

“The only thing constant in life is change” - Francois de to Roche Fau Could.

And so the Journal has a new editor. After resuscitating the Journal Nepalgunj Medical College and steering it to current standing in national arena over the last nine year's Prof. S. M. Mishra decided that it is time for a “change”. The “Baton” has been passed on to me! It is indeed an honor to be stepping in to the shoes of a person who over the years has been a teacher, guide, friend and great well-wisher.

Although there were many problems faced by previous editor like, not getting enough manuscripts, requiring plenty of correction, which led to delay in publication.

In his final editorial he has elegantly defined the need for “Problem Based Learning” (PBL).

“PBL is a learning environment in which the problem derives the learning” - Dr Woods.

Technology is rapidly changing the way patient care is delivered and rapid strides in interventional methodology in reaching final conclusion has changed equation between different specialist doctors.

In developing countries, where these facilities are in infancy, the old methodology of learning, interpretation of clinical signs diagnosing and providing care still hold true for times to come. Here MBBS doctor is “Jack of all and Master of None” practices in village.

It is my humble request to all, especially the younger generation, to take pride in their journal and make every effort to send quality manuscripts. For seniors and faculty members my plea is that you encourage and guide your junior colleagues to write and convert their thesis and other research activities into meaningful manuscripts. It is only way, that we can hope to cross the next bench mark – getting Journal indexed in the index Medicus & Pubmed.

An editor can only edit material that comes to him, he cannot generate it. So please put on your thinking caps and give the Journal NGMC the boost that it needs.

It will be hard to match the work done by Prof. S. M. Mishra, but I hope that with all your support and good wishes, I will be able to build on this foundation and make the Journal NGMC, more stronger, more informative appealing, and more remunerative.

I will like to thank, all those, for entrusting me with the responsibility and I assure that I will leave no stone unturned in my effort to take this journal to higher level.

**Prof. Aruneshwari Dayal
MS, MCh, FIACS
Editor**

The Use of Gastrocnemius Muscle Flap in Reconstruction of Pretibial Defects

Karn B

ABSTRACT

Background: In Western part of Nepal the post traumatic lower leg and bone injuries with infected, open wound is common occurrence. **Aim:** It was to find out whether Gastrocnemius muscle flap is a viable option for pretibial defects. However variations in vascular anatomy of pedicle, use of reverse flow soleus muscle flap based on posterior tibial artery, leads to high failure rate and sacrificing major leg vessels. **Method:** Use of soleus muscle flap supported by perforating arteries, branches of posterior tibial vessels is option to cover small defects. The flap with careful newer modification to preserve vascularity, is used in 32 cases of pretibial defects. **Observation:** All 32 flaps survived with two cases in post operative phase, needing a flap elevation debridement of underlying bone and other skin grafting. **Result:** None of the case showed any vascular insufficiency, graft muscle loss or any functional loss. Use of muscle flap a viable option in pretibial defects.

Key words: Flap, gastrocnemius muscle, pretibial defect

INTRODUCTION

Severe injuries of lower extremities usually result in soft tissue losses and leg defects ranging from small to large ones. They are usually accompanied by bony fractures or losses and even vascular injuries adding another difficulty to reconstruction. The problem of pretibial defects becomes more apparent, especially if it is associated with exposed fractures or chronic osteomyelitis of the tibia. In these situations muscle flaps are needed to cover these defects in order to combat infection and to bring more vascularity to the area to enhance bone healing.

A pretibial defect usually represents a reconstructive challenge. Here the role of local skin flaps and distally based fasciocutaneous flaps may become limited especially if their pedicles fall within the zone of injury. Conventional cross-leg flap is another alternative but in cases associated with fractures and in the presence of external fixator it may be difficult to apply. This article will describe the use of the gastrocnemius muscle flap in reconstruction of various pretibial leg defects in 32 patients and will demonstrate its versatility in coverage of any of these pretibial defects whatever their sizes or sites.

MATERIALS AND METHODS

The study was conducted in the Department of Plastic Surgery of Nepalgunj Medical College, Teaching Hospital, Kohalpur, Banke, Nepal from April 2011 to December 2013 with follow-up of an average 6 months. A total of 32 patients were included in the study. Defect sizes ranged from 12x5 cm to 8x4 cm.

Sixteen patients presented with fractures and had undergone either external or internal fixation by orthopedic surgeons according to the type of their fracture. All of them suffered from bone exposure. Four patients presented with chronic osteomyelitis and long standing discharging sinuses. In three of them the sinuses were located over the middle third of the leg. The one patient had discharging sinuses over proximal 1/3rd of the leg.

OPERATIVE TECHNIQUE:

All cases were operated under Spinal anesthesia at variable intervals according to the time of their presentation. In cases presented with osteomyelitis, aggressive debridement of the wound was done with simultaneous removal of all the sequestered bones (Fig. 1).

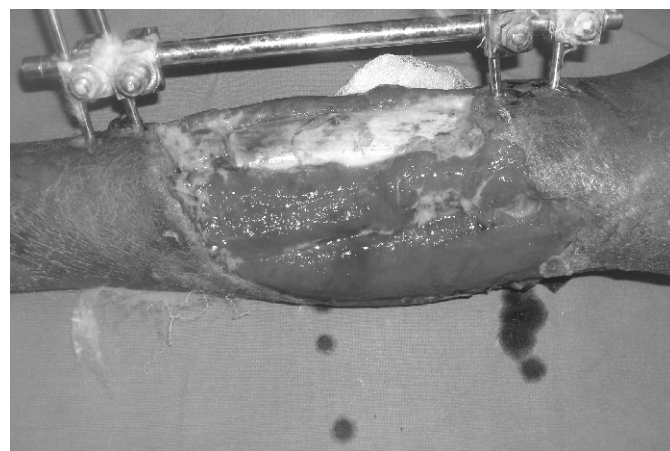


Figure 1: Pretibial defect with exposed tibia.

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Through a medial approach and under pneumatic tourniquet using loop magnification, all the minor pedicles (perforators) of Gastrocnemius muscle were exposed and identified (Fig. 2).



Figure 2: Elevated gastrocnemius muscle flap.

According to the defect size, site and extension, the suitable perforators were chosen and then the exact muscle segment needed was divided proximally and distally changing the flap to an island one. Defects over the medial side of the tibia were covered either by simple advancement or turn over of the muscle flap laterally (Fig. 3).

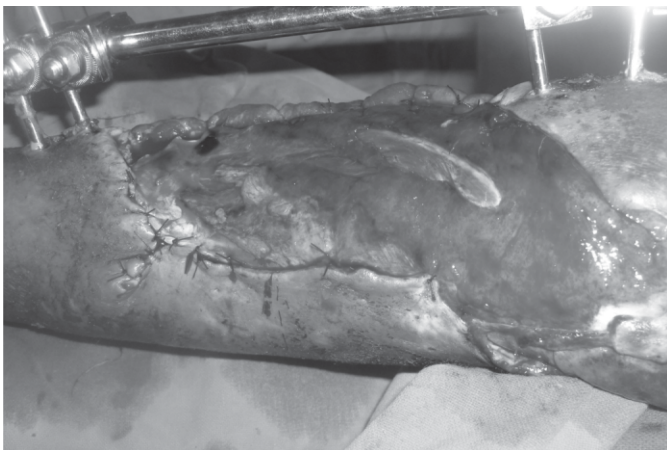


Figure 3: Covered exposed tibia by flap.

On the other hand, defects on the anterior side of the tibia were covered by further advancement of the flap after mobilization of the posterior tibial vessels from the posterior tibial nerve. Skin grafting was done to all the flaps (Fig. 4).



Figure 4: Skin grafting over flap.

Follow up of case after six weeks was advised for the scar massage with Aloe Vera cream (Fig. 5).



Figure 5: Follow up after 6 weeks.

OBSERVATION AND RESULTS

Study was carried on 32 patients. There were 20 males (62.50%) and 12 females (37.50%) (Table I).

Sex	No. of cases	Percentage
Male	20	62.50%
Female	12	37.50%

Table I: Distribution of case by sex

The age ranged from 16 to 72 years (Table II).

Age group	No. of cases	Percentage
15 - 25	5	15.62
26 - 36	12	37.50
37 - 47	4	12.50
48 - 58	7	21.77
59 - 69	3	4.37
70 and above	1	3.12

Table II: Distribution of case by age.

The causes of these defects were trauma & chronic osteomyelitis of the tibia. The sites of these defects were in the proximal third of leg (11cases), middle thirds (9cases) and the combined Proximal and middle third of leg (12 cases) (Table III).

Site of defect	Number of defects
Proximal 1/3 rd of leg	12
Middle 1/3 rd of leg	11
Combined Proximal & Middle 1/3 rd of leg	9
Total	32

Table III: Site and number of defects.

All 32 flaps survived completely without single flap loss. In one patient persistent discharge occurred from the underlying bone infection and partial disruption occurred. This was managed by flap elevation, further debridement of necrotic bone and secondary suturing. Complete take of the skin grafts occurred in all patients, except one patient needed another skin grafting session due to persistence of discharging sinus under the applied muscle flap. All patients had stable wound coverage during the follow-up period without the need of secondary procedures. None of the patients showed any sort of vascular impairment or any manifestations of venous insufficiency during the same follow-up period. No functional deficits were encountered and flap donor sites were esthetically accepted.

DISCUSSION

Free tissue transfer is another good solution¹, yet it is not available in all plastic surgery centers and has a higher failure rate². Local muscle flaps since first reported by Stark³ became an established procedure in reconstruction of pretibial skin defects especially in the presence of osteomyelitis⁴. Proximally muscle flap was described by Mathes et al.⁵ and has been employed in coverage of soft tissue defects of the middle third of the leg especially in cases of compound fractures. It has been also used for treatment of chronic osteomyelitis of leg

bones^{3,5,6}. But it carried the disadvantage of sacrificing the whole or one head of the muscle. The distally based muscle flap was introduced by Townsend⁷ and later by Fayman et al.⁸ is another option but it is associated with a high failure incidence^{6,9}. The reversed flow Soleus flap was described by Guyron¹⁰. However the flap did not gain much popularity because it has the great disadvantage of sacrificing major leg blood vessel^{10,11,12}. The muscle flap was first described by Yajima et al.¹³. This flap was based on one or two perforators and it was used to cover small pretibial defects. It has the advantage of being a reliable flap as it is nourished directly by the posterior tibial artery perforators which should be identified before flap elevation and this explains its high success rate. It has minimal functional deficit due to the use of a small portion of the muscle.

This flap has two disadvantages, the first one is being of small size which limits its use for small defects and the second is that the reconstructed defect should be located very close to the site of the supplying perforator which is unpredictable. Distally based hemisoleus muscle flap is a good solution but it carried a high failure incidence^{9,14}. This was explained by variation in the number and site of its distal perforators. The number of perforators were extremely variable^{11,12,13}.

However, in no single report, there have been no cases in which these pedicles were absent⁹. Yajima et al., found that the most distal perforator was found at fixed distance of about 61-145mm above the medial malleolus¹³. Shaker⁹ studied the site of the second most distal perforator of muscle and it was found to be at a distance of 15cm or more above the medial malleolus in 50% of his dissections. To increase the number of perforators and to augment the vascular supply of the flap, the reversed flow was described by Guyron¹⁰.

However, the flap did not gain much popularity because it has the great disadvantage of sacrificing a major leg blood vessel and cannot also be used if there is associated vascular injury or disease in the same leg. In the present study the island muscle flap was employed in small and large pretibial skin defects but unlike Yajima's report¹³, any number of perforators can be used. Being a muscle flap it resists bone infection and promotes bone healing so it is advisable in cases of osteomyelitis. The whole muscle length can be raised and this can cover any pretibial defect whatever its length omitting the need for free tissue transfer if combined with Soleus muscle flap.

CONCLUSION

The Gastrocnemius muscle flap represents a good option in reconstruction of pretibial defects especially in the proximal and middle thirds of the leg. It is a single stage procedure with high success rate and does not sacrificing any major leg blood vessel. It has reliable vascularity and can be easily harvested with minimal muscle morbidity. It gives the surgeon the opportunity to change his reconstructive plan early if the perforators were found unhealthy or injured. It can be

combined with the Soleus muscle flap to cover the whole exposed tibia as an alternative to free flap if not available.

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Comparative Study of Two Different Techniques for Management of Dry Socket

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ABSTRACT

Background: Dry socket is the most common post-operative complication following extraction of teeth. Various risk factors have been mentioned for this complication including gender, age, amount of trauma during extraction, difficulty of surgery, inappropriate irrigation, infection, smoking, and oral contraceptive use. Traditional treatment of dry socket require frequent visit of patient to the dental hospital and is very inconvenient to the patient. **Objective:** The aim of the study was to assess outcome of the treatment using two different techniques for the management of dry socket. **Methods:** Patients with dry socket were randomly distributed among two treatment groups (21 patients in each group). Group A received irrigation of socket with diluted hydrogen peroxide and zinc oxide eugenol dressing was given and patients were followed for following consecutive days by replacing dressing each day until the pain subsides. Group B received irrigation of socket with diluted hydrogen peroxide, sockets and surrounding gingival tissue were debrided to promote the re-establishment of blood clot. The gingival margins were meticulously sutured to protect the clot formation. **Result:** 19 patients out of 21 in Group A, received two or more than two procedures to subside pain whereas in Group B, 19 out of 21 patients received just one procedure for successful treatment. **Conclusion:** There is reduction in duration of treatment in debridement group of patients when compared with those treated traditionally.

Key words: Dry socket, debridement approach, postoperative complication, traditional approach

INTRODUCTION

Dry Socket also called alveolar osteitis is a well known complication which occurs after tooth extraction. Its incidence ranges from 0.5-5% for all routine extractions, can reach up to 30% on extraction of impacted mandibular molars.¹ Dry socket occurs during healing phase of extraction sockets.^{2,3} It is associated with postoperative pain in and around the extraction site, accompanied by a partially or totally disintegrated blood clot within the alveolar socket, with or without halitosis. Dry socket generally arises between one to three days post extraction and the duration usually ranges from 5 to 10 days.

Several treatment modalities have been advocated to reduce the incidence of dry socket. They include the use of antiseptic mouth washes, antifibrinolytic agents, antibiotics, steroids, clot supporting agents and intra-alveolar dressings.^{4,5} Traditionally, copious irrigation of the socket with normal saline or diluted hydrogen peroxide and changing the medicated dressing every 24 to 48 hours for 3 to 6 days has been used.⁶ As this traditional method takes long duration with frequent visit

by the patient for the completion of treatment, it can be considered as productive time loss for both patient and doctor⁷.

Despite many studies and publications it was not possible to determine an ideal treatment protocol for dry socket. Thus justifying the research of new treatment which will give similar results with less cost and less undesirable effects. The introduction of debridement method for re-establishment of clot has opened up new lines of treatment plan in dry socket.

Hence the present study was undertaken with an aim to assess outcome of the treatment using two different techniques for the management of dry socket.

MATERIAL AND METHODS

This is a prospective study of 42 patients who presented with dry socket following forcep extractions. A total of 1320 patients underwent extraction of permanent teeth for various reasons since November 2012 to February 2014 at Dental department of Nepalgunj Medical College and Hospital.

Extraction of maxillary teeth was done either using infiltration anesthesia or middle superior alveolar nerve block or posterior superior and nasopalatine or greater palatine nerve block. Extraction of mandibular teeth was done by using inferior alveolar nerve block. Aseptic measures were taken during the extraction of teeth. Out of, 1320 patients 42 presented with DS.

Informed consent of the patients was taken after explaining risks and benefits associated with treatments. Intra oral periapical radiograph was taken to rule out the broken down

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root or any foreign body.

Inclusion Criteria

- 1-Good oral hygiene
- 2-Forcep extraction
- 3-Age: 11–60 years and
- 4-No allergies to local anesthetic agents.

Exclusion Criteria

- 1-History of systemic diseases
- 2-Pregnant or lactating women, women who use oral contraceptives and
- 3-Smoker patients

The diagnostic criteria for dry socket were based on history of extraction of two or more days and moderate to severe pain. Clinically, an empty socket which lacks a blood clot and exposed bone were seen, socket may be filled with food debris with or without halitosis.

Patients were randomly distributed among two treatment groups.

Group A patients (21 cases) were treated by copious irrigation of socket with diluted hydrogen peroxide to remove necrotic tissue and dressing with gauge impregnated with zinc oxide eugenol was done. Patients were followed for consecutive days by replacing dressing each day until the pain subsided.

Group B patients (21 cases) were treated by debridement. Local anesthesia was administered to achieve analgesia then the socket was irrigated with diluted hydrogen peroxide and the clot devoided socket was thoroughly curetted, both from the floor of the socket as well as from the bony walls, the sharp margins were trimmed, rounded and any foreign bodies if present were thoroughly removed simultaneously with irrigation to ensure bleeding. When free bleeding from all the dry areas of the bony socket as well from gingival margins was created, the gingival margins were sutured to protect the clot formation. Patients were advice to follow routine dental post extraction instructions. Patients were recalled next day for review.

Systemic administration of Ibuprofen (400mg) 8 hourly for 3 days along with regular warm saline mouth wash was recommended for the patients in both groups.

RESULTS

Out of 42 patients, 17 were males and 25 were females with a ratio of 1:1.4. Table I shows distribution according to gender of the patient that developed dry socket. In group A there were 10 (47.62%) males and 11 (52.38%) females and in group B there were 7 (33.33%) males and 14 (66.67%) females. Females were affected more than males in this study.

	Group A		Group B	
Gender	Case	%	Case	%
Male	10	47.62	7	33.33
Female	11	52.38	14	66.67
Total	21	100	21	100

Table I: Case distribution according to gender.

Table II shows distribution of age that developed dry socket. Age of the patient ranged from 11-60 years with the majority between from 2nd to 4th decade of life.

	Group A		Group B	
Age in years	Case	%	Case	%
11 - 20	2	9.52	1	4.76
21 - 30	6	28.57	7	33.33
31 - 40	8	38.09	9	42.85
41 - 50	4	19.04	3	14.28
51 - 60	1	4.76	1	4.76

Table II: Case distribution according to age.

Table III shows distribution of extraction socket affected by dry socket. Dry socket was more common in mandible than the maxilla. Both maxillary and mandibular molar sockets were mostly involved and no dry socket was found in anterior teeth.

Site	No. of patients	%
Mandible		
3 rd molar	9	21.42
2 nd molar	8	19.04
1 st molar	11	26.19
2 nd premolar	3	7.14
1 st premolar	2	4.76

Site	No. of patients	%
Maxilla		
3 rd molar	3	7.14
2 nd molar	2	4.76
1 st molar	2	4.76
2 nd premolar	1	2.3
1 st premolar	1	2.3

Table III: Distribution of dry socket according to site

Table IV shows distribution of patients in relation to number of treatment received in Group A. Majority of patient received two or more than two procedures for successful treatment.

Treatment no.	No. of patients	%
1	1	4.80
2	5	23.80
3	9	42.80
4	5	23.80
5	1	4.80

Table IV: Distribution of patients in relation to number of treatment received in Group A

Table V shows distribution of patients in relation to number of treatment received in Group B. Nineteen out of 21 patients were not only without pain, but was also comfortable both physically as well as psychologically from the very next day.

Treatment no.	No. of patients	%
1	19	90.47
2	2	9.52

Table V: Distribution of patients in relation to number of treatment received in Group B

DISCUSSION

Dry socket is an important clinical complication. The etiology of this complication is not absolutely clear but it is believed that an increased local fibrinolysis leading to breakdown of the clot and subsequent exposure to bone.⁸ Dry socket generally arises between 1-3 days post extraction, 95-100% of cases have been reported within a week and the duration usually ranges from 5-10 days.⁹

In the present study the difference in the prevalence of dry socket was noted more frequently in females than males due to possible hormonal cause.^{10,11}

Majority of the patients developing dry socket were found in second and third decade. Prevalence of dry socket in this age group can be attributed to more solid nature of bone which is relatively disease free (e.g. periodontal diseases) that can lead to difficult and hence traumatic extraction. It is widely accepted that prevalence of dry socket increases with increase in extraction difficulty¹² and surgical trauma.¹³

It occurs more commonly in the mandible than the maxilla, due to the relatively poor blood supply of the mandible and also due to higher tendency of food debris to stagnate in lower

sockets. It more commonly occurs in posterior sockets (molars) than anterior sockets (incisors and canine), possibly because of the size of the created surgical defect is relatively larger.¹⁴

The prevention of dry socket has in the past involved both pharmacologic and surgical approaches. Pharmacologic methods used have included use of antibiotic preparations placed in to the socket after extraction and antiseptic rinses. However, a number of authors recommend that the use of systemic antibiotics is not necessary¹⁴ due to the potential for development of resistant strains to the antibiotics and other side effects such as hypersensitivity.¹⁵

In the present study, traditional method for treatment of dry socket was used for group A patients. Out of 21 patient, majorities of patients required 3 visits to Dental OPD to relieve pain. It is just palliative aimed at relieving symptoms. Treatment involves symptomatic support while the socket healed by host defense. On average, duration of 5-7 days is required for exposed bone to become covered with new granulation tissue, and efforts must be made to relieve patient discomfort during this time period. However, it is important to remember that gauze impregnated with zinc oxide eugenol is nonresorbable dressing and acts a foreign body in the socket and will delay healing. The eugenol is also reported to cause local irritation and bone necrosis.¹⁶

In Group B, surgical intervention was done in the form of administering anesthesia, curettage and irrigation of the socket to cleanse it of necrotic bone, tooth fragments, induce bleeding and primary closure to protect the clot and enhance healing by primary intention. This procedure provided immediate pain relief and reduction in duration of treatment to the patient and less discomfort to the patient. 19 out of 21 patients came to the Dental OPD next day with no or minimal discomfort. There is no loss of productive time for the surgeon. Economic loss is also less as patients do not have to come to hospital every other day for treatment. Hence the economic loss to society is less.

CONCLUSION

Debridement procedure to treat dry socket is safe and reliable and can be used by practitioner who runs a busy clinic or to the patient who cannot come to the clinic every other day for the treatment. However there are some limitations of this study like small sample size and short term follow up period. Further investigations and well-designed studies are necessary to draw firm conclusions and to clarify this complication.

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Results of a Conservative Management of Minimally Displaced Lateral Condyle of Humerus Fracture in Children

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ABSTRACT

Background: Fracture of lateral condyle humerus in pediatric population is second most common elbow injury. There is controversy regarding treatment of minimally displaced (less than 2mm) fracture. If this group can be taken care with non operative treatment it will be an easier and lot cheaper option especially for rural parts of west Nepal. **Aim:** To see the viability of treatment of minimally displaced lateral condyle humerus fracture with non operative treatment and look for short and immediate results. **Methodology:** This was a prospective observational, hospital based study carried out in Nepalgunj Medical College teaching Hospital from Jan. 2013 - Jan. 2014. In children between 2.5 - 13 years, with minimally displaced fracture of lateral condyle humerus were radiologically followed up for 12 weeks. All patients underwent long arm cast and serial radiographs in follow ups. At 12 weeks; range of motion, tenderness and carrying angle were looked for. **Results:** There were 12 patients in the study with average age of 6.95 years, range (SD 2.92). There were no displacements in follow ups. At 6 weeks all had full range of motion and at 12 weeks all had full range of motion without tenderness. Three kids had approximately 5 degrees of carrying angle change on other side to varus. **Conclusion:** Non operative treatment with 4 weeks of long arm cast in supination is a good alternative option for minimally displaced lateral condyle fracture humerus. A good follow up of the treated patients is an integral part of management along with radiological evidence. Parents need to be warned about bump in the lateral side during healing.

Key words: Conservative management, lateral condyle of humerus, minimal displacement

INTRODUCTION:

Fractures of the lateral condyle of humerus represent 12% - 20% of all fractures of the distal end of the humerus in children.¹⁻³ They have been shown to be caused primarily by forced varus angulation with the elbow extended and supinated. With an estimated annual incidence of 1.6 per 10,000 in the United States,³ lateral humeral condylar fractures is the second most common pediatric elbow fracture after supracondylar humerus fracture.

It typically occurs in children aged approximately 6 years.³⁻⁴ Controversy exists regarding the management of nondisplaced and minimally displaced (less than 2 mm) fractures. These fractures account for 33% to 69% of lateral humeral condylar fractures.⁵⁻⁷

Minimally displaced fractures are amenable to nonsurgical management. This study primarily aimed to see the immediate and short term results in non surgical management of lateral condyle humerus fracture in children.

MATERIALS AND METHODS

The present study was a retrospective observational study conducted in Nepalgunj Medical College Teaching Hospital (NGMCTH), Kohalpur from Jan. 2013 - Jan. 2014 in the Department of Orthopedics. All pediatric patients (2.5 – 13 years of age) attending to the orthopedic outpatient department (OPD) or emergency (ER) department with suspected elbow injury were included. The study strictly adhered to the tenets of declaration of Helsinki. An ethical informed consent too was taken from the patient party and NGMCTH to carry the study. Data on our interest were taken from record section of included patients.

After primary management in the ER examination of the patients was carried out by 2 orthopedic surgeons. Three view x-rays of elbow were done including antero - posterior, medial/internal oblique (Figure 1, 2) and lateral. Patients with type I lateral condyle fracture¹, displaced less than 2 mm in all three views were included in the study. Patients losing in follow up, over 13 years of age or less than 2.5 years of age, not responding to the telephone calls and X-ray films not showing fractures in all three films were excluded from the study.

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Figure 1: Showing antero – posterior view of a X – ray film



Figure 4: Showing antero posterior radiographic view of the study subject at 4 weeks follow up

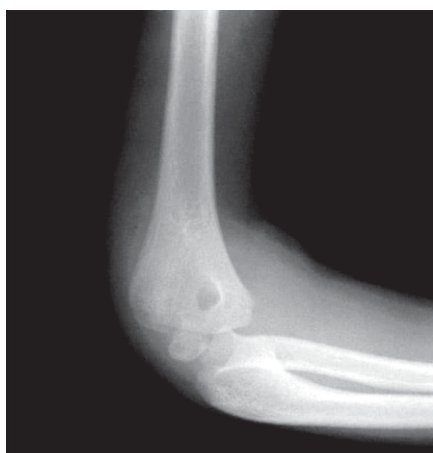


Figure 2: Showing internal oblique radiographic view



Figure 3: Showing lateral radiographic view of the study subject at 4 weeks follow up

Patients were placed in a long arm cast and admitted overnight to observe any swelling and were discharged the next day and followed up in 7 days. In a week follow up, same x rays were repeated to note any change in alignment or displacement. Similar follow ups were done in 2 weeks, 4 weeks. At 4 weeks cast was removed and range of motion started. Patient parents were called by direct phone call by the surgeon to examine the patient at 6 weeks and 12 weeks. In the last two visits range of motion, carrying angle, deformity were checked.

All the relevant information was entered in to Microsoft word, Statistical Package for Social Services (SPSS) version 19, Microsoft Excel and analyzed.

RESULTS

A total of 12 patients enrolled in the study. Gender wise male is to female ratio was 1:1. Average age of study subjects was 6.95 years, range 2.5 – 13 years (SD 2.92). Fall from height was the commonest cause of fracture followed by road traffic accidents (RTAs). At 6 weeks all patients had full range of motion of the elbow. At 12 weeks range of motion was full in all. 9 (75%) kids had less than 3 degrees difference in carrying angle. Three (25%) kids had 5 degree change in carrying angle to varus. Three (25%) kids had bump in the lateral side (Table 1). Callus extending to lateral ridge was noticed in all the study subjects. None of the study subjects had malunion in X-rays (Figure 3).

DISCUSSION

Lateral humeral condyle fracture in children is difficult to diagnose. Most of the poor results reported in the literature were due to defective initial management.^{8,9} The present study confirmed the good clinical and radiological results obtained with non surgical treatment.

Case	Gender	Age (years)	Mode of injury	Displacement (Radiographs)	Fracture Type (Milch)*	Treatment	Follow (weeks)	Amount of angulation and complaints	Results
1	M	6	RTA	2mm	I	Non Surgical	12	Bump**	Excellent
2	M	8	Fall	2mm	I	Non Surgical	12	None	Excellent
3	F	2.5	Fall	1mm	I	Non Surgical	12	None	Excellent
4	F	3	RTA	2mm	I	Non Surgical	12	Varus of 5 degrees	Good
5	M	13	Fall	2mm	I	Non Surgical	12	Bump**	Excellent
6	F	8	Fall	2mm	I	Non Surgical	12	None	Excellent
7	M	4	Fall	2mm	I	Non Surgical	12	None	Excellent
8	F	5	Fall	1mm	I	Non Surgical	12	Bump**	Excellent
9	M	6	Fall	2mm	I	Non Surgical	12	Varus of 5 degrees	Good
10	M	6	Fall	2mm	I	Non Surgical	12	None	Excellent
11	F	3	Fall	1mm	I	Non Surgical	12	Varus of 5 degrees	Good
12	F	5	RTA	2mm	I	Non Surgical	12	None	Excellent

*Following Milch grading of lateral humeral condyle fractures

**Bump in the lateral side of the elbow

Table I: Showing various findings from the study

Gender wise there was no difference in number of boys and girls in the present study, which differed from a study which had more number of girls with lateral condylar fracture of humerus.¹⁰

Commonest age group of presentation of lateral humeral condyle fracture is 6 yrs.⁴ In the present study also; the average age of presentation of the children was 6.95 years.

Antero-posterior (AP), lateral, and internal oblique radiographs of the affected elbow should be obtained in patients with suspected fracture of the lateral humeral condyle.¹¹ Antero-posterior radiographic views demonstrate a small metaphyseal flake with minimal displacement; an internal oblique view is obtained to better evaluate the fracture pattern and the amount of displacement.¹² In fractures with minimal displacement (less than 2 mm), the fracture may be appreciated only on the internal oblique view.¹² Song et al,¹³ (2007) found that the internal oblique view more accurately demonstrated the degree of displacement than did the antero-posterior view. In this study also AP, lateral and internal oblique radiographs were taken, which confirmed the fractures and displacements.

In the present study 9 (75%) of the study subjects had history of fall injury and 25% remainder of study subjects had history of RTAs. This finding of the study again differed with the existing literature. As the etiology of lateral humeral condyle fracture has been described by two theories, which are the pull-off theory, in which avulsion of the lateral condyle occurs at the

origin of the extensor/supinator musculature and is the commonest cause. The second is the push-off theory, in which a fall onto the extended hand leads to impaction of the radial head into the lateral condyle, causing the fracture.¹⁴

Milch (1964)^{1,15} described two lateral condylar fracture patterns. Type I fractures are characterized by a fracture line that courses lateral to the trochlea and into the capitulo trochlear groove, resulting in a Salter- Harris type IV fracture. The elbow remains stable because the trochlea is intact. Milch type II fracture is characterized by a fracture line that extends into the apex of the trochlea, resulting in a Salter-Harris type II fracture. This study had all the study subjects with type I lateral humeral condyle fracture according to Milch's classification.

Controversy exists regarding the management of nondisplaced and minimally displaced fractures. Flynn et al, (1975),² noted that minimally displaced fractures healed quickly with abundant callus formation. Many authors have suggested that all lateral humeral condylar fractures should be managed surgically because of the risk of displacement and the high rate of nonunion.^{16,17} Flynn, (1989)¹⁸ reviewed 23 cases of nonunion following lateral condylar fracture with initial displacement measuring less than 2 mm. In 12 cases, late fracture displacement resulted in nonunion. Launay et al, (2004),¹⁹ retrospectively reviewed the outcome of 30 non displaced lateral condylar fractures, of which 17 were initially managed none surgically. Four patients in the nonsurgical group went on to substantial displacement and required surgical treatment. Two patients went on to nonunion, and two went on to

malunion. Of the 13 patients who were initially treated surgically, 2 went on to malunion. There were no cases of non-union in this group. The authors recommended nonsurgical management only when follow up could be assured. In this study till the last follow up (12 weeks) none of the study subjects had malunion or nonunion, however three study participants had developed bump which was noticed in follow up at 4 weeks time. Callus formation in lateral ridge of distal humerus was present in all the participants.

Pirker et al, (2005),⁷ managed 51 lateral humeral condyle fractures (displacement less than 2 mm) with above-elbow plaster splints for 2 to 7 days. Five patients had subsequent displacement, all within the first week. Displacement was easily detected on follow-up radiographs, with sufficient time for surgical management. Thus, these authors argued that fractures with displacement less than 2 mm can be managed with immobilization and close radiographic follow-up. Similarly, Bast et al, (1998),²⁰ found that of 95 patients with less than 2 mm fracture displacement who were treated with cast immobilization, only 2 displaced during immobilization and went on to require surgical fixation. This again proves to the point about controversy regarding the management of lateral humeral condyle fractures.

Limitations of the study

The small sample size of the study is a major limitation of the study. Use of Magnetic Resonance Imaging (MRI) would have given exact and precise measurement of displacement and not be representative of all the participants of similar age. Radiographic documentation of the contralateral normal hand would have been good as ossification do occur in the study sample age group.

Conclusions/Recommendations

This study concluded that, minimally displaced fractures of lateral humeral condyle (less than 2 mm displacement in all views of radiographs) can be treated with casting for 4 weeks with strict monitoring and regular follow ups. A bump in the lateral area of the elbow is the commonest complication.

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Pattern of Ocular Morbidity in Professional Intercity Vehicle Drivers of Mid West Tarai Belt of Nepal: A Cross Sectional Descriptive Study

Bastola P

ABSTRACT

Background: Visual function is very important in driving. The diseases of the ocular organs and its adnexa can adversely affect the visual functions of the driver, resulting into serious implications in road safety. **Aim:** Finding out the profile and pattern of ocular morbidity in professional intercity vehicle drivers of Mid West Tarai region of Nepal. **Methodology:** This was a cross sectional, descriptive, community/hospital based study carried out in two of the busiest bus parks of Mid West Tarai region of Nepal. All professional drivers with a valid government driving license who had been driving as professional drivers for more than 3 months were enrolled. **Results:** Of the 256 participants in the study, all of the professional drivers were males. In 162 (66.4%) of the study participants did not have ocular examination before issuing or during renewal of the driving license. More than 50% of ocular morbidity was due to dry eyes, ocular allergy, uncorrected refractive error and conjunctival degenerative conditions in all age groups. Presbyopia and cataract in subjects above 40 years accounted for 34 (13%) and 10(3.9%) respectively. 16(6.2%) of study participants were still driving with valid license despite having total color blindness. **Conclusion:** Every potential driver at first licensing and at renewals should be subjected to basic vision tests. Color vision test should be made prerequisite for all the drivers before issuing a government license. Those found to have visual impairment should be referred to ophthalmologists for detailed ocular evaluation and periodic ocular examination.

Key words: Color blindness, dry eyes, presbyopia, professional drivers, road traffic accident

INTRODUCTION:

Driving is defined as the ability to operate, control, and direct the course of a vehicle.¹ Road Traffic Accidents (RTA) remains a dreadful plague all over the world; in developed world it is in declining trend however the reverse applies for developing countries, and a perfect vision for professional drivers is a must for driving and safety of other road users².

In Nepal, 1,545,988 vehicles have been registered till the year 2013 as per data from Department of Traffic Management and Traffic Directorate Nepal police 2013.^{3,4} Total number of road fatalities in past decade in Nepal is in decreasing trend in the year 2002, 2003, 2004 and 2005 when compared with base year 2001 but increased since 2006. It seems very much threatening in 2009⁴. The data of the year 2012-2013 show that 13,582 RTAs occurred in Nepal resulting into case fatality ratio of 11.75 per 1000 vehicles⁴.

Worldwide, it has been estimated that the number of people killed in RTAs each year is about 1.2 million, while the number

of the injured could be as high as 50 million⁵. It is more disturbing to note that young adult group or people in their active working age group; the socio economic back bone of the country are affected most by this ravaging menace⁶.

Driving requires several sets of abilities including sensory (mainly visual), mental ability, motor ability and compensatory abilities. Total of 95% of sensory ability needed for driving has been shown to be visual⁷, however; various published results of different researchers have shown no significant correlation between RTAs and visual disfunction⁷⁻¹⁴.

The present study aimed to find out the types and prevalence of ocular and adnexal diseases among commercial intercity professional vehicle drivers in Mid West Region of Nepal. To the best of the author's knowledge, no such reports are published before in Mid West Region of Nepal.

METHODOLOGY

This was a hospital/community based, descriptive, cross sectional study carried out in two of the busiest bus parks of Mid West Nepal. After ocular examination of the professionals drivers at Kohalpur Bus Park and Nepalgunj Bus Park, referral was done to Nepalgunj Medical College and Teaching Hospital (NGMCTH), department of Ophthalmology, Banke, Nepal for detail examination. The study period was from May 2014 to June 2014.

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Drivers driving vehicles for at least last 3 months or more with a government issued valid driving license were included in the study. Participants not willing to be part of study, not having a valid government issued license, private vehicle drivers, not having a prior experience of 3 months of continuous professional driving were excluded from the study.

The study strictly adhered to the declaration of tenets of Helsinki¹⁵. An ethical informed consent was taken from Nepalgunj Medical College and Teaching Hospital (NGMCTH), Kohalpur, Nepalgunj.

All the participants were examined by a single examiner. A detailed ocular examination including color vision test and posterior segment examination was carried out at hospital examination centres.

Following were the definitions used in the study. Education level was categorized in to literate (being able to read) and illiterate (not able to read at all). Uncorrected refractive error was defined as a visual acuity of 6/12 or less in the better eye unaided; improving with pin hole. Age related presbyopia in participants of 40 years and above were included as a separate entity in the study, when other co morbidity was not diagnosed. Socioeconomic status was assessed to know the compliance of medical advice for participants. Socioeconomic status was then categorized in to 1) below poverty line 2) poor 3) low income 4) middle income and 5) high income. A participant's income less than 100 Nepali Rupees (One dollar) per day was categorized as below poverty line in this study.

Participants needing treatment medical or surgical were referred to NGMCTH. Medical treatment was provided free of cost, while surgical treatment was subsidized to nominal price. The data obtained from the study was entered in Microsoft Excel version 2013, STATA version 13 and statistical analysis was done. A statistician was consulted when and where necessary.

RESULTS

A total of 512 eyes of 256 participants were examined. Gender wise all the participants were males. Age wise; participants in the active working age group were the most; accounting for more than 162(63%) of all participants (Age group 20 – 39), while participants of 40 years and above accounted for 76(30%) (Table I). Of the 256 participants; 244 (95.3%) were literate, while 12(4.6) participants were illiterate (Figure 1).

None of the participants fell in the category below poverty line or above income group. Out of 256 participants 178 (69.5%) were in middle income group category and 78 (30.4%) belonged to the low income group category showing good compliance of doctors advice. Eye examination showed, dry eyes (16%), presbyopia (13.2%), uncorrected refractive error (9.3%) and ocular allergy (9.8%) as the commoner ocular morbidities.

Age Range (In years)	Number of Participants	Percentage (%)
10 - 19	18	7.0
20 - 29 (#)	54	21.0
30 - 39 (§§)	108	42.1
40 - 49	39	15.2
50 - 59	25	9.7
60 - 69	12	4.6
Total	256	100

#, §§= Showing 63.1 % of the study participants in active working age group.

Table I: Showing the age range of study participants in the study

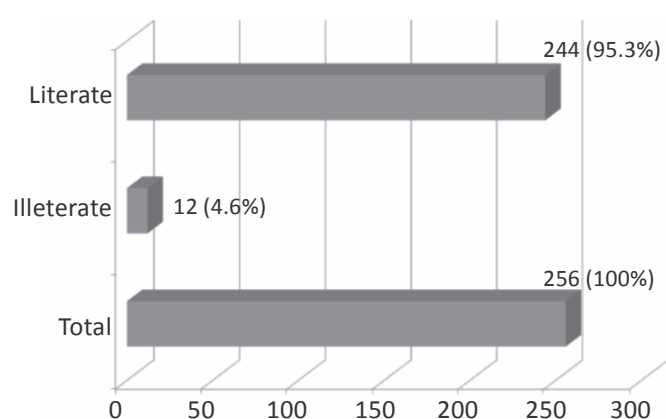


Figure 1: Showing the literacy level of the study participants

Pterygium and other conjunctival degenerations accounted for over 11% of the study participants. Color blindness and cataracts accounted for 6.2% and 3.9% of study participants (Table II).

In the study group, only 80 participants (33.5%) clearly answered that they had an ocular examination done prior to getting driving license and others had some health checkup.

DISCUSSION

Of all the 256 participants were males as professional driving is done by males only in the region. The participants belonged to active working age group were 162(63%) while, 76(29.5%) of the participants were above the age of 40 years. Interestingly, 18(7%) were very young and teenagers.

Type of Ocular Morbidity	Number (n = 512 Eyes)	Percentage (%)
Dry Eye	41 (82)	16.0
Ocular Allergy	25 (50)	9.8
Uncorrected Refractive Error	24 (48)	9.3
Presbyopia	34 (68)*	13.2
Cataract (of any type and grade)	10 (20)	3.9
Mebomian Gland Dysfunction	14 (28)	5.4
Pinguicula	13 (26)	5.0
Corneal Opacity	7 (14)	2.7
Squamous Blepharitis	6 (12)	2.3
Pterygium	12 (24)	4.7
Chalazion	3 (6)	1.1
Conjunctival Nevus	3 (6)	1.1
Colour Blindness	16 (32)**	6.2
Iris Nevus	2 (4)	0.7
Chronic Uveitis	2 (4)	0.7
Hypertensive Retinopathy	2 (4)	0.7
Diabetic Retinopathy	3 (6)	1.1
Acquired/Congenital Ptosis	3 (6)	1.1
Asthenopia	3 (6)	1.1
Pseudophakia	2 (4)	0.7
Solar Maculopathy	2 (4)	0.7
Computer Vision Syndrome	3 (6)	1.1
Strabismus	2 (4)	0.7
Chronic Dacryocystitis	3 (6)	1.1
Dysthyroid Ophthalmopathy	2 (4)	0.7
Glaucoma (all types)	3 (6)	1.1
Other Conjunctival Degeneration	3 (6)	1.1
Optic Neuropathy	2 (4)	0.7
No Abnormality Detected	11 (22)	4.2
Total	256 (n = 512 Eyes)	100

*= Higher percentage of uncorrected presbyopia in study participants

**= 16 participants having total color blindness

Table II: showing the pattern of ocular morbidity amongst study participants

In a study done in Nigeria¹⁶, more than 2/3 professional drivers were more than 40 years and more than 1/5th were above 50 years age wise, which differed from the finding of this study.

In this study; 95.3% of the study participants had formal basic education, knowing "Traffic Rules" while mere 4.7% drivers were illiterate. However; there is still a pressing need to increase the literacy level of the drivers to reduce road traffic accidents (RTAs).

In 170(66.4%) study participants answered that they did not have an ocular examination test including color vision before they were issued driving license; 86 (33.6%) answered they had their eyes examined before the license was issued. This finding again justifies the fact that routine eye examinations, as required, are not taken seriously before issuing valid driving license. This finding is in agreement with number of studies done in other countries.¹⁷⁻¹⁹

Dry eyes, ocular allergy, uncorrected refractive error as expected were common accounting for 16.0%, 9.8% and 9.3% of the study participants. Dry eyes and ocular allergy were found overlapping in few study participants.

Participants of 40 years or above having presbyopia accounted for 34(13.2%). The high percentage of presbyopia in this age group could be age related and subjects were unaware about ageing eye changes. These findings are similar¹⁹ and higher as reported in other study²⁰. In 10(3.9%) participants age related cataract in both eyes which was diagnosed and referred for surgery immediately. The finding again correlated with the study participants age, 76 (30%) above 40 years of age and above had age related changes.

Surprisingly, the finding which came out from the study was 16(6.2%) participants of total 256 had bilateral total color blindness. The study participants were unaware about it.

There were 42(16%) participants who had some kind of ocular surface disorder and conjunctival degenerations like meibomian gland dysfunction, pterygium, pinguecula and other conjunctival degenerations. This may be attributed to poor working conditions. Exposure to ultraviolet light, is more, especially in Mid West Terrain region, high temperature during summer season and lack of protective sun glasses.

Limitations of the study

This study sample does not represent all the professional intercity drivers of Nepal; which is a major limitation of the study. Due to lack of more appropriate data a correlation between RTA and ocular morbidity could not be done. A larger scale study with a bigger sample size and more data from government of Nepal would certainly help to conclude newer

findings. However; this study will work as a baseline for further studies of similar kind in other parts of Nepal.

CONCLUSION/RECOMMENDATIONS

People of active work age group were involved in professional driving in the study area; however people of 40 years and above were also continuing the profession.

The common ocular morbidities amongst intercity professional drivers in Mid-West region of Nepal were dry eyes, ocular allergy, uncorrected refractive error and conjunctival degenerations. Presbyopia was still a major problem in drivers of 40 years and above.

Cataract was the potentially blinding ocular disease seen. Glaucoma cases were only 3 (1.1%). This highlights the need for renewed efforts to educate vulnerable groups on these preventable causes of blindness and visual impairment, by ensuring that every potential driver at first licensing and at renewals gets the basic vision test done. Color vision test should be made must for all the drivers. Those found to have visual impairment should be referred to ophthalmologists for detailed ocular evaluation.

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Simple Underlay Myringoplasty: A Prospective Study

Budhathoki B¹, Mishra SC², Sharma A³

ABSTRACT

Background: Chronic otitis media (COM) is highly prevalent disease encountered by an otologist world wide and also in Nepal. Myringoplasty is the treatment of choice in many cases. There are various techniques of performing myringoplasty with various types of grafts. We propose Simple Underlay Myringoplasty (SUM) using fat graft. **Objective:** The objective of this study was to evaluate the role of fat graft in closure of small dry central perforations by simple underlay myringoplasty (SUM) with aim to introduce SUM technique in this part of Nepal (Mid Western and Far Western Region). **Methods:** Young patients above 15 years of age with diagnosis of chronic otitis media, mucosal type with perforations smaller than 50% of tympanic membrane were included for fat graft myringoplasty. There were total 25 cases included for the study. All the cases were done under local anesthesia. A large single piece of fat, approximately double the size of perforation was harvested from the posterior side of ear lobule. The margin of perforation was freshened. The fat was placed like a dumbbell, equal portion lies medial and lateral to the perforation. Graft uptake results were evaluated after 4 weeks. **Results:** Graft uptake was successful in 23 patients (92%). **Conclusion:** The technique avoids extensive middle ear manipulation and it is safe, simpler procedure for the closure of a dry small central perforation. Its success rate is as good as myringoplasty using temporalis fascia in small central perforations.

Key words: Chronic otitis media, fat graft, myringoplasty

INTRODUCTION

Myringoplasty is one of the most common operations performed by an otolaryngologist. Temporalis fascia is the most common material used for the closure of tympanic membrane perforation. Berthold¹ in 1878 used a full-thickness free skin graft for tympanic membrane closure. Ringenber used a fat tympanoplasty for the first time for the closure of a small tympanic perforation². The fat graft tissue tympanoplasty has certain advantages as this procedure can be done on an outpatient basis. The patient goes home on the same day with very limited postoperative care. Fat can be harvested in a very short time and it avoids invasive extensive surgical manipulation of the middle ear.³

It is a simple and cost effective technique in managing small tympanic membrane perforation and the success rate of a fat-plug myringoplasty is comparable with the results of temporalis fascia tympanoplasty.⁴ The aim of this study was to evaluate fat

graft uptake rate in small central tympanic membrane perforations. To the best of our knowledge, the present study is first of its kind in Mid Western and Far Western Region of Nepal.

MATERIALS AND METHODS

It was a prospective, longitudinal study conducted at Nepalgunj Medical College Teaching Hospital, Kohalpur, Nepal from January 2013 to February 2014. Total 25 cases were included in this study with age greater than 15 years, all gender, patient with chronic otitis media mucosal with less than 50% central perforation of tympanic membrane and hearing loss less than 30dB. Perforation more than 50%, active mucosal disease and hearing loss more than 30dB were excluded from this study.

Surgical Technique

All the cases were done under local anaesthesia with 4% xylocaine soaked cotton ball placed over tympanic membrane to block tympanic plexus. All the cases were done via permeal approach and done by first author. Tympanomeatal flap was not elevated in this technique in contrast to conventional myringoplasty. Around 2 ml of 2% xylocaine was injected on the posterior surface of the lobule and a small incision was made on the posterior aspect of the ear lobule. A single piece of fat, approximately twice the size of the perforation, was harvested (Figure 1) taking care not to make a buttonhole on the anterior surface of the lobule. The skin incision was sutured with silk 4-0. Using the operative microscope, the margin of the perforation was trimmed and de-epithelialized using a sickle knife (Figure 2). Small pieces of gelfoam were placed in the middle ear through the perforation. The piece of fat was positioned in such a way that equal proportion lied medially and laterally to the tympanic membrane and fit the

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perforation snugly like a dumb-bell (Figure 3). The fat plug was overlaid with antibiotic soaked gelfoam. These gelfoam pieces prevent the displacement of the fat plug by supporting it from the both sides. The closure of the perforation (Graft uptake) was considered successful for a fat-plug myringoplasty after 4 weeks follow up.

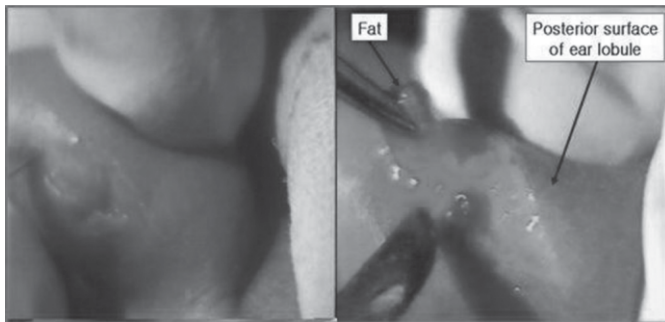


Figure 1: Incision on the posterior surface of the lobule and fat harvesting

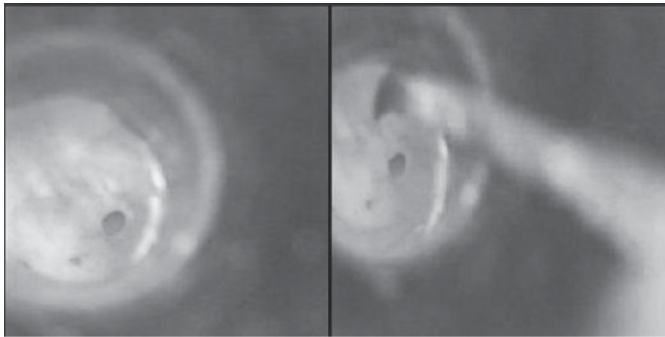


Figure 2: Small central perforation and using sickle knife to freshen the edges of perforation

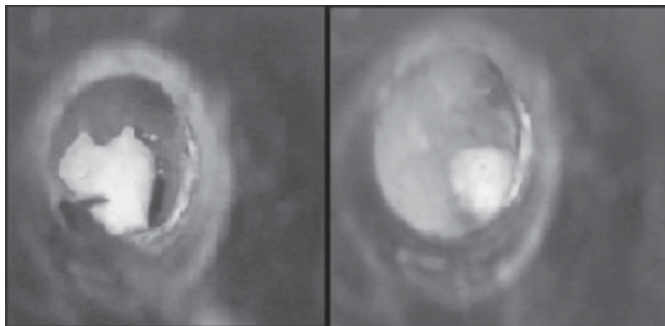


Figure 3: Fat plugging the perforation

RESULTS

There were total 25 cases included in this study. Among them, 15 patients were male and 10 patients were female. Twenty-three patients had complete closure of the tympanic membrane perforation while two patients had residual perforation after one month follow up. Overall success rate in our study was 92%. Average time for the procedure was only 20 minute

Author (Reference)	No. of cases	Success rate
Liew, et al., 2002(5)	15	100%
Ayache, et al., 2003(6)	45	91.9%
Hagemann & Hausler, 2003(7)	44	91%
Ozgursoy & Yorulmaz, 2005(3)	18	82.4%
Present Study 2015	25	92%

Table I: Results of myringoplasties with fat graft

DISCUSSION

The overall success rate in our study was 92% which is comparable with the study of Liew et al⁵ who used adipose tissue in the persistent perforation following tympanostomy tube removal (Table I). He had a 100% success rate in his series of 15 children. He harvested fat by placing a small horizontal incision along the inferior aspect of the lobe. Ayache et al⁶ harvested fat from the abdomen, making a separate skin incision close to the center of the umbilicus, in 91% of the cases and from the pretragal area in 9% of the cases. They also affixed the fat with biologic glue. Hagemann and Hausler⁷ found a 91% success rate in their large study. Though in our study of 25 cases with 92% success, we propose a bigger study to establish its success rate. We restricted our case selection to those perforations with a size of less than 50%. The larger perforation was avoided for this type of procedure due to the possibility of failure.

Dedden et al⁸ found that the size of the perforation is a crucial factor and 30% of the drum surface is a good prognostic factor for the fat graft. Perforations larger than one quadrant of the tympanic membrane are unfavorable for the insertion of the fat plug.² All our cases had the perforation in the antero inferior and postero inferior quadrant of the tympanic membrane and the success rate was not related with any particular quadrant of the tympanic membrane as shown in the result. It is important to note the property of the fat tissue for the fat tympanoplasty procedure. Although it can be harvested from the abdomen, buttock and ear lobule, the ear lobule fat harvesting is much simpler than the other sites. It can be harvested from the same sterile area of surgical field prepared for the fat tympanoplasty. Its scar is almost invisible as incision is given on the posterior

aspect of lobule. The fat of ear lobule is denser and has better epithelial and mucosal tympanic growth. It presents a big revascularization activity² as seen by otoscopy a few days after the procedure. There is significant bulging on the tympanic membrane³ till the end of the third month postoperatively and after three months bulging of the fat graft progressively disappeared and converted into a smooth sclerotic area on the tympanic membrane at the fifth month. This findings were also seen in all our successful patients in the postoperative period of 1-3 months. There are two histological theories of fat grafts.⁹ The host cell replacement theory¹⁰ of Neuhof and 'The cell survival theory' of Peer.¹¹

The host cell replacement theory states that all the original cells die and are totally replaced by new wandering adipocytes or by fibroblasts. The cell survival theory states that not all the original adipose cells die. Those fat cells which receive adequate blood supply survive whereas remaining degenerate, thus explaining loss of volume. The transplanted fat cells are not replaced by scar tissue, instead a connective tissue capsule outside the fat graft begins three weeks after transplantation, which becomes progressively thinner over the course of a year. Fat tissue provides the basic requirement for the grafting of the tympanic membrane with its own favorable characteristics.³

CONCLUSION

The temporalis fascia is the most common material used for tympanoplasty. However, myringoplasty, using fat graft is a quick procedure and avoids middle ear manipulation. The harvesting of fat tissue is easy. Patient can be discharged on the same day with minimal postoperative care. Thus we propose that Fat-plug myringoplasty is easy, require less surgical time, cost effective with the success rate as good as with myringoplasty using temporal fascia for the small dry central perforation.

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A Comparative Study of Oxytocin & Misoprostol in Active Management of Third Stage of Labour

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ABSTRACT

Introduction: The third stage of labour is the period which follows the completed delivery of the foetus and consists of delivery of the placenta and its attached membranes. **Aims and objectives:** Comparison of oxytocin & misoprostol in active management of third stage of labour. **Material and Methods:** This is a comparative cross-sectional study was conducted in Nepalgunj Medical College Teaching Hospital, Kohalpur from March 2013 to March 2014. Group A - Oxytocin 10 IU IV bolus in 100 patients and Group B - Misoprostol 600 micro gram rectally. The collected were subjected to statistical analysis using SPSS 15. **Results:** After active management with bolus oxytocin, the blood loss was grossly reduced being 40-100ml in 84% cases and only 7% had blood loss more than 100ml. blood loss between 200-300ml were only 6% and only 3% had PPH, after misoprostol 80% of cases had blood loss within 40 – 100 ml., 6% cases had blood loss within 100 – 200 ml. and larger amount of blood loss i.e. between 200 – 300 ml. was observed in 7% cases, in 3% cases blood loss was between 300 – 400 ml. and 4% of women in this group had PPH. **Conclusion:** There was no statistically significant difference in the efficacy of oxytocin and misoprostol in reducing amount of blood loss and duration of labour in 3rd stage of labour.

Keywords: Active management, misoprost, oxytocin, postpartum haemorrhage

INTRODUCTION

The third stage of the labour is the period which follows the completed delivery of the foetus and consists of delivery of the placenta and its attached membrane. During this stage a normal case can within a minute, become abnormal and successful delivery can turn swiftly to disaster. PPH is one of the most important causes of maternal mortality. There is a global program to prevent PPH by active management of 3rd stage of labour.

There are two quite different approaches to the clinical management of third stage i.e. Physiological Management and active management, and these have been the subject of a number of critical reviews^{1, 2, 3, 4}. Physiological Management involves waiting for signs of separation and allowing the placenta to deliver spontaneously or aided by gravity or nipple stimulation. In contrast, in active management the clinician chooses to intervene in this process by using the following interlocking intervention: (i) administration of prophylactic oxytocin after delivery of the baby, (ii) early cord clamping and cutting and (iii) controlled cord traction of the umbilical cord.

Globally obstetrics haemorrhage is found to be main cause of maternal death. It has been estimated that at least 25% of

these deaths are due to obstetrics haemorrhage. The majority due to post partum haemorrhage. This study was done therefore to compare the efficacy of oxytocin IV bolus and misoprostol in active management of third stage of labour (AMTSL).

MATERIAL AND METHODS

This is a comparative cross- sectional study conducted in Nepalgunj Medical College Teaching Hospital, Kohalpur in the department of Gynaecology and Obstetrics from March 2013 to March 2014. All the patients fulfilling inclusion criteria were divided in Group A – Oxytocin IV 10 IU was administered to 100 patients. Group B – Misoprostol 600 micro grams rectally was administered in 100 patients. The blood loss was collected and measured by measuring cylinder. All the data were entered in SPSS version 15 and were used descriptive and analytical study.

RESULTS

Age of patient (Years)	Study Group			
	Group A Oxytocin		Group B Misoprostol	
	No	%	No	%
18 - 25	15	15	18	18
26 - 30	41	41	30	30
31 - 35	35	35	39	39
36 - 40	9	9	13	13

Table I: Distribution of patients according to age

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Mean age: In group A, it was 30.28 and in group B, it was 29.78. Standard deviation in Group A was 5.54 and in group B, it was 4.95.

Parity	Group A		Group B	
	Oxytocin		Misoprostol	
	No	%	No	%
Nullipara	30	30	26	26
Primipara	23	23	29	29
2 nd para	21	21	18	18
3 rd para	12	12	15	15
Para 4 and above	14	14	12	12

Table II: Distribution of patients according to parity

Nullipara were maximum in Group A i.e. 30% where as primipara were maximum in Group B i.e. 29%.

Duration of 3 rd stage (mins.)	Group A		Group B	
	Oxytocin		Misoprostol	
	No	%	No	%
3 - 5	42	42	33	33
5 - 7	30	30	31	31
7 - 9	18	18	23	23
9 - 11	5	5	3	3
11 - 13	3	3	5	5
13 - 15	-	-	2	2
> 15	2	2	3	3

Table III: Distribution of patients according to the duration of 3rd stage of labour.

Maximum patients were delivered in 3 – 5 minutes duration in both the groups.

Statistical Parameters	Group A	Group B
	Oxytocin	Misoprostol
Mean Duration	4.48	4.93
95% CI	4.17-4.78	4.52-5.34
Median	4.00	4.00
Standard Deviation	1.53	2.06

Table IV: Statistical analysis of distribution of subjects in two groups according to duration (min.)

Statistical Parameters	Group A	Group B
	Oxytocin	Misoprostol
Mean blood loss	81.00	91.04
95% CI	60.53-101.47	74.88-107.20
Median	50.00	60.00
Standard Deviation	103.17	79.74

Table V: Distribution of subjects in two groups according to loss of blood (ml.)

DISCUSSION

The present study was conducted on 200 patients, a comparison of Oxytocin & Misoprostol in active management of third stage of labour. Out of which bolus 10 IU oxytocin was given to 100 cases while 600 mcg of misoprostol was inserted rectally in second group of 100 cases.

1. Age - Among patients of oxytocin group, the youngest patient was of 19 year and the oldest patient aged 40 year with a mean age of 30.28 year and SD of 5.54. In group B i.e. misoprostol group, highest number of cases were from 31-35 year of age. In this group age of different patients ranged from 18-40 year with a mean age of 29.78 with SD of 4.95. No statistical significance was observed between the ages of two groups of patients is comparable with other studies Walter J et al. (1988)⁵ and J Rogers et al. (1998)⁶.
2. Parity - In the present study. In oxytocin group, nulliparaous were 30% and primipara were 23% while in misoprostol group nulliparaous were only 26% and primipara were 29%. In oxytocin group 14% were grand multipara while in misoprostol group number of grand multipara were almost similar to oxytocin group (12%). In Bristol third stage trial, Walter J et al.⁵ have reported the number of primipara being 372 in Physiological Management group and 409 in active management group. While Eray Clistkan et al. (2003)⁷ in their study have reported the incidence of primipara 46.6%, multipara 52.3% and grand multipara being 1% in misoprostol group while in oxytocin group 52.3% were primipara, 49.4% were multipara and grand multipara was only 1%.
3. Duration of third stage of labour- In the study group A, it varied from 3.25 to 16.5 min with mean of 4.48 and study group B it ranged from 3.42 to 16.55 min with mean of 4.93. On statistical comparison, however, no significant difference was observed between two study groups. Eray Caliskan et al., 2003⁷ in their study compared misoprostol (400 mcg orally) with 10 IU oxytocin in 500 ml. of Ringer lactate and observed slightly longer mean duration of third stage of labour in misoprostol group (9.2 min) as compared to after IV oxytocin (8.7 min).

4. Blood loss in 3rd stage of labour- In oxytocin group and misoprostol group reduced amount of blood loss was observed.
- Shekharan et al. (2007), have advocated oxytocin as the drug of choice in active management of third stage of labour as it has rapid onset of action and does not increase the risk of retained placenta. Rogers et al.⁶ have also reported enormously reduced incidence of PPH after active management (6.8%) as compared to those who were managed Physiologically (16.5%). Prendiville et al.⁸ in Cochrane review (2000), have strongly advocated that routine active management is superior to Physiological Management in terms of blood loss, PPH and other serious complications of third stage of labour.
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CONCLUSION

The amount of blood loss in 3rd stage of labour was found to be grossly reduced to 81.00±103.17 ml in oxytocin group and 91.04±79.74 ml in misoprostol group ($p<0.001$) after active management both by oxytocin and misoprostol which is not significant. The duration of 3rd stage of labour was found to be grossly reduced. The duration of Oxytocin group is 4.48 min and 4.93 min in Misoprostol group ($p<0.001$) after active management both by oxytocin and misoprostol which is not significant. Active management of labour reduced the amount of blood loss in both the group. Active management of 3rd stage of labour is advocated as a routine to prevent PPH and such maternal mortality. Therefore there was no statistically significant difference in efficacy of oxytocin and misoprostol.

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Prevalence of Obesity Among Type 2 Diabetes Patients Attending Diabetic Clinic in Nepalgunj Medical College Teaching Hospital

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ABSTRACT

Background: Obesity and type 2 diabetes constitute major public health issues in modern societies worldwide. These two forms frequently coexist, and statistics show that 60–90% of all patients with type 2 diabetes are or have been obese. Obesity is generally considered to be a strong risk factor for the development of type 2 diabetes mellitus in future. **Objectives:** This study aims to assess the prevalence of obesity among type 2 diabetes patients attending diabetic clinic in Nepalgunj Medical College Teaching Hospital. **Methods:** An analytical cross-sectional study was conducted at NGMCTH, Kohalpur, Nepal during the period from October 2013 to March 2014. The present study comprised of a total of 385 type 2 diabetic subjects whose BMI was measured during the visit to the diabetic clinic. Respondents' height, weight, age, sex and duration of diabetes were taken as the study variable. **Results:** Out of total, 51.4% were female and 48.6% were male who attended the clinic. The mean age of the study population was 56.20±11.95 (95% CI; 54.47-57.92) of which 38% were overweight, 4.2% were obese and 55.8% had normal BMI. The proportion of overweight in total population is 37.1% where female type 2 diabetes proportion (41.4%) was comparatively higher than male (32.6%). 4.2 % of the total type 2 diabetes were obese and above (p=0.014). **Conclusions:** High prevalence of overweight and obesity in type 2 diabetics is associated with other serious complications. Ways to control prevent obesity and overweight should be stressed and made known to people of all ages in the population.

Key words: BMI, Obesity, overweight, type 2 diabetes

INTRODUCTION

Diabetes – A global epidemics and a serious public health problem. 382 million people have diabetes in 2013; by 2035 this will rise to 592 million. The number of people with type 2 diabetes is increasing in every country. 80% of people with diabetes live in low- and middle-income countries. The greatest number of people with diabetes is between 40 and 59 years of age¹. In Nepal the number of diabetic patients was 436,000 in 2000 and it was projected be 1,328,000 in Nepal by 2030². Healthy dietary habits and lifestyle modifications- the cornerstones of type 2 diabetes prevention and management³. The Diabetic Prevention Program suggested that dietary and physical activity changes to produce a 5-7% weight loss successfully maintains glycemic control in people diagnosed with type 2 diabetes⁴.

The risk of diabetes mellitus increases independently with increasing age, obesity, and lack of physical activity,⁵⁻¹⁰ and overall mortality rises with body mass index (BMI) level greater than 25 kg per m².⁵ Obesity is a complex disorder involving appetite regulation and energy metabolism, as the excess of body fat results from an imbalance of intake and expenditure⁵. Obesity is considered a major risk factor for type 2 diabetes⁶. It has been found that the incidence of diabetes increases by a factor of 2-3 fold in obese individuals when obesity is defined as 120% of ideal weight¹¹.

Obesity is a modifiable risk factor for Type 2 diabetes. It not only interferes with effective treatment of hyperglycemia, but also hypertension, and dyslipidemia, cardiovascular disease, cerebrovascular disease, hyperlipidemia, increased incidence of arthritis of the hands and knees, gallbladder disease, sleep apnea. It is also related to chronic back pain and respiratory dysfunction^{5,6}. In addition to the increased risk of morbidity and mortality, obesity leads to various psychological stresses that vary from emotional distress to social stigmatization^{1,6,8}.

WHO classification of obesity is shown in Table I, the cut-off points of 25kg/m² and 30kg/m² used to define overweight and obesity respectively^{13,14}. This study aims to assess the proportion of obesity among type 2 diabetes patients attending diabetic clinic in Nepalgunj Medical College Teaching Hospital.

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Classification	BMI (Kg/m ²)	Risk of developing health problems
Underweight	< 18.5	Increased
Normal Weight	18.5 - 24.9	Least
Overweight	25.0 - 29.9	Increased
Obese class I	30.0 - 34.9	High
Obese class II	35.0 - 39.9	Very High
Obese class III	>= 40.0	Extremely High

Table I: International Classification of BMI

Variables	Male (n=187)	Female (n=198)	p-value
Age			
Mean±SD	56.20±11.95	52.62±10.739	0.02
95% CI of mean	54.47-57.92	51.11-54.12	
Median	57	53.5	
Weight (Kg)			
Mean±SD	62.40±8.547	58.32±9.055	<0.0001
95% CI of mean	61.17-63.63	57.05-59.59	
Median	62	60	
Height (cms.)			
Mean±SD	160.20±7.3	155.2±6.3	<0.0001
95% CI of mean	159.15-161.25	154.32-156.10	
Median	160	155	
BMI (kg/m2)			
Mean±SD	24.31±2.98	24.22±3. 64	NS
95% CI of mean	23.88-24.74	23.70-24.73	
Median	24.14	24.49	
Duration of diabetes (yrs)			
Mean±SD	5.13±4.73	4.39±3.83	NS
95% CI of mean	4.45-5.82	3.85-4.92	
Median	4	3	

Table II: Basic characteristics of the study populations (n=385)

METHODS

An analytical study with cross-sectional design was adopted and 385 type 2 diabetic patients, diagnosed for at least 3 months, from October 2013 to March 2014 were selected from tertiary level care hospital using the systematic random sampling method. The minimum required sample size was calculated as 358 using formula $n = z^2pq$. 385 were taken as the sample size of the study. Data were collected by a pre-tested, interviewer administered questionnaire.

World Health Organization's criteria for diabetes classification were used to define patients as Type 2 diabetes mellitus (9,10). Experienced medical interns using standard techniques,

measured height and weight. Body mass index (BMI) was calculated according to person's weight in kilograms divided by the square of the person's height in meters¹⁴. Weight was recorded by the calibrated scale in the diabetic clinic; and height was taken in the same setting. Data were entered into a personal computer using SPSS statistical package, a p-value of 0.05 or less was considered to represent statistical significance. Descriptive statistics and statistical tests were used as appropriate.

RESULTS

A total number of 385 patients with 20 years of age or older attended to the diabetic clinic under management since 6

months were recruited in the study. Table II shows that the median duration of diabetes mellitus (DM) was 4 years and the mean duration was 5.13 ± 4.73 (95% CI 4.45-5.82). The mean age of the study population was 56.20 ± 11.95 (95% CI; 54.47-57.92). Most of the patients 68.8% (265) were recently diagnosed within 5 years. Out of total 38% were overweight, 4.2% were obese and 55.8% had normal BMI. The basic characteristics of the study population is shown in Table II. It illustrates that mean age of male was greater than the female ($p=0.02$). The mean height and weight of the males were significantly higher than female ($p<0.001$). However, there was no significant difference between the mean BMI of male and female.

Table III shows sex-specific and age-specific mean BMI values of the study population. Overall, there was no significant difference between male and female mean BMI. When age increased, mean BMI also increased in female type 2 diabetes patients.

Table IV depicts the BMI status of study population on the basis of sex which was statistically significant ($p=0.014$). The proportion of overweight in total population is 37.1% where female type 2 diabetes proportion (41.4%) was comparatively higher than male (32.6%). 4.2% of the total type 2 diabetes were obese and above.

Age	Male		Female	
	No	BMI(M $\pm$ SD)	No	BMI(M $\pm$ SD)
20 - 29	2	31.21 $\pm$ 0.00	1	21.21 $\pm$ 0.00
30 - 39	10	23.63 $\pm$ 3.27	14	23.79 $\pm$ 2.83
40 - 49	51	24.61 $\pm$ 2.77	67	23.80 $\pm$ 3.5
50 - 59	48	24.41 $\pm$ 2.25	61	24.75 $\pm$ 3.7
60+	76	23.96 $\pm$ 3.30	55	24.29 $\pm$ 3.9
Total	187	24.31 $\pm$ 2.98	198	4.22 $\pm$ 2.99

Table III: Mean BMI values on the basis of age and sex categorization (n=385)

BMI categorization	Male n(%)	Female n(%)	Total n(%)	p-value
Underweight	1(0.5)	9(4.5)	10(2.6)	0.014
Normal	117(62.6)	99(50)	216(56.1)	
Overweight	61(32.6)	82(41.4)	143(37.1)	
Obese and above	8(4.3)	8(4)	16(4.2)	
Total	187(100)	198(100)	385(100)	

Table IV: BMI status among male and female type 2 diabetes patients (n=385)

DISCUSSION

Obesity is a condition in which excess body fat may put a person's health at risk. In adults, the risk increases independently with increasing BMI and excess abdominal fat. Cardiovascular and other obesity related disease risks increase significantly when BMI exceeds 25 kg/m^2 . The risk increases with the extent of obesity and those with a BMI $>40 \text{ kg/m}^2$ are at highest risk⁶.

Our study shows, out of total 385 type 2 patients who were followed in diabetic clinic, 2.6 % were underweight and 56.1 % BMI within the normal range while 37.1 % were overweight, the percentage of female patients being higher (41.4%) than male patients (32.6%) which was statistically significant ($p= 0.014$). Obesity was found in 4.2 % of the patients. . In consistent with this, a recent study done in tertiary care hospital in Nepal showed that 39.0% and 11.0% of the diabetics to be overweight and obese respectively¹⁵. A study by Ahmed et al. (2007) showed that 67% of the patients with diabetes mellitus had BMI $\geq 25 \text{ kg/m}^2$. Similarly, one study done in Pakistan showed that 61% of the diabetics had BMI $\geq 25 \text{ kg/m}^2$ ¹⁶. However, higher prevalence was reported in one of the study done in Nigeria, the majority (83%) of the type 2 diabetic patients were either overweight or obese¹⁷. These findings further support the fact that obesity or excess body fat accumulation is a strong risk factor for type 2 diabetes. The differences in percentage of overweight and obesity among type 2 diabetes in various studies might be due to different factors like geographical variations, life style, occupational status, genetic factor or ethnic differences of the population.

In accordance with the findings observed in other studies, Sharma and Jain 2009, this study also found higher prevalence of abdominal obesity as indexed in female subjects than their male counterparts¹⁸. Nearly all the female diabetics (94.3%) had abdominal obesity while only 51.1% of the male diabetics had abdominal obesity. Besides abdominal obesity, the present study also found that generalized obesity is more prevalent in female diabetics than male diabetics. This fact is also in agreement with several other studies conducted in Nepal¹⁹ and Nigeria¹⁷. Hence, in this study, obesity was more prevalent among females than males. The factors that affect these differences may include childbearing, hormonal status and the high female illiteracy rates, which lead to lower female awareness to the importance of their physique^{20,21}. This may further be due to cultural practices that tend to limit physical exertion by females with resultant sedentary habits, obesity and its attendant complications²⁰.

CONCLUSIONS

Based on the findings of the present study, it can be concluded that overweight/obesity persists in diabetic patients. Furthermore, both obesity and central obesity were more prevalent among females than males. Both the diseases are

closely interlinked, obesity being central to the development of insulin resistance and hence is a strong risk factor for type 2 diabetes. Therefore an important implication from this study is that effective treatment of obesity with sustained weight loss and obesity prevention including lifestyle modifications are important interventions in an effort to reduce the risk for diabetes and other related complications. Public education about obesity and its consequences is strongly recommended. Ways to control, prevent obesity and overweight should be stressed and made known to people of all ages in the population. Education about diabetes mellitus and its complications could be presented in basic simple public lectures that stress the importance of the awareness of this health condition.

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Spectrum of Changes in Gastric Mucosa with Helicobacter Pylori Infection

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ABSTRACT

Aim: To evaluate the spectrum of mucosal changes in endoscopy guided gastric biopsies and analyze the association of Helicobacter pylori with demographic factors. **Materials and Methods:** It was a cross sectional analytical study conducted in the Department of Pathology during the period from December 2011 to April 2012. A total of 52 endoscopic biopsy specimens, each fulfilling the inclusive criteria were selected and processed using standard histopathological technique and stained with Haematoxylin-Eosin stain and modified Giemsa stain for Helicobacter pylori. Histopathological, ultrasonographic and endoscopic findings were correlated. Data were analyzed using SPSS 17. **Results:** Out of 52 cases enrolled in our study, 29 (55.8%) were males and 23 (44.2%) were females with a male: female ratio of 1.2:1. H. pylori infection was present in 16 (30.8%) of biopsies and was significantly greater in the younger age group between 21 to 40 years (p value <0.024). Histopathological examination showed atrophy of the gastric mucosa in 18 (34.6%) cases, dysplasia in one and intestinal metaplasia in three cases. Statistically significant relation (p value <0.006) was seen between H. pylori and mucosal atrophy. No significant association was seen between gender and presence of H. pylori in the gastric mucosa (p value < 0.16). **Conclusions:** Histopathological study of endoscopic biopsy showed spectrum of changes in symptomatic cases. H pylori was seen significantly in younger age with atrophy of gastric mucosa as a significant finding.

Key words: Endoscopic gastric biopsy, helicobacter pylori, mucosal atrophy

INTRODUCTION

Upper gastrointestinal endoscopy (UGI) has been an indispensable tool in the evaluation of patients who present with dyspepsia. Several non-specific symptoms thought to originate from the gastrointestinal tract are collectively termed as dyspepsia. Helicobacter pylori (H.pylori), a Gram negative urease producing bacterium has been associated with many benign forms of gastritis, peptic ulcer disease and malignancies as gastric adenocarcinoma and gastric mucosa-associated lymphoid tissue (MALT) lymphoma in adults¹. This study was performed to detect Helicobacter pylori and the spectrum of changes in gastric mucosa in endoscopy guided gastric biopsies.

MATERIALS AND METHODS:

It was a cross sectional analytical study conducted in the Department of Pathology at Nepalgunj Medical College Teaching Hospital, Kohalpur during the period from December

2011 to April 2012. The biopsy specimens were taken by the surgeons from various regions of the upper gastrointestinal tract which included esophagus, stomach and first two parts of duodenum in patients with dyspepsia or those having alarming features in dyspepsia. Biopsy specimens ranged from three to eight in number and were fixed overnight in 10% buffered formalin, embedded in paraffin, cut to 3-4µm thickness using rotary microtome, and stained with Haematoxylin-Eosin stain. Histological diagnosis of gastric mucosal inflammation, gastric glandular atrophy, intestinal metaplasia and malignancy were made accordingly. Data were entered in SPSS Version 17. The descriptive and inferential statistics was used. Majority of the patients (59.6%) belonged to 21 to 40 years of age. Chi square test was applied to see the statistical significance.

RESULTS:

Among the 52 cases enrolled in the study, 23 (44.2%) were females and 29 (55.8%) were males with a male: female ratio of 1.2:1 and the mean age of the patients was 39.71 ±15.1 years. Patients between 21-40 years constituted 59.6% of total.

Ultrasonographic examination revealed normal findings in most of the cases (80.8%). Thickened antral wall was seen in three cases (Table I).

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Statistical	Frequency	%
Normal	42	80.8
Thickened antral wall	3	5.8
Cholelithiasis	6	11.5
Liver metastasis	1	1.9
Total	52	100

Table I: Ultrasonographic findings in patients undergoing endoscopic gastric biopsies

Endoscopic Diagnosis	Histopathological Diagnosis				Total	p-value
	Chronic Gastritis	Malignancy	Acute erosive Gastritis	Normal		
Gastritis	27	0	1	1	29	<0.001
Gastroduodenitis	12	0	0	0	12	
Carcinoma Stomach	2	6	0	0	8	
Duodenal ulcer	1	0	0	0	1	
Gastric ulcer	2	0	0	0	2	
Total	44	6	1	1	52	

Table II: Association between endoscopic findings and final diagnosis based on histopathology

Out of 52 patients, 29 had features of gastritis in endoscopy. There was a significant correlation between UGI endoscopy and histopathological findings with p value of <0.0001 (Table II). Antrum was the most common site for solitary involvement noted in 24 cases (46.2%). Histopathological findings showed atrophy of gastric mucosa in 18 (34.6 %) cases, dysplasia in one and intestinal type metaplasia in three cases with rest of the cases showing mucosal inflammation. H.pylori was positive in 16 (30.8%) of the total 52 cases where 14 cases were in association with atrophic gastritis. Statistically significant (p value < 0.006) relation was observed between H.pylori and atrophy of the gastric mucosa (Table III).

H. pylori	Atrophy		Total	p-value
	Present	Absent		
Absent	9	29	38	<0.0006
Present	9	5	14	
Total	18	34	52	

Table III: Correlation between H. Pylori and atrophy of gastric mucosa

No significant association was seen between the sex and presence of H. pylori in the gastric mucosa, p value < 0.16. H. pylori was seen significantly in the young age group between 21 to 40 years of age with the p value of <0.024.

Based on the histopathological examination 44(84.6 %) cases were diagnosed as chronic gastritis (Table IV).

	Frequency	%
Chronic gastritis	44	84.6
Acute erosive gastritis	1	1.9
Malignancies		
Adenosquamous Carcinoma	1	1.9
Adenocarcinoma	4	7.7
Squamous cell carcinoma	1	1.9
Normal	1	1.9
Total	52	100

Table IV: Histopathological diagnosis in endoscopic biopsy specimens

Out of 52 cases, six were malignant with adenocarcinoma being the most common type accounting for four cases.

DISCUSSION

Upper GI endoscopy has major implication in the diagnosis and management in upper GI pathologies. The different expression of gastritis in antrum and body is attributed to the increased reactivity of the antral mucosa to infection, due to a possible enhanced immunologic response to H. pylori¹. Antrum has been seen as the predilection site for involvement in gastritis in Nepalese population². H. pylori were seen significantly in the younger age group between 21 to 40 years of age. Similar results were obtained by Chong VH³. The exact reasons for these observed differences are not completely known. There

was no gender association with *H. pylori*, this is in accordance with Replogle ML et al and Malaty HM et al.^{4,5} Chong VH et al showed the male group had significantly higher prevalence, particularly in the 20–29, 40–49, 50–59 and ≥ 70 years age groups. Factors such as improved standard of living and hygienic practices may account for the lower prevalence⁶.

Ultrasonographically, increased gastric wall thickness is evident in different gastric pathologies. Although measurement of individual layer of stomach wall was not performed in our case; the wall thickness was within normal limits (3–6 mm) in most of the cases of gastritis. Gastric malignancies are associated with wall thickness measuring greater than 7mm⁹. All our cases of gastric malignancies involving the antrum showed thickened antral wall. Genta reported that *H. pylori* and inflammation was distributed evenly throughout the stomach¹⁰.

In our study antrum was the most common site. Glandular atrophy and intestinal metaplasia were significantly associated with *H. pylori*. Occasionally, *H. pylori* is negative in glandular atrophy and intestinal metaplasias while in the tissues without glandular atrophy or intestinal metaplasia it might be found *H. pylori* positive. This result is in accordance with the epidemiologic and pathologic studies of Correa, which revealed the temporal association of chronic superficial gastritis, atrophic gastritis, intestinal metaplasia, epithelial dysplasia, and finally gastric cancer evolution¹¹. These findings suggest that most patients with intestinal metaplasia and glandular atrophy have been infected with *H. pylori* at some stage. *H. pylori* infection may provide the proper environment for atrophic gastritis and intestinal metaplasia to occur. At the final stage of the disease, gastric atrophy with intestinal metaplasia is not a hospitable environment for *H. pylori* and is associated with a dramatic reduction or even disappearance of the organism^{12–16}.

However; this will require further studies to assess if there is an association. There are several limitations with our study. Firstly, our study was done on a small sample size and secondly association with other factors like socioeconomic status and education were not done.



Figure 1: *H. pylori* organisms seen lying over the surface mucous cells of gastric mucosa (H & E $\times 100$)

In conclusion, our study showed spectrum of changes in endoscopy guided gastric biopsy in symptomatic cases. *H. pylori* was seen significantly in younger age with atrophy of gastric mucosa as a significant finding.

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Immediate Outcome of Vlbw And Elbw Babies in a Tertiary Care Center of Nepal

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ABSTRACT

Background: Very Low Birth Weight (VLBW) infants weigh <1500 grams and Extremely Low Birth Weight (ELBW) infants weigh <1000 grams. They are predominantly premature but may also be associated with Intrauterine Growth Restriction (IUGR). The VLBW rate is an accurate predictor of infant mortality rate. **Objective:** The study was aimed to find out the hospital incidence of VLBW and ELBW babies and outcome of these babies, till they were discharged from the hospital/NICU. **Methods:** A descriptive study was conducted among 109 cases who weighed less than 1500 grams. The babies were evaluated for mortality and various morbidities till they were discharged from the hospital. Descriptive statistics was applied using SPSS 21.0 to show antenatal profile and immediate outcome. **Results:** Out of 109 cases, ELBW were 30.2% and VLBW were 69.8%. Among the ELBW babies, 30.3% survived and 75% in VLBW. The mortality rate in ELBW and VLBW babies were 69.7% and 25% respectively. Among the ELBW, common morbidities were NNJ (94%), Presumed NNS (87.8%), RDS (82.6%), Hypoglycemia (56.5%), Hypothermia (26%), Birth Asphyxia (15.1%). In the VLBW group, common morbidities were Presumed NNS (86.4%), NNJ (82%), RDS (46.5%), Hypoglycemia (30.2%). The mean duration of hospital stay was 8.6 days (SD $\pm$ 3.38). **Conclusions:** Common immediate morbidities were NNS, RDS, Hypothermia, Anemia, Shock, CHD, Birth Asphyxia and NEC. Well trained staff in the NICU and medical facilities like availability of Surfactant therapy, more number of mechanical ventilators could improve the survival of these babies in our setting.

Key words: *Extremely low birth weight, morbidity, mortality, very low birth weight*

INTRODUCTION

In every community mothers and children are among the groups that are vulnerable to disease, disability and death. Their vulnerability is a result of possession of the special characteristics of pregnancy or young age, related to biological process of reproduction, growth and development¹. Birth weight is the single most important marker of adverse perinatal and neonatal outcome². It has been reported that over 60 – 80% of all neonatal mortality and morbidity is due to preterm birth³. VLBW infants weigh <1500 g and are predominantly premature but may also be associated with IUGR. The VLBW rate is an accurate predictor of IMR. Perinatal care has improved the rate of survival of VLBW infants. When compared to term infants, VLBW neonates have a higher incidence of rehospitalization during the 1st year of life for sequelae of prematurity, infections, neurologic complications and psychosocial disorders⁴. The commoner neonatal complications in both VLBW and ELBW babies were RDS, neonatal jaundice and sepsis¹⁰. With the introduction of modern methods of neonatal intensive care there occurred a

significant improvement in the outcome of VLBW & ELBW babies, but still it remains as one of the important causes of neonatal mortality in developing countries⁵. These babies need to spend time in NICU till close to term to allow multi organ development. So, the consequences of preterm birth often continue beyond the neonatal period and can lead to significant direct and indirect costs that have to be borne by the parents and the society⁶. Here we present this descriptive study of immediate neonatal outcome of very low birth weight (<1500 gm) and extremely low birth weight (<1000 gm) babies.

METHODS:

This descriptive study was conducted in our department of Pediatrics, Nepalgunj Medical College, Kohalpur for a period of one year from January 2013 to January 2014. This centre caters to mainly pregnant mothers from mid and far west region of Nepal. Those neonates fulfilling inclusive criteria and weighing less than 1500 grams were enrolled in our study. The convenience non probability sampling technique was undertaken and the minimum required sample size was calculated using formula $n = z^2pq/d^2$. Thus the calculated sample size was, $n = 109$ after adjusting 5% non response. Data collection was done by reviewing book of mother and the neonatal profile of VLBW (<1500 gm) and ELBW (<1000 gm) babies like gestational age, asphyxia requiring ventilator support, Hyaline membrane disease, presume sepsis, jaundice, Hypoglycemia, Hypothermia, stay in NICU and total hospital stay were recorded. All data were entered in SPSS version 21 and descriptive statistics was used for analysis of data.

RESULT:

A total number of 109 VLBW and ELBW babies were included

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this study. Seventy five (70.7%) mothers were booked and thirty one (29.3%) was unbooked. In our study, out of 106 pregnant mothers, 68 (64.2) were primigravida and 38 (35.8%) were multigravida. The age of the mothers ranged from 15 to 36 years with a mean of 26.2 years. There were 48 (45.3%) mothers who delivered vaginally and 58 (54.7%) mothers were undergone for cesarean section with the most common indication was prolonged labor. out of 106 mothers, three (2.8%) mothers gave twin delivery and rest were singleton. Among the total 109 babies, 33 (30.2%) were ELBW whereas 76 (69.7%) were VLBW. The mean gestational age of VLBW group and ELBW group was 30 ± 1.72 and 28.93 ± 1.39 respectively. Similarly, the mean weight of VLBW group and ELBW group was 1288.42 ± 138.95 and 894.84 ± 71.50 respectively. The overall mortality in ELBW group was 69.7% and in VLBW group was 25% only. All babies who survived in both group were admitted in NICU for supporting treatment.

Gestational Period	No. of babies Delivered	No. of babies Survived	Mortality
≤ 28	7	1 (14.3%)	6/7 (85.7%)
29 to 32	72	40 (55.6%)	32/72 (44.4%)
> 32	30	26 (86.6%)	4/30 (13.4%)
Birth Weight (gm)			
< 800	10	0 (0%)	10/10 (100%)
801 to 1000	23	10 (43.5%)	13/23 (56.5%)
1001 to 1250	30	20 (66.7%)	10/30 (33.3%)
1251 to 1500	46	37 (79.5%)	9/46 (19.5%)

No. of VLBW - 76

Mortality in VLBW - 19/76 (25%)

No. of ELBW - 33

Mortality in ELBW- 23/33 (69.7%)

Table I: Number of Deliveries in Each Weight and Gestational Age Groups and Corresponding Mortality

The various conditions recorded in our case sheets of both ELBW and VLBW neonates till discharge is given in table II. The common complications seen in both the groups were neonatal jaundice (93.9% in ELBW and 81.5% in VLBW babies) and presume neonatal sepsis (87.8% in ELBW and 86.8% in VLBW babies) whereas RDS (57.5% in ELBW and 52% in VLBW babies). The incidence of RDS was found to be lower (4 out of 28) where 2 doses of betamethasone could be given. The other common complications found in both the groups were hypoglycemia, hypothermia and birth asphyxia. The duration of hospital stay in both groups were ranged from 3 - 20 days. The mean duration of stay in NICU was 8.16 days ($SD \pm 3.38$) in both groups of babies.

Outcomes	ELBW (%)	VLBW (%)
NNJ	31 (93.9)	62 (81.5)
NNS	29 (87.8)	66 (86.8)
Hypoglycemia	13 (39.3)	26 (34.2)
Hypothermia	6 (18.1)	19 (25)
CHD	1 (3)	3 (3.9)
RDS	19 (57.5)	40 (52)
Birth Asphyxia	5 (15.5)	7 (9.2)
Shock	1 (3)	4 (5.2)
NEC	1 (3)	1 (1.3)
Anemia	2 (6)	5 (6.5)
Total	33 (100)	76 (100)

Table II: immediate outcome of ELBW and VLBW groups

DISCUSSION

Preterm deliveries of babies weighing less than 1500 gms (VLBW) and particularly less than 1000 gms (ELBW) are of major concern because of maximum perinatal morbidity and mortality found in this^{7,8&9}. A total of 109 babies were included in the study, among which 33 (30.2%) were ELBW and 76 (69.8%) were VLBW. In our study, mean gestational age in ELBW and VLBW group was 30 ± 1.72 and 28.93 ± 1.39 respectively which is similar to study done in India⁹. Among ELBW group, only 10 (30.3%) survived and among VLBW, 57 survived (75%). Our results are comparable to the results of Poudel et al⁷ where the survival rate of VLBW babies was 54.3%. There is a wide variety of survival rate reported in various^{9,10&13}. Similarly, mortality rate among ELBW group was 69.7% and in VLBW was 25% but other studies showed lower percentage of mortality rate^{9, 10}. This is due to difference in patient population, antenatal care, intranatal care, aggressive neonatal care and availability of NICU facilities. The poor survival rate in our study could be due poor affordability of parents, unavailability of Surfactant therapy and the lack of proper NICU facilities (mechanical ventilator) at times.

Various neonatal outcomes were evaluated in our study. Among the ELBW babies, the most common complication was Neonatal Jaundice (94%) followed by Neonatal Sepsis (87.8%), RDS (82.6%), Hypoglycemia (56.5%), Hypothermia (26%), Birth Asphyxia (15.1%). In the VLBW group, the most common complication seen was presumed Neonatal Sepsis (86.4%), followed by Neonatal Jaundice (82%), RDS (46.5%), Hypoglycemia (30.2%), Hypothermia (19%), Birth Asphyxia (9.2%). Similarly in the study done by Poudel et al⁷, the most common morbidity in VLBW babies was Clinical Sepsis (77.1%), followed by Neonatal Jaundice (73.6%). RDS was seen in 21.4%, which is lower than that found in our study (46.5%). Other studies showed dissimilar finding than our^{9,10&12}. Dissimilarities in immediate neonatal outcome are mainly confined on antenatal cares, intrapartum monitoring, use of antenatal

steroid and place of delivery. Most of the preterm newborns were referred cases in our NICU so they were deprived from proper care, antenatal. Diagnosis of Intraventricular Hemorrhage was excluded because the cranial ultrasound could not be done in all suspected cases due to the lack of adequate resources of the parents of the patients. In our study mean duration of hospital is similar to other studies done in India^{9,10} and Nepal⁶.

CONCLUSIONS

The large percentages of ELBW babies were prematurely expired but two third VLBW babies were survived in our study. Neonatal Jaundice, presume sepsis, HMD and metabolic problems are major immediate outcome in both groups.

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Single-Layer Versus Double Layer Intestinal Anastomosis of Small Bowel at Nepalgunj Teaching Hospital

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ABSTRACT

Background: Resection and anastomosis of small bowel is one of the common surgical procedure encountered in routine and emergency cases. There are various techniques of anastomosing the resected intestine. **Objectives:** To know the efficacy of single layer anastomosis over double layer anastomosis in terms of anastomotic leakage, wound infection, mortality and time consumed. **Methods:** A comparative cross sectional analytical study was carried out at department of General Surgery at Nepalgunj Medical College Teaching Hospital, Kohalpur, Banke, Nepal from January 2013 to December 2013. Altogether 62 patients who underwent resection and anastomosis of small bowel were considered for this study. Patients who were included in this study were equally divided into two groups. Group A (n=32) underwent single layer anastomosis and group B (n=30) were subjected to double layer anastomosis. In both the groups anastomotic leakage, wound infection, mortality and time consumed were recorded and compared. **Results:** Altogether 62 patients were included in the study. The study showed anastomotic leakage 3 (9.37%) in Group A and 2 (6.67%) in Group B. Wound infection was 6 (18.75%) in Group A and 4 (13.33%) in Group B and mortality was observed in only 1 (3.12%) patient in Group A due to uncontrolled sepsis. There was no statistical difference between the two groups in anastomotic leakage, wound infection and mortality as shown by respective p (0.696, 0.562, 0.329) values. However the time required for single layer bowel anastomosis was less in comparison to double layer bowel anastomosis. **Conclusion:** Based on our data, the technique of single layer of bowel anastomosis does not increase the rate of anastomotic leakage, wound infection and mortality however time required for anastomosis is less as compared to double layer anastomosis. Therefore this study concludes that there is no added benefit of double layer of anastomosis over single layer bowel anastomosis.

Key words: anastomotic leakage, double layer anastomosis, single layer anastomosis

INTRODUCTION

Bowel anastomosis is common procedure in both elective and emergency general surgery. It has been stated that "the key to a successful anastomosis is the accurate union of two viable bowel ends with complete avoidance of tension". Thus, the most important factors in the creation of a bowel anastomosis are: meticulous technique; good blood supply; and no tension. The choice of anastomotic technique may be influenced by the diameter of the bowel ends, oedema, accessibility and site of anastomosis, contamination, available time and equipment and underlying pathology¹.

The basic principles of the intestinal suture were established more than 100 years ago by Travers Lambert and Halsted². Two-layer anastomosis was done by Larry in the 19th century³ whereas the single-layer continuous anastomosis was first described by Hautefeuille in 1976⁴.

In double-layer anastomosis; using a running absorbable suture for a transmural inner layer and interrupted silk sutures for an outer inverted seromuscular layer has been standard for most surgical situations. In single layer method as it incorporates the toughest layer of gut and causes minimal damage to submucosal vascular plexus, it leads to accurate opposition with minimal tissue damage and luminal narrowing. Several recent reports have advocated use of single layer method for intestinal anastomosis with advantage of shorter time for construction, lower cost and lower complications of anastomotic leakage⁵.

The aim of present study was to know the efficacy of single layer over double layer anastomosis in terms of anastomotic leakage, time consumed for the completion of anastomosis, wound infection and mortality.

MATERIALS AND METHOD

A comparative cross sectional analytical study was carried out in the department of surgery from January 2013 to December 2013 at Nepalgunj medical college teaching hospital, Kohalpur after Institutional Review Committee approval and well informed consent. Altogether 62 patients requiring small bowel anastomosis both in elective and emergency cases were included. Patients with immunosuppression (patient on steroid or anticancer drug, HIV patient), anemia, jaundice, age

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< 12 years and > 80 years were excluded from the study. The patients were divided in two groups i.e. Group A (n=32) and Group B (n=30). Group A patients were subjected to single layer anastomosis whereas group B patients underwent double layer anastomosis. In both the groups injection ceftriaxone sodium 1 gm was given at the time of induction.

Single layer anastomosis was done by extramucosal interrupted suture with polygalactin round body 2-0. The posterior layer was stitched first by passing the needle from serosa to submucosa without piercing the mucosa. Needle was then passed through the other end in the submucosa to come to the surface through the serosa and knots were tied over the serosal surface. In double layer intestinal anastomosis, first layer was continuous through and through with polygalactin round body 2-0 followed by outer Lambert suture with silk round body 2-0. In both the groups, sutures were placed at a distance of 5 mm. After completion of anastomosis the abdominal cavity was irrigated with normal saline adequately followed by placement of two abdominal drains; one at the site of anastomosis and another in pelvis in both the groups. Detail parameters were noted in both the groups with reference to the time taken for the completion of anastomosis, anastomotic leak and wound infection.

Anastomotic leak, time taken and wound infection were defined as

- a. Anastomotic leak defined as per Muller et al⁶.
 - i. Established faecal fistula to the skin
 - ii. Fever above 38°C or septicaemia in patients with radiological or endoscopic leak.
 - iii. Presence of intraperitoneal abscess or symptoms and signs of peritonitis in the presence of an anastomotic leakage.
- b. Time taken: begins with placement of first stitch and ends when excess suture from last stitch will be cut.
- c. Wound infection defined as discharge of serosanguinous or frank pus from the wound site within 30 days.

All patients of both the groups were followed up for one month. The following data were recorded in each group age, sex, time taken for anastomosis, anastomotic leak and wound infection. Computer program SPSS 15 was used for data collection and analysis. P value < 0.05 was considered statistically significant.

RESULTS AND OBSERVATION

There were altogether 62 patients who fulfilled the inclusion criteria and were divided into two groups (Group A and Group

B) randomly. Group A consisted of 32 patients who underwent single layer bowel anastomosis and Group B consisted of 30 patients who were subjected to double layer bowel anastomosis.

In Group A, the age of patient ranged from 15 to 78 years with a mean age of 45.13 (SD 18.12) years. In Group B the age of patient ranged from 16 to 77 years with a mean age of 48.60 (SD 19.26) years. The sex distribution of the patients in Group A was 21 male and 11 female. Thus male to female ratio was 1.9:1. The sex distribution of the patients in Group B was 22 male and 8 female. Thus male to female ratio was 2.75:1. Thus male were more common in both the groups.

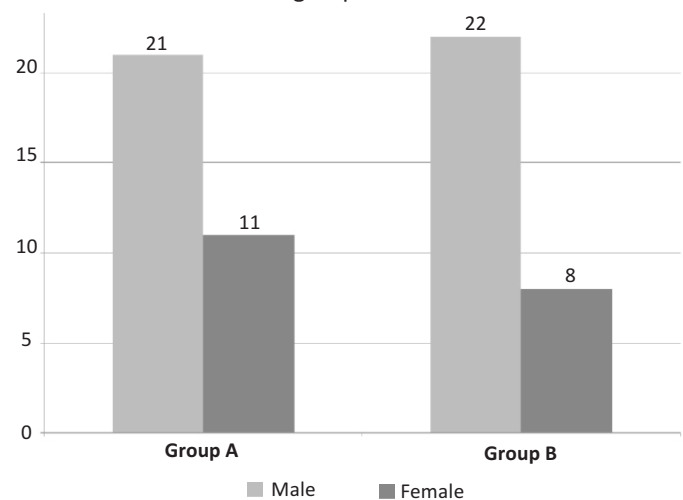


Figure 1: Sex distribution in Group A and Group B

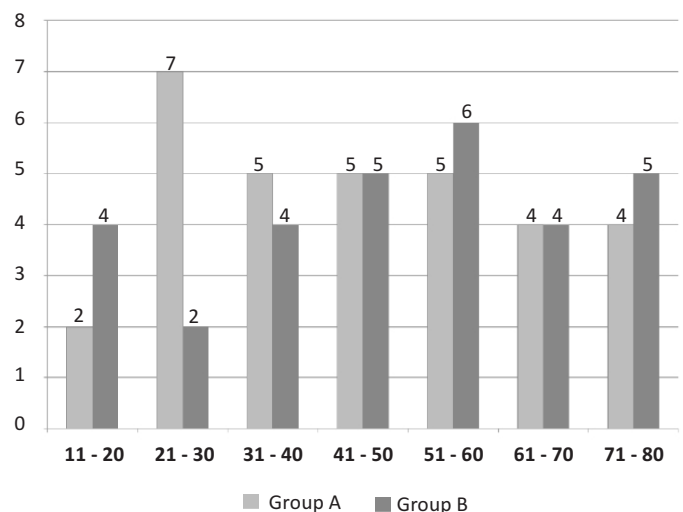


Figure 2: Age distribution in Group A and Group B

The most common cause for resection and anastomosis in both the groups was strangulated hernia with 14 (43.75%) patients in Group A and 13 (43.33%) in Group B. Other causes for which resection and anastomosis were done is as shown in figure 3.

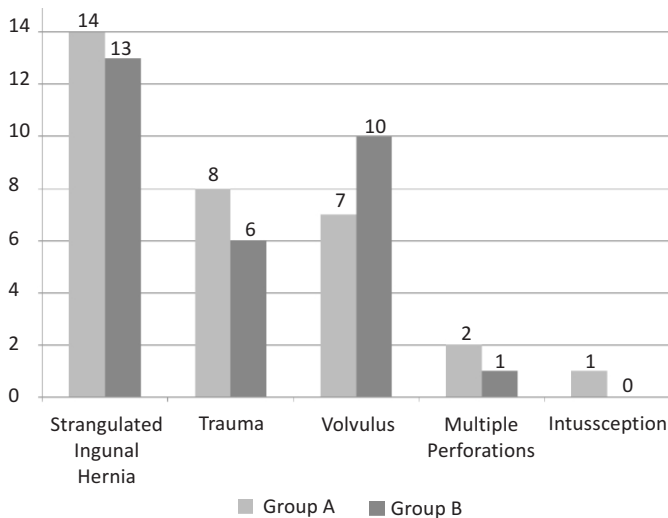


Figure 3: Indication for resection and anastomosis

Anastomotic leakage was 3 (9.37%) in group A and 2 (6.67%) in Group B. Though anastomotic leakage was more common in Group A but statistically it was insignificant ($p=0.696$). Out of 32 patients in Group A, 1(3.12%) patient died of uncontrolled sepsis. All other patients were managed conservatively with total parenteral nutrition followed by non residual diet.

Out of 32 patients in Group A, 6 (18.75%) had wound infection where as 4 (13.33%) Patients in Group B had wound infection. Though wound infection was slightly more common in Group A patient, it was statistically insignificant ($p=0.562$). All the patients in both the groups were managed by dressing and antibiotics as per culture and sensitivity report.

The average time required for completion of anastomosis in Group A was 17.59 ± 1.16 minutes and for Group B it was 30.16 ± 1.28 minutes. The mean time required for anastomosis was significantly lower in Group A than Group B. As the amount of suture used in double layer suture (Group B) was more than single layer suture (Group A), so was the cost.

Variables	Group		p-value
	A (n=32)	B (n=30)	
Anastomotic leakage	3(9.37%)	2(6.67%)	0.696*
Time required (minutes)	17.59 ± 1.16	30.16 ± 1.28	0.001 [^]
Wound infection	6(18.75%)	4(13.33%)	0.562*
Mortality	1(3.12%)	0	0.329*

*Chi square test, [^] student's t test

Table I: Anastomotic leakage, time required for anastomosis in minutes, wound infection and mortality

DISCUSSION

The goal of resection and anastomosis of the small intestine is to remove an irreversibly injured or abnormal segment of intestine, contain contamination, and rejoin the open bowel ends in a manner that will optimize healing and restore luminal and mural integrity.

The technique of double layer anastomosis has been used traditionally for more than 100 years which was originated by Travers, Lambert and Halsted². Two-layer anastomosis was done by Larry in the 19th century³. A double layer anastomosis consists of an inner layer of continuous through and through absorbable suture and outer layer of interrupted seromuscular layer. The technique of single layer anastomosis was first introduced by Hautefeuille⁴ in 1976 in which single layer extramucosal interrupted or continuous sutures are applied. It has potential advantage such as reduced operating time and cost. However the utility of any method of intestinal anastomosis depends upon safety of the technique i.e. lack of anastomotic leakage, luminal narrowing.

Historically, double layer method has been method of choice however many reports have advocated the use of single layer anastomosis method for anastomosis because of lower rate of leak, time and cost effectiveness⁵.

In this study anastomotic leakage in single layer group occurred in 3(9.37%) and in double layer group it was 2(6.67%) which was statistically insignificant ($p=0.696$). Similar findings were noted in the study conducted by Ayub et al.⁷, Burch et al.⁸ and Maurya et al.⁹.

In our study the mean time required in constructing the single layer anastomosis was 17.59 ± 1.16 minute and for double layer anastomosis it was 30.16 ± 1.28 . The time required for constructing double layer was more than single layer and it was statistically significant ($p < 0.001$ in student t test). Our result was consistent with the finding of Max et al.¹⁰, Law et al.¹¹ and Khan et al.¹². As the amount of suture used in single layer anastomosis is less than double layer anastomosis, it is more cost effective and benefit for developing countries like ours.

In Group A, 6 (18.75%) and in Group B 4 (13.33%) patient had wound infection. Though wound infection was more common complication in Group A, it was statistically insignificant. ($p=0.562$). The overall wound infection rate was 16.13%. Our finding was consistent with the finding of Khan et al.¹³ and Matheson NA¹⁴. There was 1(3.12%) mortality in Group A and none in Group B but it was statistically insignificant ($p=0.329$).

CONCLUSION

Our study concludes that single layer anastomosis has similar risk of anastomotic leakage, wound infection and mortality; however the time required for constructing single layer anastomosis is significantly less than double layer anastomosis.

As the suture material consumed in single layer anastomosis is less than double layer anastomosis so single layer anastomosis is more cost effective as well. For these reasons, the single layer anastomosis can be better choice than double layer anastomosis.

RECOMMENDATION

Single layer anastomosis can be safely practiced as complications are similar to double layer anastomosis but has definite advantage over double layer anastomosis in terms of cost and time. So our study recommends single layer anastomosis as method of choice for small bowel anastomosis in both elective and emergency operations.

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Rudimentary Myelomeningocele: A Rare Case Report and Literature Review

Gautam P¹, Goel RG², Kapoor AK³, Gupta SN⁴, Ghimire PG⁵, Bharti SV⁶

ABSTRACT: Rudimentary meningocele, in which meningotheelial elements occupy most of a solid skin-covered mass, is extremely rare. Most reported rudimentary meningocele were on the midline scalp, preferentially involving the occiput and vertex. A 10 year-old child who presented with rudimentary myelomeningocele in the midline at the level of T7-T8 is reported. We believe this is the first reported case of a rudimentary myelomeningocele at this site.

Key Words: Child, rudimentary myelomeningocele, thoracic region

INTRODUCTION

Rudimentary meningocele, a malformation in which meningotheelial elements are present in the skin and subcutaneous tissue, has been described under a variety of different terms and has also been referred to as cutaneous meningioma, heterotopic meningotheelial hamartoma, sequestered meningocele, acoelic meningeal hamartoma, and cutaneous heterotopic meningeal nodules¹.

CASE REPORT

This 10 years old female child presented to nepalgunj medical college with a mass in her upper back since birth. Physical examination revealed a subcutaneous, firm, painless, non-compressible lump over midline posteriorly (T7-T8 level) measuring 3 cm in greatest dimension in which the cough impulse was absent. Written consent concerning the operation was obtained from the patient before surgery. The mass was excised with a clinical diagnosis of a "papilloma" and sent for histopathological examination.

PATHOLOGICAL FINDINGS:

Grossly, an oval, firm polypoidal mass covered with full thickness skin measuring 3 cm in length, 2.5 cm in width and 2.5 cm in height. Its cut surface was homogenously solid with a yellow to grey-white color.

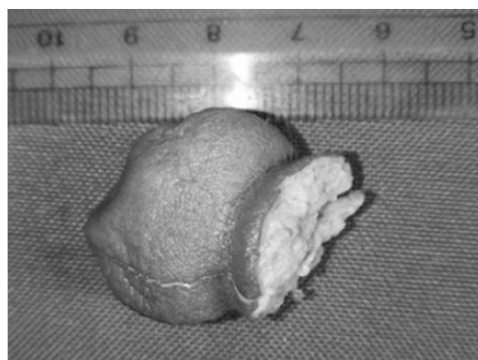


Figure 1. A. Gross photograph of the excised mass with a wide base.

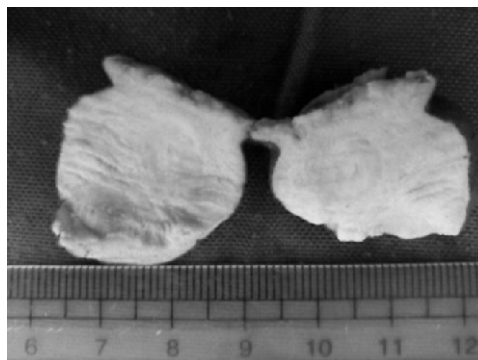


Figure 1. B. Cut surface is homogenously solid with grey-white to yellow color

Microscopically, a poorly circumscribed cutaneous mass covered with epidermis. The mass was made up of pseudovascular spaces and lobules of mature adipocytes in the superficial parts which contrasted with dense collagenous tissue forming whorls containing clusters of meningocytes without atypia, mitosis or necrosis in the deeper parts. Numerous psammomatous calcifications are seen. A focus of well-circumscribed neuroglial tissue was also noted near the deepest resected margin of the mass.

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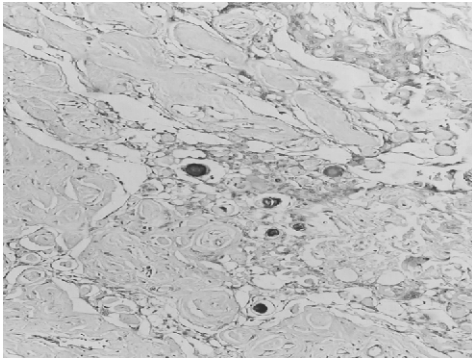


Figure 2A: Low-power magnification shows pseudovascular spaces lined by meningotheelial cells and scattered psammomatous calcifications (H&E x10)

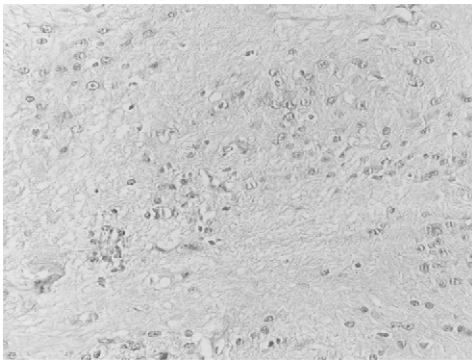


Figure 2B: High power magnification showing neuroglial cells and abundance of neuropil (H&E x40)

DISCUSSION

In 1974, Lopez et al. reviewed the clinicopathological attributes of several meningotheelial cutaneous lesions, and adapted the term “acoelic meningeal hamartoma” to describe them indicating that they were thought to be non-neoplastic². Sibley and Cooper³ in 1989 represented them as developmental malformations called “Rudimentary meningoceles” (RMs).³

Others rendered the same conclusion and preferred the alternative term “meningotheeliomatous hamartoma”⁴. While others described it as a “peculiar disease of the skin and subcutaneous fat”⁵.

Reported rudimentary lesions were on the midline scalp, preferentially involving the occiput and vertex¹. There are only 4 cases of rudimentary meningocele with such a connection reported in the literature—2 in the cervical^{1,6} and 2 in the lumbar^{1,7} region—but all of them were in infants and represented only inconspicuous fibrous tracts plus a small osseous defect or none at all.

Most of the recent literature concerned with this entity concluded that this entity is a form of a dysraphism and remnant of a neural tube defect which is believed to be non-neoplastic.^{1,6}

In variance with the literature, we noted an unusual location of this entity i.e. thoracic; as well as a focus of neuroglial tissue and termed it “rudimentary myelomeningocele”. Intraspinal communication could not be detected intra-operatively and no postoperative complication was noticed.

CONCLUSION

We believe this is the first reported case of a rudimentary myelomeningocele in the thoracic region and consider it as non-neoplastic lesion. In light of the probable pathogenesis, imaging studies to exclude any communication to the central nervous system should precede any invasive evaluation or intervention.

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Hydatid Cyst of Breast: A Case Report

Alam F¹, Goel RG²

ABSTRACT

Hydatid cyst is a zoonotic disease which occurs due to infectivity with larval stage of *Echinococcus granulosus*. The disease is chronic and cysts can be lodged in different organs. It has cosmopolitan distribution and impact health and economical challenges for many countries throughout the world. The location of the disease is mostly in the liver and lungs. Hydatid disease of breast is extremely rare. A case report of 24 year female with the diagnosis of the hydatid breast is described in detail. The patient presented with painless lump in the upper inner quadrant of right breast of two months duration. History of trauma, pus discharge, itching, weight loss, fever or hormonal therapy were absent. The patient was diagnosed preoperatively as cysticercosis right breast by fine needle aspiration cytology based on the laboratory results conducted outside the hospital. However, histopathology confirmed the diagnosis of hydatid breast. It is the second diagnosed case in Nepal. Therefore, accurate information on the distribution of the disease is first step for the control and prevention. Only few reports are published in the literature about breast hydatid cyst.

Thus, we want to emphasize the importance of keeping hydatid disease in differential diagnosis of cystic breast lesions, particularly in endemic region, where the disease could mimic fibroadenoma, phyllodes tumors, chronic abscesses.

Keywords: Breast, echinococcus, hydatid cyst.

CASE REPORT

A 24 year old female referred to Nepalgunj Medical College Teaching Hospital with a history of painless lump in her right breast of two months duration. There was no history of trauma, pus discharge, itching, weight loss, fever or hormonal therapy. There was no history of breast cancer in the family. Fine Needle Aspiration from her right breast was done in another laboratory with the diagnosis of cysticercosis of right breast. Her physical examination revealed a 5x4 cm mass in the upper inner quadrant of her right breast. The mass was firm, non-tender, mobile with a clearly defined margin and overlying skin was normal. The left breast was normal. Both the nipples were normal and she had no axillary or supraclavicular lymphadenopathy. There was no mass in the abdomen. A postero-anterior view x-ray of the chest, showed no abnormality. All the routine blood tests were within normal limits.

The lump was removed surgically and an excisional biopsy specimen of the lump was received in pathology department for histopathological examination. Two separate tissue pieces were received in the same container, one was a solid tissue piece and the other was a pearly white cystic tissue piece (Fig.1.A). The solid tissue piece measured 4 cm in its maximum dimension with a firm graywhite cut surface. The other tissue

piece was pearly white semitranslucent with shiny inner surface giving it a boiled egg albumin like appearance, measuring 6 cm in length and was unilocular. Microscopically, the solid tissue showed breast lobules with mild round cell infiltrates here and there. At one edge there was a dense infiltrate consisting of round cells, many eosinophils and some neutrophils and at the free border of the section there were several protoscolices of larva of *Echinococcus granulosus* and in some of the scoleces, hooklets were clearly visible (Fig.1.B). Sections from the membranous tissue show classical laminated wall of the cyst (Fig.1.C) as well as the germinal layer from which several brood capsules containing protoscolices are arising (Fig.1.D). After diagnosing it as a hydatid cyst of right breast, we requested for the FNA slides where she was diagnosed as cysticercosis right breast and when meticulously examining the slides under the microscope, the aspirates showed hooklets of the parasite (Fig.1.F).

In our case the patient was discharged on her 3rd postoperative day and she has not come for follow up yet.

DISCUSSION

According to Jarbou SM et al¹, 60% of the cysts are found in the liver, 30% in lungs, 2.5% in kidneys, 2.5% in heart and pericardium, 2% in bone, 1.5% in spleen, 1% in muscle and 0.5% in brain¹. Hydatid disease of breast accounts for only 0.27% of all cases¹. In a study by Echenique EM et al. on 405 patients of hydatid disease, rare presentation forms were encountered in 69 patients, however there was not a single case of hydatid disease of breast in that study, thereby showing extreme rareness of this presentation². Upto 1994 only 54 hydatid cysts of the breast had been reported in the literature³.

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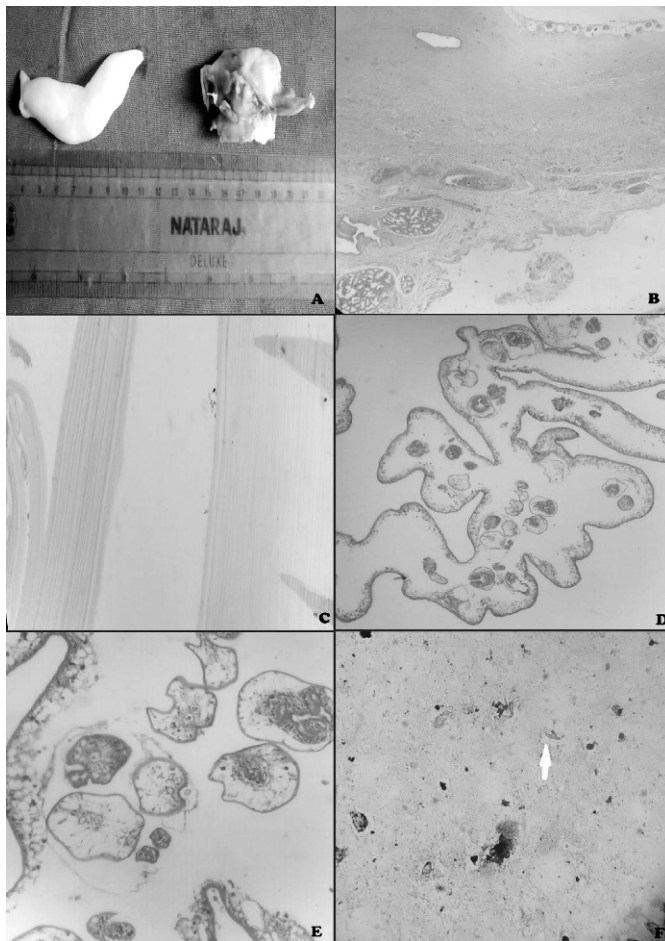


Figure 1.

- A: Gross photograph of cystic tissue piece (left) and solid tissue piece (right)**
B. Scanner view showing breast parenchyma and protoscolices (H & E x 4)
C. Classical laminated wall of the cyst (H & E x 4)
D. Germinal layer from which several brood capsules containing protoscolices are seen (H & E x 4)
E. High power view of the brood capsules (H & E x 10)
F. FNA of the right breast showing hooklet of parasite (Giemsa x 40)

Echinococcosis is caused by the larval tapeworm of the genus *Echinococcus granulosus*, *Echinococcus multilocularis* and *Echinococcus oligarthrus*. *Echinococcus granulosus*, the common cause of hydatid disease is found throughout the world, but it is particularly common in sheep and cattle raising countries. The primary host is the dog which passes gravid proglottids in the faeces, which on rupture release eggs that are subsequently swallowed by the intermediate hosts⁴. Typically the patient presents with painless breast lump, which increases slowly in size without regional lymph node involvement. It might mimic fibroadenoma, phyllodes tumor,

chronic abscesses or even carcinoma¹. Laboratory diagnosis requires microscopic identification of scolices or hooklets¹. In our case the diagnosis of breast hydatid cyst was confirmed by histopathological examination.

Breast can be the only site or part of disseminated hydatidosis. It generally affects woman of 30 to 50 years, although wider age range (20 to 74) has been reported. Pre-operative diagnosis can be made by fine needle aspiration cytology where hooklets or laminated membrane can be seen⁵.

The largest series of 20 hydatid cyst of the breast was reported in Tunisia³. There are stray reports of hydatid cysts of the breast from the Indian subcontinent⁶. From Nepal there was one case of breast hydatid cyst diagnosed by histopathological examination by Sah S et al.⁶ and this is probably the second diagnosed case of hydatid cyst of breast in Nepal.

CONCLUSION

Hydatid cyst should be considered in the differential diagnosis of breast lumps especially for those living in endemic areas.

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