae[4,19,20]. However, these studies are difficult to compare because each used different measures to determine success.

The most common cause of failure of the autotransplant is chronic root resorption[15]. More specifically, the causes of tooth loss following transplantation from most common to least common are inflammatory resorption, replacement resorption (ankylosis), marginal periodontitis, apical periodontitis, caries, and trauma[16]. Inflammatory resorption may become evident after three or four weeks, while replacement resorption may not become evident until three or four months after transplantation. The incidence of both types of resorption can be decreased with atraumatic extraction of the donor tooth and immediate transfer to the recipient site to minimize the risk of injury to the periodontal ligament[1].

Recent studies clearly demonstrate that autotransplantation of teeth is as successful as endosseous dental implant placement. Minimum acceptable success rates for endosseous titanium dental implants are 85% after five years and 80% after 10 years[21]. For younger patients,

autotransplantation may also be considered as a temporary measure. The transplant can replace missing teeth to ensure preservation of bone until growth has ceased and then, if necessary, the patient can become a candidate for implants[22].

Although autotransplantation has not been established as a traditional means of replacing a missing tooth, the procedure warrants more consideration.With appropriate patient selection and presence of a suitable donor tooth and recipient site, autogenous transplantation should be considered as a viable option for treatment of an edentulous space.

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LETTER TO THE EDITOR

A Clinical Study on Extra-pulmonary Tuberculosis

MM Karim et al recently reported a clinical study on extra-pulmonary tuberculosis *(J BCPS Vol. 24,* No. 1, January 2006 issue) to identify the various presentations of extra-pulmonary tuberculosis, is an impressive display of extra-pulmonary tuberculosis in our country although the authors have not described a few important presentations like tuberculous meningitis, other CNS tuberculosis; tuberculous pericarditis; and genito-urinary tuberculosis which are not uncommon. From our own experience we have treated 13 cases of CNS tuberculosis in one medical unit of Dhaka Medical College Hospital in 2005.

There are some other pitfalls of this study that need to be mentioned. *First,* some objectives of this study was to see the response of first line anti-TB drugs and also to evaluate problems related to patient management but in this paper the authors have not showed any table or data in support of this. *Second,* to identify problems related to patient management is not an appropriate objective. *Third,* case selection procedure may be biased, so the cases described here may not show any complete picture. *Fourth,* method of sample size collection was not described. *Fifth,* statistical method and software used for data analysis was not mentioned.

So finally we would like to say that this paper should be regarded as a case series from a reported unit rather than a study on extra-pulmonary tuberculosis.

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AUTHORS' REPLY

We do appreciate to receive a letter from one of our reader of this Journal regarding the article on **"A Clinical Study on Extra Pulmonary Tuberculosis"**. We would like to response in the following manner:

We mentioned that the study was a 'Cross-Sectional' one and that the patients presented with features of extra pulmonary tuberculosis (confirmed bacteriologically or histopathologically) in any of the three surgical units of Chittagong Medical College Hospital, Chittagong. So, the study was limited by place and time like other scientific study. Due to selection of the cases from surgical units there was little or no scope of getting tuberculous meningitis and tuberculous pericarditis. It would be nice to include all cases of extra pulmonary tuberculosis. But it was unlikely to full fill the inclusion criteria (bacteriological or histopathological confirmation) with these two types of extra pulmonary tuberculosis.

We encountered two cases of testicular tuberculosis which was tabulated in the article but we did not found any other urinary tuberculosis during the study period. All patients among the follow up group responded to 1st line or 2^{nt} line anti tuberculous chemotherapy which was mentioned. It was also pointed out that various problems related to patient management like- problems in diagnosis specially breast TB and more so in pregnant lady, long duration to get culture and sensitivity report, non compliance to multi drugs and long duration of therapy, fear of patients about TB, intake of improper dosage of drugs, inability to buy costly drugs, unavailability of free drugs from health complex, loss from follow up, repeated collection of abscess after effective aspiration (where not drained), persistent of enlarged lymph node after 1 year of therapy, hepatotoxicity in two cases and optic neuropathy in one etc. Standard method of sample size and collection was followed in this study and here sample size was 80. We used 'SPSS' software for one of the table.

All information of this study were collected prospectively in a planned way in a case record form.

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COLLEGE NEWS

(J Bangladesh Coll Phys Surg 2006; 24: 87-90)

Examination News :

Result of FCPS Part I, FCPS Part II and MCPS Examinations held in January, 2006 are given below :

4318 candidates appeared in FCPS Part - I Examination held in January, 2006, of which 823 candidates came out successful. Subject-wise results are as follows :

FCPS Part I Examiantion	No. of candidates appeared	Passed
Medicine	1495	133
Surgery	737	259
Paediatrics	486	68
Obst. & Gynae	948	261
Ophthalmology	95	17
Otolaryngology	94	22
Psychiatry	24	05
Anaesthesiology	58	13
Radiology	84	06
Radiotherapy	09	01
Dermatology & Venereology	97	11
Physical Medicine	26	04
Dental Surgery	111	13
Haematology	24	04
Biochemistry	06	01
Microbiology	19	03
Histopathology	17	01
Family Medicine	05	01
	4318	823

548 candidates appeared in FCPS Part II Examination in different subjects. List of candidates who satisfied the board of examiners is as follows:-

Roll No.	Name of Candidate	Graduated from	Speciality
12	Dr. Md. Mamunur Rashid	Rajshahi Medical College, Rajshahi	Medicine
21	Dr. Syed Fazlul Islam	Mymensingh Medical College, Mymensingh	Medicine
25	Dr. Md. Akhtaruzzaman	Shaheed Zia-ur-Rahman MC	Medicine
28	Dr. Md. Anisur Rahman Howlader	Mymensingh Medical College, Mymensingh	Medicine
36	Dr. Indarajit Prasad	Dhaka Medical College, Dhaka, Dhaka	Medicine
59.	Dr. Touhidul Karim Majumder	Chittagong Medical College, Chittagong	Medicine
64	Dr. Rashimul Haque	Dhaka Medical College, Dhaka	Medicine
67	Dr. Muhammed Salahuddin	Chittagong Medical College, Chittagong	Medicine
75	Dr. Ranajit Sen Chowdhury	Sher-e-Bangla Medical College, Barisal	Medicine
89	Dr. A.K.M. Shamsul Kabir	Dhaka Medical College, Dhaka	Medicine
91	Dr. Swapan Kumar Sarkar	Dhaka Medical College, Dhaka	Medicine
96	Dr. Md. Ruhul Quddus	Mymensingh Medical College, Mymensingh	Medicine
99	Dr. Saibal Das	Dhaka Medical College, Dhaka	Medicine

Roll No.	Name of Candidate	Graduated from	Speciality
128	Dr. Manzurul Chowdhury	Dhaka Medical College, Dhaka	Medicine
147	Dr. Md. Nazmul Haque	Sher-e-Bangla Medical College	Surgery
169	Dr. A.K.M. Fazlur Rahman	Sher-e-Bangla Medical College, Barisal	Surgery
170	Dr. Mohammad Rafiz Imtiaz	Sir Salimullah Medical College, Dhaka	Surgery
264	Dr. Bidhan Roy Chowdhury	Rangpur Medical College, Rangpur, Rangpur	Paediatrics
267	Dr. Md. Abdul Mannan	IAH Science, Chittagong	Paediatrics
275	Dr. Bedowra Zabeen	MAG Osmani Medical College, Sylhet	Paediatrics
283	Dr. Asim Kumar Saha	Sir Salimullah Medical College, Dhaka	Paediatrics
298	Dr. Rezoana Rima	Chittagong Medical College, Chittagong	Paediatrics
303	Dr. Syeda Rukhshana Parvin	Rajshahi Medical College, Rajshahi	Paediatrics
310	Dr. Abu Mohammad Talukder	Rajshahi Medical College, Rajshahi	Paediatrics
317	Dr. Syeda Tabassum Alam	Sir Salimullah Medical College, Dhaka	Paediatrics
318	Dr. Anjuman Ara Beauty		Paediatrics
326	Dr. Md. Nazrul Islam	Sir Salimullah Medical College, Dhaka	Paediatrics
332	Dr. Nilufar Shireen	Dhaka Medical College, Dhaka	Paediatrics
348	Dr. Most Fatima Dolon	Sher-e-Bangla Medical College, Barisal	Obstetrics & Gynaecology
353	Dr. Sheuly Begum	MAG Osmani Medical College, Sylhet	Obstetrics & Gynaecology
355	Dr. Mahfuza Akhter	Mymensingh Medical College, Mymensingh	Obstetrics & Gynaecology
358	Dr. Fatema Kamrun Naher	Rajshahi Medical College, Rajshahi	Obstetrics & Gynaecology
361	Dr. Mahmuda Sultana	Dhaka Medical College, Dhaka	Obstetrics & Gynaecology
363	Dr. Shamsun Nahar	Mymensingh Medical College, Mymensingh	Obstetrics & Gynaecology
364	Dr. Ferdous Ara	Rajshahi Medical College, Rajshahi	Obstetrics & Gynaecology
367	Dr. Nasima Shaheen	Dhaka Medical College, Dhaka	Obstetrics & Gynaecology
374	Dr. Ayinur Nahar Hamid	Dhaka Medical College, Dhaka	Obstetrics & Gynaecology
377	Dr. Shirin Fatema	Mymensingh Medical College, Mymensingh	Obstetrics & Gynaecology
378	Dr. Khodeja Begum	Dhaka Medical College, Dhaka	Obstetrics & Gynaecology
379	Dr. Salma Naher	Sir Salimullah Medical College, Dhaka	Obstetrics & Gynaecology
384	Dr. Shahnaz Rahman	MAG Osmani Medical College, Sylhet	Obstetrics & Gynaecology
385	Dr. Kamil Ara Khanam	Sher-e-Bangla Medical College, Barisal	Obstetrics & Gynaecology
388	Dr. Parveen Akter	Dhaka Medical College, Dhaka	Obstetrics & Gynaecology
391	Dr. Lutfun Naher Begum	Chittagong Medical College, Chittagong	Obstetrics & Gynaecology
392	Dr. Neaz Tahera Parveen	Sir Salimullah Medical College, Dhaka	Obstetrics & Gynaecology
397	Dr. Ayesha Akhter	Sher-e-Bangla Medical College, Barisal	Obstetrics & Gynaecology
400	Dr. Mst. Nargis Akhtar	Dhaka Medical College, Dhaka	Obstetrics & Gynaecology
402	Dr. Aklima Akter	Sher-e-Bangla Medical College, Barisal	Obstetrics & Gynaecology
404	Dr. Feroza Wazed	Chittagong Medical College, Chittagong	Obstetrics & Gynaecology
405	Dr. Arifa Akter Zahan Shoma	Johirul Islam MC, Bajitpur	Obstetrics & Gynaecology
407	Dr. Anjuman Ara Begum	Rajshahi Medical College, Rajshahi	Obstetrics & Gynaecology
416	Dr. Jesmin Ara Begum	Sher-e-Bangla Medical College, Barisal	Obstetrics & Gynaecology
418	Dr. Roksana Haque	Dhaka Medical College, Dhaka	Obstetrics & Gynaecology
421	Dr. Khodeza Tul Kobra	Mymensingh Medical College, Mymensingh	Obstetrics & Gynaecology
422	Dr. Sayeeda Sultana	Sher-e-Bangla Medical College, Barisal	Obstetrics & Gynaecology
425	Dr. Khaleda Jahan	Rajshahi Medical College, Rajshahi	Obstetrics & Gynaecology
428	Dr. Maruf Siddiqui	Dhaka Medical College, Dhaka	Obstetrics & Gynaecology
431	Dr. Shaheen Sultana	MAG Osmani Medical College, Sylhet	Obstetrics & Gynaecology

Roll No.	Name of Candidate	Graduated from	Speciality
433	Dr. Momena Khatun	Dhaka Medical College, Dhaka	Obstetrics & Gynaecology
438	Dr. Mahbuba Afroz	MAG Osmani Medical College, Sylhet	Obstetrics & Gynaecology
439	Dr. Nasrin Zulfiqar	Sir Salimullah Medical College, Dhaka	Obstetrics & Gynaecology
442	Dr. Md. Abdul Mannan		Ophthalmology
445	Dr. Pankaj Kumar Roy	Sher-e-Bangla Medical College, Barisal	Ophthalmology
452	Dr. Md. Abdul Quader	Rajshahi Medical College, Rajshahi	Ophthalmology
453	Dr. Mohammad Ismail Hossain	Sher-e-Bangla Medical College, Barisal	Ophthalmology
455	Dr. Arman Uddin Ahmad	Dhaka Medical College, Dhaka	Ophthalmology
480	Dr. Mohammed Yousuf	Chittagong Medical College, Chittagong	Otolaryngology
482	Dr. Pankaj Kumar Chowdhury	Chittagong Medical College, Chittagong	Otolaryngology
495	Dr. Md. Maqsud Isa	Sher-e-Bangla Medical College, Barisal	Anaesthesiology
496	Dr. Mohammad Abdul Karim Miah	Sir Salimullah Medical College, Dhaka	Anaesthesiology
501	Dr. Md. Al Mamun	Sher-e-Bangla Medical College, Barisal	Anaesthesiology
504	Dr. Sultana Khanum	Sir Salimullah Medical College, Dhaka	Radiology
505	Dr. Shagufta Afreen Azhar	Dhaka Medical College, Dhaka	Radiology
506	Dr. Afroza Akhter	Sir Salimullah Medical College, Dhaka	Radiology
507	Dr. Jafareen Sultana	Chittagong Medical College, Chittagong	Radiology
08	Dr. Mirza Md. Shakhawat Hossain	Mymensingh Medical College, Mymensingh	Radiotherapy
10	Dr. Shahida Alam	Chittagong Medical College, Chittagong	Radiotherapy
513	Dr. Mahmud Chowdhury	Sir Salimullah Medical College, Dhaka	Dermatology & VD.
514	Dr. Md. Zulfiqur Hossain Khan	Chittagong Medical College, Chittagong	Dermatology & VD.
515	Dr. Riaz Uddin Ahmed	Dhaka Medical College, Dhaka	Dermatology & VD.
519	Dr. Nasrin Sultana Monamie	Bangladesh Medical College, Dhanmondi, Dhaka	Dermatology & VD.
520	Dr. Md. Akram Ahasan	Dhaka Medical College, Dhaka	Dermatology & VD.
521	Dr. Mohamm Hasibur Rahman	Mymensingh Medical College, Mymensingh	Dermatology & VD.
522	Dr. Md. Hadiuzzaman	Mymensingh Medical College, Mymensingh	Dermatology & VD.
524	Dr. Md. Shahadat Hossain	Sir Salimullah Medical College, Dhaka	Physical Medicine
527	Dr. Amin Lutful Kabir		Haematology
529	Dr. Huque Mahfuz	Dhaka Medical College, Dhaka	Haematology
531	Dr. Md. Kajim Uddin	Rangpur Medical College, Rangpur	Haematology
532	Dr. Mir. Azimuddin Ahmed	Dhaka Medical College, Dhaka	Haematology
533	Dr. Lovely Barai	Mymensingh Medical College, Mymensingh	Microbiology
534	Dr. Nishat Jubaida	MAG Osmani Medical College, Sylhet	Microbiology

186 candidates appeared in MCPS Examination in different subjects. List of candidates who satisfied the board of examiners is as follows.

Roll Nos.	Name of candidate	Speciality
4	Dr. Md. Royes Uddin	Medicine
7	Dr. Durba Halder	Medicine
12	Dr. Subrata Datta	Medicine
40	Dr. Mahinoor Mortuja Alam	Medicine
47	Md. Rayhanur Rahman	Surgery
55	Dr. Kazi Sohel Iqbal	Surgery

Roll Nos.	Name of candidate	Speciality
73	Dr. Md. Abdur Rahim	Obstetrics & Gynaecology
78	Dr. Shamima Nargis	Obstetrics & Gynaecology
83	Dr. Shahanaz Khanam Chowdhury	Obstetrics & Gynaecology
85	Dr. Nutan Thakur Sharma	Obstetrics & Gynaecology
88	Dr. Mahbuba Siddiqua	Obstetrics & Gynaecology
91	Dr. Kamrun Nessa	Obstetrics & Gynaecology
100	Dr. Najnin Munni	Obstetrics & Gynaecology
103	Dr. Rokshana Banu	Obstetrics & Gynaecology
104	Dr. Shahnaz Ahmad	Obstetrics & Gynaecology
105	Dr. Sonali Rani Datta	Obstetrics & Gynaecology
107	Dr. Shirin Sultana	Obstetrics & Gynaecology
114	Dr. Shamima Akter	Obstetrics & Gynaecology
116	Dr. Sultana Morjina	Obstetrics & Gynaecology
124	Dr. Md. Abdul Hye Ibne Nizam	Ophthalmology
132	Dr. Md. Bashir Ahmed	Otolaryngology
133	Dr. Mohammod Delwar Hossain	Otolaryngology
141	Dr. C. M. Zahirul Haq	Anaesthesiology
145	Dr. Md. Jahangir Khan	Anaesthesiology
148	Dr. Md. Liaquatunnoor	Anaesthesiology
152	Dr. Md. Zakaria	Dermatology & VD.
154	Dr. Md. Aminur Rashid	Dermatology & VD.
165	Dr. Md. Shahidur Rahman Bhuiyan	Family Medicine
166	Dr. Sheikh Faruque Elahee	Family Medicine
175	Dr. Nirupama Talukder	Forensic Medicine
177	Dr. Zinat De Laila	Forensic Medicine
180	Dr. Md. Ashraful Kabir	Cilinal Pathology
184	Dr. Shamoli Yasmin	Cilinal Pathology
185	Dr. Lubna Naznin	Cilinal Pathology