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HealthNews DIGEST

MAY 2023

Dr. Sherbaz Bichu

CEO & Specialist Anaesthetist
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Welcome to HealthNews Digest's 9th edition. I wish to send you and your families my best wishes as we come to the end of the holy month of Ramadan. I hope you have experienced the blessings of this holy month, as Ramadan is a time for reflection, spiritual rejuvenation, generosity, and kindness.

I am immensely proud of our specialists for their unwavering commitment and dedication to our patient's quality care and well-being. As healthcare professionals, we are always at the forefront of delivering care to those who require assistance and treatment.

I wholeheartedly express my gratitude and profound appreciation to all our physicians for their contributions to these informative clinical newsletters and encourage them to make even more noteworthy and enlightening contributions in the future.

Dr. Ramanathan V

Medical Director
Aster Hospitals & Clinics, UAE

I am pleased to welcome you to the latest edition of our health newsletter; our expert team of doctors has worked diligently to curate informative and insightful pieces that will interest our readers.

I want to acknowledge the incredible work of our specialists, who have demonstrated exceptional dedication and resilience.

Please take the time to read through the case studies and articles in this edition. I am sure that healthcare professionals striving to expand their knowledge and improve patient outcomes will find the insights provided in this newsletter to be priceless.

Both Bone Forearm Fracture in Polytrauma Patient

Successful Primary Fixation of Type-3 Open Both Bone Forearm Fracture in a Polytrauma Patient at Aster Cedars Hospital, Jebel Ali

Dr. Shafeed Thadathil Parambi
Orthopaedics (Specialist)

PRESENTATION

- 25 year old male
- No medical history
- No family history of medical illness
- Admitted with –
  - Type 3A Open Both Bone Forearm Fracture on the left side with proximal ends of the fractured radius and ulna protruding out of the wound with contamination, deformity of the arm, multiple lacerated wounds over the scalp and the left side of the back of the chest.
  - Mechanism of injury – While operating a machine, the glove he was wearing became drawn into the moving parts, and his arm followed, causing fractures and other injuries.

FINDINGS

During Examination:

- Proximal ends of fractured radius and ulna found to be protruding out of the wound with contamination
- X-ray showed comminuted lower 1/3rd both bone forearm fracture and closed fracture of shaft of humerus left side
- Left side mandible fracture

Clinical images at the time of Presentation

X-ray images of the Left Forearm and Arm

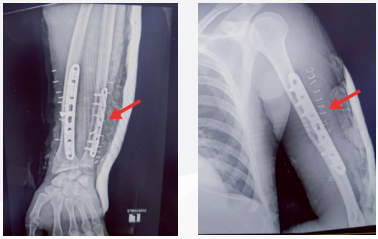
DURING PROCEDURE

- The procedure was done under general anaesthesia.
- Left forearm and left arm were prepared and draped.
- Left humerus shaft fracture was fixed with locking compression plate by anterolateral approach.
- Wound over the dorsal aspect of forearm was debrided and washed with plenty of saline, betadine, and hydrogen peroxide.
- Radius was fixed with locking compression plate by Henry's approach.
- Ulnar shaft was fixed with LCP by extending the wound after thorough debridement.
- Fracture reduction was checked under C-arm and found to be acceptable.
- Wound was closed in layers after attaining haemostasis.

Intraoperative image after thorough Debridement

POST PROCEDURE

- The patient was discharged on the 5th day.
- It took one month for complete healing of the wound.
- Mobilization of elbow, wrist, and shoulder started 3 weeks after the surgery.



Post-operative X-ray images

Immediate post-operative clinical images

Postoperative clinical images after 1 month showing well-healed wound

DISCUSSION

Open fractures are complex injuries requiring the orthopaedic surgeon to consider both the bone injury as well as associated soft tissue injury and up to Gustilo Anderson Type 3A can be fixed internally (primary fixation). The decision to fix the forearm fracture internally was made intraoperatively considering minimal contamination, adequate soft tissue coverage, minimal comminution of fracture, etc.

Although the concept of "Damage Control Orthopaedics" must be followed in polytrauma patients, the concept of "Early Total Care" was followed in this case as the patient was hemodynamically and clinically stable. The commonest complication of all open fractures is infection. Thorough debridement, good preoperative and intraoperative planning were the keys to success in this case.

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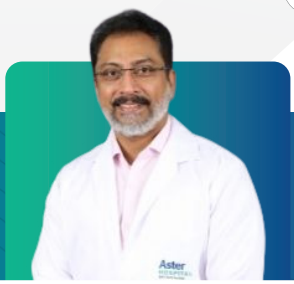
Surgical Management of Anorectal Disorders

Current Approaches and Recent Advances in the Management of Haemorrhoids, Anal Fissures, and Anal Fistulas



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INTRODUCTION

Anorectal disorders include benign conditions like haemorrhoids, anal fissures, and fistulas as well as serious conditions such as malignancies (1,2). Surgical management of these conditions has made tremendous progress from complex ligation and excision procedures in the past to simpler techniques that allow the patient to return to normal life within a short period (3). Laser procedures are more effective than open and closed surgeries, comparing their postoperative pain, duration, and efficiency (3). Newer techniques are being developed to minimize tissue dissection to reduce postoperative pain and bleeding (3,4).

In this article, we review some of the most common anorectal disorders and current approaches and advances in the surgical management of these disorders.

Current approaches and recent advances in the surgical management of Anorectal Diseases

HAEMORRHOIDS

Haemorrhoids, also known as piles, are swollen veins in the lower part of the anus and rectum (5). They are classified as external and internal, corresponding to their position relative to the dentate line. Internal haemorrhoids are further classified into 4 different grades, and their treatment depends on the degree of prolapse and severity of symptoms (3).

Surgical treatment options for haemorrhoids

- Haemorrhoidectomy is the safest and most recommended surgical procedure where the excess tissue causing the bleeding is surgically removed under general anesthesia or spinal anaesthesia. It can be done either via Stapler, Laser, or Radio Frequency.

- In 1998, Italian surgeon Antonio Longo described the "procedure for prolapse and haemorrhoids" (PPH), which we prefer to call stapled haemorrhoidopexy. This procedure combines the favorable aspects of both fixative and excisional techniques. It corrects the anatomic and physiologic abnormalities of symptomatic, prolapsing haemorrhoids without leaving painful external wounds. The stapled hemorrhoidopexy makes use of the theory of fixation by returning the vascular cushions

to their anatomic location high in the anal canal. Successful outcomes inherently depend on surgical techniques.

- LASER Haemorrhoidoplasty (LH) is a novel procedure in modern medical science. It is a no cut, painless and bloodless clinical procedure with comparatively fewer complications in comparison to Stapler Haemorrhoidopexy (SH) for the treatment of grade III-IV haemorrhoids. It is a very applicable surgical procedure at shrinking the terminal branches of hemorrhoidal arteries with fewer complications than Stapler Haemorrhoidopexy (SH). Patients with haemorrhoids treated with LASER Haemorrhoidoplasty had a better outcome than stapler haemorrhoidopexy in terms of early postoperative pain as well as complications and was associated with a shorter hospital stay and early return to work.

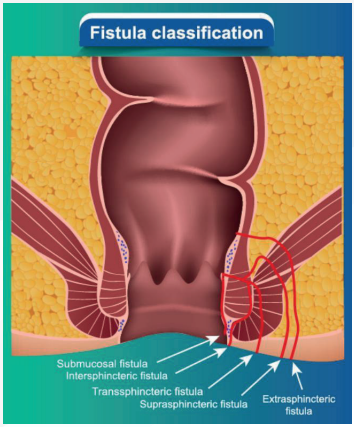
- Doppler-guided hemorrhoidal artery ligation (DGHAL) is a non-excisional surgical technique for the treatment of hemorrhoidal disease, consisting of the ligation of the distal branches of the superior rectal artery, resulting in a reduction of blood flow and decongestion of hemorrhoidal plexus resulting in fibrosis. DGHAL is a safe and effective procedure. DGHAL can be the choice for second- and third-degree haemorrhoids with minimal postoperative pain and quick recovery.

- The surgical treatments for haemorrhoids are evolving with modifications to traditional techniques, to improve postoperative outcomes and develop minimally invasive techniques. These advancements help reduce postoperative pain, the need for hospital admission, and injuries to the structures of the anal canal.

ANAL FISTULA

An anal fistula (also commonly called fistula-in-ano) is an epithelialized tunnel that connects a clogged gland inside the anal canal to the outside skin. Frequently, it's the result of a previous or current anal abscess. This occurs in up to 40% of patients with perianal abscesses.

Fistulas are classified by their relationship to parts of the anal sphincter complex. They are classified as intersphincteric, transsphincteric, suprasphincteric and extrasphincteric. The intersphincteric is the most common and the extrasphincteric is the least common. These classifications are important in helping the surgeon make treatment decisions.



Classification of fistulas based on the involvement of the sphincter

Surgical treatment options for anal fistulas

- Currently, there is no medical treatment available for anal fistulas and surgery is almost always necessary to cure an anal fistula. If the fistula is straightforward (involving minimal sphincter muscle), a fistulotomy may be performed. This procedure involves unroofing the tract, thereby connecting the internal opening within the anal canal to the external opening and creating a groove that will heal from the inside out.
- Fistulotomy is a long-standing treatment with a high success rate (92-97%). This high success rate must be balanced, however with risk of incontinence (ability to control stool) that comes with division of the anal sphincter muscle. Small amounts of muscle can usually be safely divided to treat the anal fistula without compromising continence. Therefore, the surgeon must assess whether a fistulotomy is appropriate for a given patient.
- In addition to fistulotomy, there are a number of other surgical treatment options for anal fistula which do not involve division of the sphincter muscles. The two most common procedures utilized in these patients are the endoanal advancement flap and the LIFT procedure.
- An endoanal advancement flap is a procedure usually reserved for complex fistulas or for patients with an increased potential risk for suffering incontinence from a traditional fistulotomy. In this procedure, the internal opening of the fistula is covered over by healthy, native tissue in an attempt to close the point of origin of the fistula. Recurrence rates have been reported to be up to 50% of cases. Certain conditions, such as Crohn's disease, malignancy, radiated tissue and previous attempts at repair, and smoking, increase the likelihood of failure. Although the sphincter muscle is not divided in this procedure, mild to moderate incontinence has still been reported.
- Another non-sphincter dividing treatment for anal fistula is the LIFT (ligation of the intersphincteric fistula tract) procedure. This procedure involves division of the fistula tract in the space between the

internal and external sphincter muscles. This procedure avoids division of the sphincter muscle and has similar success rate of an endoanal advancement flap.

- Video-assisted anal fistula treatment (VAAFT) - Developed by P. Meinero in 2006, video-assisted anal fistula treatment (VAAFT) is a novel minimally invasive and sphincter-saving technique for treating complex anal fistula. The main feature of this technique is the direct visualization of the fistula tract and internal opening. VAAFT is designed based only on these two key points: it provides real-time visualization of the anatomy; therefore, surgeons can properly handle the internal opening and ensure sufficient drainage of the debrided tract. It is a safe and minimally invasive technique for the treatment of complex anal fistula while preserving anal sphincter function.

ANAL FISSURES

Anal fissures are a common painful problem, affecting patients all across age groups (8). These can be acute (lasting less than six weeks) or chronic (more than six weeks). Most anal fissures occur at either the posterior or anterior midline (8). The majority of the fissures can be managed by conservative medical management.

Surgical treatment options for anal fissures

- The current recommended surgical treatment for chronic fissures is Partial lateral internal sphincterotomy. It provides prompt symptomatic relief by reducing pathologically elevated pressures within the anal canal (9).
- Laser-based surgery is a simple, safe, and effective procedure to treat anal fissure that can be performed with local anesthesia in an outpatient clinic with minimal postoperative morbidity. It also results in lower endodermal blood flow at the fissure site and faster healing of fissures (10).

CONCLUSION

Anorectal diseases comprise a wide variety of diseases that share common symptoms, like anorectal pain or bleeding, and might require immediate management. Proper history and examination (PR and Anoscopy) can easily diagnose any of these conditions. Lifestyle modifications, especially dietary modifications, are commonly recommended to patients with these conditions. However, HCPs need to remember that patients with severe anorectal conditions need to consult a surgeon and might need to undergo office-based drainage, while patients with severe grades of haemorrhoids and chronic fistulas should be referred for elective surgery.

- Laser procedures due to their accuracy and painless procedure
- Open surgery since it is a traditional method
- Closed surgery due to its efficiency and less operative time

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Severe Psoriasis

Severe Psoriasis evolving to Exfoliative Dermatitis treated effectively at Aster Clinic, Al Qusais, Dubai

Dr. Nameer Abdul Majeed
Specialist Dermatology / Cosmetology

PRESENTATION

- 62 year old male
- Generalized exfoliation involving more than 90% BSA
- Severe body itch with scaling
- Complaints of sleep deprivation, irritability, and depression

FINDINGS

During Examination:

- Diffuse erythema and scaling of 90% of the body surface area with pruritus.
- History of Psoriasis Vulgaris presented as erythematous plaques, and its sudden increase led to exfoliation.
- Biopsy performed to rule out eczema.
- Malignancy and drug allergies ruled out.
- BSA > 90%
- PASI (Psoriasis Area Severity Index) – 52/72
- DLQI – 28 (extremely large effect)

Baseline Images (Hands, Legs and Trunk)

TREATMENT

Secukinumab, IL - 17A inhibitor, was given by subcutaneous injection, dosed at 300 mg at weeks 0, 1, 2, 3 and 4, followed by 300 mg every four weeks. Each 300 mg dose was given as two 150 mg injections.

After images of Clinical Progress after 8 weeks of treatment (Hands, Legs and Trunk)

SUMMARY

- Secukinumab was well tolerated with no adverse effects.
- Rapid clearance of lesions was noted after 8 weeks of treatment.
- No complications were observed following loading do
- Real world clinical evidence showed IL - 17A inhibitor to have a rapid effect i achieving 90% improvement of lesions (PASI 90) by week 8.

DISCUSSION

Psoriasis is a chronic inflammatory skin condition characterized by clearly defined, red and scaly plaques. It is classified into several types. Psoriasis affects 2–4% of males and females. It can start at any age, including childhood, with onset peaks at 15–25 and 50–60. It tends to persist lifelong, fluctuating in extent and severity. Psoriasis is multifactorial. It is classified as an immune-mediated inflammatory disease (IMID).

Genetic factors are important. An individual's genetic profile influences their type of psoriasis and their response to treatment. Immune factors and inflammatory cytokines (messenger proteins) such as IL1β and TNFα are responsible for the clinical features of psoriasis.

Psoriasis usually presents with symmetrically distributed, red, scaly plaques with well-defined edges. The scale is typically silvery white, except in skin folds where the plaques often appear shiny with a moist peeling surface. The most common sites are the scalp, elbows, and knees, but any part of the skin can be involved. The plaques are usually very persistent without treatment.

Itch is mostly mild but may be severe in some patients, leading to scratching and lichenification characterized by thickened leathery skin and increased skin markings. In addition, painful skin cracks or fissures may occur.

Erythroderma or Exfoliative dermatitis is a clinical finding characterized by diffuse erythema and scaling

of 90% of the body surface area. It results from a myriad of underlying cutaneous disorders, drugs, and malignancies. It characteristically demonstrates diffuse erythema and scaling of greater than 90% of the body surface area. It is a reaction pattern and cutaneous manifestation of a myriad of underlying ailments, including psoriasis and eczema, or a reaction to the consumption of certain drugs.

The most common cause of erythroderma is pre-existing cutaneous conditions, and multiple analyses implicate psoriasis as the most common causal dermatosis accounting for roughly half of the erythroderma cases in certain analyses.

Secukinumab, a fully human monoclonal IgG1/κ antibody selectively targeting interleukin (IL)-17A, Interleukin-17A (IL-17A) is a cornerstone cytokine (messenger protein) involved in the development of psoriasis and is found in high concentrations in psoriasis plaques (Secukinumab is a human IgG1 monoclonal antibody that selectively binds to IL-17A, rapidly inhibiting its pro-inflammatory effects).

In clinical trials, treatment with Secukinumab led to rapid and sustained improvement in Psoriasis Area and Severity Index (PASI) scores, with PASI 90 response rates up to 68.5% at 5 years. Long-term clinical trials and real-world data have established Secukinumab as a safe and effective treatment for psoriasis.

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Cervical Cerclage

Managing Cervical Incompetence with Cervical Cerclage

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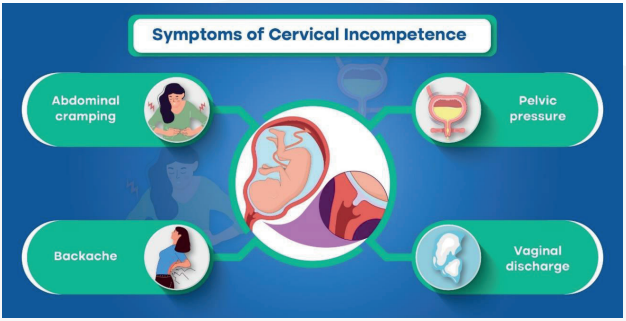
INTRODUCTION

Cervical incompetence is a condition that can affect up to 1% of obstetric populations and is estimated to occur in 8% of women with recurrent mid-trimester losses (1). It is characterized by dilatation and shortening of the cervix before the 37th week of gestation in the absence of preterm labor (1). It is most classically associated with painless, progressive dilatation of the uterine cervix in the second or early third trimester resulting in membrane prolapse, premature rupture of the membranes, mid-trimester pregnancy loss, or preterm birth (1). There are many modalities proposed to treat cervical insufficiency of which cervical cerclage is the main surgical modality of treatment (2). Cervical cerclage includes transvaginal and transabdominal approaches (3).

This article discusses the use of cervical cerclage for the management of cervical incompetence in pregnant women.

DIAGNOSIS OF CERVICAL INCOMPETENCE

Cervical insufficiency is a well-recognized cause of late miscarriage, and the diagnosis is often made retrospectively after a woman has had a second-trimester loss (2). Most of the women have no symptoms or only mild symptoms beginning in the early second trimester (2). An accurate diagnosis while avoiding missed diagnosis is a necessary first step in managing patients and eventually improving their prognosis (3).



Symptoms of Cervical Incompetence (2)

The diagnosis of an incompetent cervix is usually made in three different settings:

- Symptom based: Sudden onset of symptoms and signs of cervical insufficiency (2).
- History based: A history of second-trimester losses consistent with the diagnosis of cervical incompetence (2).
- Ultrasound based: Endo-vaginal ultrasound findings consistent with cervical incompetence (2).

MANAGEMENT OF CERVICAL INCOMPETENCE

The management of cervical insufficiency can be categorized broadly into two types: surgical intervention in the form of cerclage, and a conservative approach (1). The insertion of a cerclage is based on clinical history, cervical shortening, or dilation in the current pregnancy, and therefore may be divided into prophylactic cerclage versus therapeutic cerclage (1). Cervical cerclage is a common prophylactic intervention that has been used in the management of a second-trimester loss (1).

Surgical approaches include transvaginal and transabdominal cervical cerclage, with two common types of vaginal procedures including McDonald and modified Shirodkar techniques (1).

PROPHYLACTIC TRANSVAGINAL CERCLAGE

Prophylactic transvaginal cerclage is a preventive measure that is considered when there is a high risk of cervical insufficiency (1). The risk assessment is usually based on a history of second-trimester pregnancy loss or premature delivery in the absence of other mitigating risk factors (1). A Prophylactic cerclage is typically inserted between the 11-14th week of gestation, but the timing can be delayed depending on the gestational age of prior pregnancy losses that occurred at progressively earlier gestational ages (1).

- Prerequisites for prophylactic cerclage placement

It is essential to confirm the viability of the pregnancy by ultrasound before a cerclage is placed (1). Also, it is also advisable to check for any significant malformations and assess the risk of aneuploidy by performing first-trimester ultrasound nuchal translucency screening and serum marker screening (1). Prior to the cerclage procedure, a urinalysis for culture and sensitivity and vaginal cultures for bacterial vaginosis should be taken (1). If any infections are detected, they should be treated before the cerclage is placed (1).

- Cerclage techniques

The primary methods of transvaginal cerclage are the MacDonald and Shirodkar approaches (1). With the MacDonald approach, the suture is placed as close as possible to the cervix-vagina junction without the dissection of tissue planes (1). In contrast, the Shirodkar approach involves inserting a subepithelial suture above the cervix-vagina junction with dissection of the bladder and rectum, allowing for the suture to be placed higher than with the MacDonald approach (1).

- Removal of cerclage

The cerclage is generally removed electively at 36-38 weeks gestation (1). This removal can be often done without anesthesia, or with the use of short-acting narcotics such as intravenous fentanyl (1). Emergency removal of the cerclage may be necessary if premature labor occurs and is unresponsive to

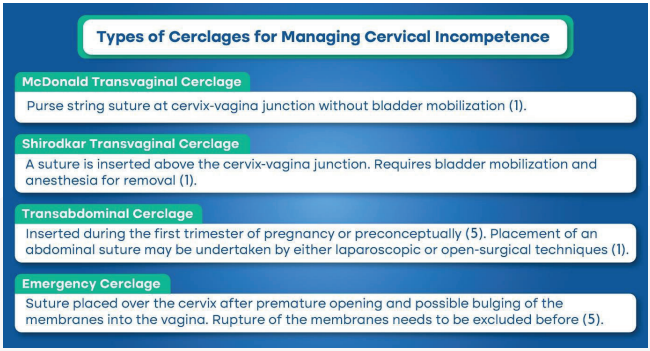
tocolysis, or if there is a strong suspicion of sepsis (1). C-reactive protein levels may be used to predict chorioamnionitis after preterm membrane rupture, which can help determine whether suture removal should be immediate or delayed (within 48 hours) (1).

PROPHYLACTIC TRANSABDOMINAL CERCLAGE

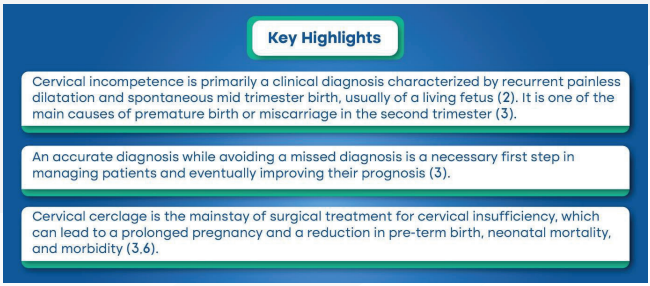
In women with a history of cervical insufficiency and who had unsuccessful prior vaginal cerclage, abdominal cerclage can be considered if there are no additional mitigating factors (1). This should also be considered for women who have undergone trachelectomy or who have had an effective trachelectomy (1). Transabdominal Cerclage involves a laparotomy to insert a suture above the cardinal and uterosacral ligaments (although the procedure has also been reported laparoscopically) (4). Theoretically, the higher placement of the suture may be better at preventing any funnelling at the internal os and hence reduce the risk of prelabour rupture of the membranes (pPROM) (4). In women of reproductive age who plan to pursue the option of childbirth, a prophylactic abdominal cerclage is often inserted simultaneously with trachelectomy (1).

EMERGENCY CERCLAGE

An emergency cerclage is usually performed when a woman's cervix is already dilated (1). It is recommended when there is clinical or sonographic evidence of cervix dilation between 1 to 2 cm, and no contractions are present (1). The patient is placed in the Trendelenburg position and the herniating forewaters are gently reduced with the aid of an inflated Foley catheter. The usefulness of cerclage even with cervical dilation up to 4 cm has been demonstrated and should be taken into consideration (1). Scoring systems can be used to inform patients about the probable outcome of undergoing an emergency cerclage (1). The criteria for removal of an emergency cerclage are the same as for a prophylactic cerclage (1).



Types of Cerclages for Managing Cervical Incompetence: An Overview



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Dr. Sharmina Saleem
Pathology (Specialist)

Lower Eyelid Reconstruction

Lid Reconstruction for a Non-Healing Left Eyelid Margin Lesion (Pseudoepitheliomatous Hyperplasia) done successfully at Aster Hospital, Al Qusais

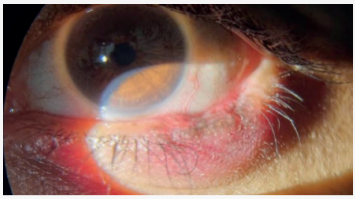
PRESENTATION

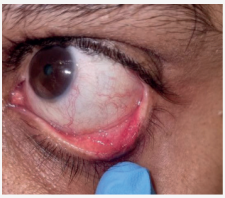
- 42 year old male
- Medical history of left eye swelling for the last 1.5 years. Left eye lower lid biopsy suggested mild to moderate focal dysplasia
- No family history of medical illness
- Admitted with –
  - Complaints of left eye swelling and redness
  - Distortion of eye lid along the margin
  - Painless non-healing ulcerative lesion

FINDINGS

During Examination:

- Visual Acuity: Right eye - 6/6; Left eye - 6/6; Near vision - N6
- Retinoscopy in both eyes – clear glow
- IOP – Right eye: 18 mmHg; left eye: 15 mmHg
- Lesion in the lateral half of the eyelid:
  - Loss of eyelashes
  - Erythema
  - Distortion of lid margins
  - Abnormal contour of the lid
  - Neovascularization





Images of the left lower eyelid lesion

DURING PROCEDURE

The procedure was planned in two stages –

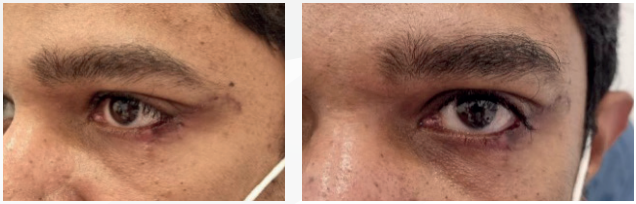
- First stage involved excision of the lesion with frozen section biopsy for clear margins -
  - Parts cleaned and draped.
  - Tumour extent and free 3mm margins were marked.
  - Tissue sent for frozen section biopsy.
  - Frozen section report showed clear margins.

- Second stage involved Lid Reconstruction under local anaesthesia by Tenzel Semicircular Advancement Flap Technique -
  - The defect involved ~50% of the left lower eyelid.
  - A superiorly based semicircular incision at the lateral canthus was made.
  - Undermining of skin and orbicularis and complete cantholysis was done.
  - The lateral part of the flap is elevated subcutaneously beyond the orbital rim in order to avoid injury to the zygomatic branches of the facial nerve.
  - The medial portion of the flap is fashioned in suborbicularis plane and raised up to the periosteum.
  - The conjunctival of the lateral fornix is dissected and advanced to the medial margin along with the flap.
  - Lateral canthus is made with the help of periosteal sutures between the flap and the proposed lateral canthal site.
  - The flap was advanced into position.
  - The defect is closed in layers with utmost importance given to the formation of a smooth margin without notching.
  - Suturing of the eyelid margin and the flap was done in two layers.
  - Part bandaged with paraffin gauze for 1 week.

Images during the procedure showing the Markings, Excision and Reconstruction

POST PROCEDURE

Patient tolerated the procedure well and was in a stable condition on discharge. The sutures were removed after one week. Lid margin and the flap were well opposed and healing well.



1 month post-op images showing the flap position, healed and well aligned eyelid margins

Symmetrical alignment of both the eyes

DISCUSSION

The eyelids are complex structures and serve the important purpose of protecting the globe as well as maintaining the integrity of tear film (1). Eyelid defects can be caused by trauma, tumor excision and congenital colobomas.

Common malignant tumors of the eyelids are basal cell carcinoma, squamous cell carcinoma and sebaceous gland carcinoma. Excision of tumors or any other similar lesion usually leads to a full-thickness eyelid defect which needs complex reconstruction techniques (2).

The goals of eyelid reconstruction are to provide anatomic integrity to the eye, physiologic functioning for maintaining the tear film and to provide adequate cosmesis to the patient. According to Mustarde, "Reconstruction of an eyelid or even a part of it requires a minimum of three elements: an outer layer of skin; an inner layer of mucosa; and a semirigid skeleton interposed between them" (3). The horizontal and vertical extent of the lesion should be measured after placing the lateral and medial edges under gentle tension (4). The procedure of lid reconstruction depends on the extent of eyelid tissue loss.

Methods of reconstruction for full thickness eyelid defects are:

1. Small defects (30%)
   - Direct closure
   - Direct closure with lateral cantholysis

2. Moderate size defects (50%)
   - Lateral semicircular rotation flap (Tenzel) (5)
   - Tarsoconjunctival advancement flap (Hughes) (6)
   - Marginal pedicle rotation flap (Mustarde flap) (7)
   - Composite lid graft (Callahan) (8)

3. Large size defects (<50%)
   - Bridged advancement flap (Cutler–Beard) (9)
   - Mustarde cheek rotation flap (7)
   - Rhomboid cheek flap
   - Free tarsoconjunctival graft and myocutaneous advancement flap (10)
   - Lid switch flap (Mustarde) (9)
   - Temporal forehead transposition flap (Fricke) (10)
   - Median forehead flap

As our defect was ~50%, we decided to use Tenzel's Semicircular Advancement Flap Technique which is superiorly based semicircular flap fashioned from the lateral canthal area. The patient is asymptomatic and healing well after 1 month of surgery. He is under regular follow-up for the next few years.

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