Outcome Of Limberg Flap Reconstruction For Pilonidal Sinus

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Abstract

Pilonidal sinus over sacrococcygeal area is an acquired condition which affects young male adults usually. We did a retrospective chart review in the department of general surgery ,Kalinga Institute of Medical Sciences ,Bhubaneswar, for patients who underwent limberg flap repair for pilonidal sinus from sept 2015 to sept 2021 (6 years and 8 months) .A total of 49 patients with 40 males and 9 females respectively, were operated and they had a minimal post operative pain ,average post operative hospital stay of 6 days and early return to work in 3 weeks. Four out of 49 patients developed seroma ,out of which 1 was lost to follow up .Remaining 3 took two weeks to heal with regular dressings and no recurrence so far .One patient developed stitch granuloma and was treated conservatively. Hence Limberg flap for sacrococcygeal pilonidal sinus was found to be very useful in terms of post operative pain ,infection rate,patient compliance ,early return to work and almost nil recurrence rates.

INTRODUCTION

The name pilonidal is taken from latin ,meaning “nests of hairs” .The estimated incidence is 26 per 1,00,000 people[1,2] .It generally presents as a cyst ,abscess or sinus tracts with or without discharge[3] .Men are affected more often than women [1]and its rare before puberty and after 40 years of age[4].

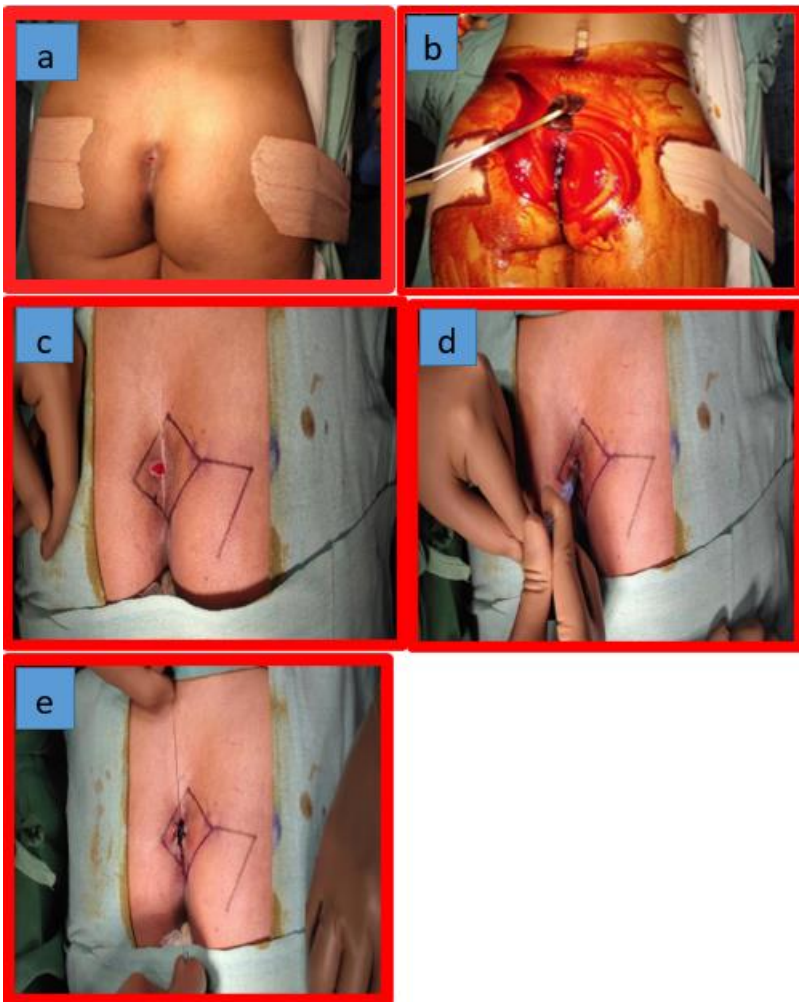
Fig 1: Pilonidal sinus

Limberg rhomboid flap for sacrococcygeal pilonidal sinus was designed by Alexander Limberg in 1946 [5] ,who described a technique for closing a 60 degree rhombus shaped defect with a transposition flap .This flap is easy to perform with sutures away from the midline giving rise to a tensionless flap of unscarred skin in the midline which helps in good hygiene maintenance ,reducing sweating ,maceration ,erosion and scar formation .

MATERIALS AND METHODS:

In limberg surgery ,patient is under spinal anesthesia ,in prone position with buttocks strapped outwards to table using wide plaster(Fig 3 a).After cleaning and drapping(Fig 3b) ,a rhomboid shaped area of skin was marked over the sacrococcygeal pilonidal sinus including any lateral extensions(Fig 3 c).The angle of the excised area of skin were 120 degree at the medial and lateral aspects .Methylene blue dye injection is done to the sinus for delination of sinus tract(Fig 3 d) and sinus opening approximated to avoid spillage of dye outside(Fig 3e) .

Fig 3 (a-e):Steps of Limberg procedure



The skin and the subcutaneous tissue of the rhomboid shaped area was incised and elevated at the level of the pre-sacral fascia and above the gluteus maximus fascia (Fig 3 f).All affected tissue was excised(Fig 3g) .A Limberg flap was then designed with limb length comparable in size to the rhomboid shaped defect(Fig 3 h) .Hemostasis was achieved and the wound was thoroughly irrigated .A number 14 Romovac suction drain was given underneath (Fig 3 k)and limberg flap was then transposed into the defect(Fig 3 l) .Buttocks strap should be released before suturing .The flap and the donor site were closed using subcutaneous absorbable sutures ,first sutures should be placed over the angles followed by other sutures (Fig 3 m).Pressure dressing is placed .

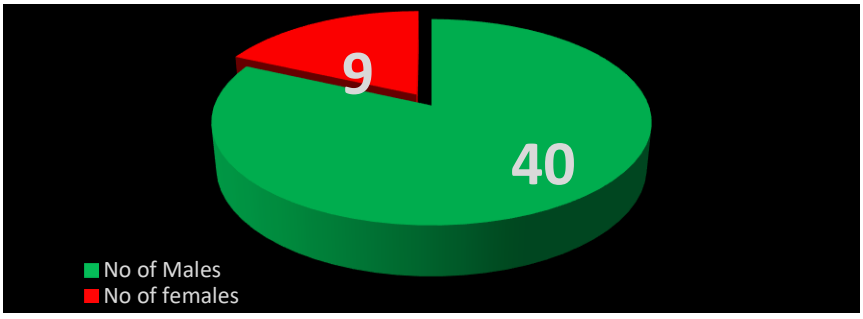
Fig 3(f-m):

The vascular territory of the limberg flap is supplied by the lateral sacral and superior gluteal arteries arising from the posterior division of the internal iliac artery.The lateral sacral arteries enter the anterior sacral foramina in the pelvis and exit through the corresponding posterior sacral foramina,supplying the skin and the muscles of the posterior surface of the sacrum and forming abundant vascular communication with branches of the superior gluteal artery over the gluteus maximus muscle[6] .It is therefore possible to design the limberg flap as a random pattern cutaneous flap which can be transposed medially to fill the defect remaining after pilonidal sinus excision .Designed as a random pattern cutaneous flap and not a perforator flap ,the blood supply to the limberg flap does not come from a single recognized artery ,but many small unnamed vessels (the majority of which are derived from lateral sacral and superior gluteal arteries).

RESULTS

In this study of 49 patients ,81.63 % were males and 18.36 % were females(Graph 1) and 75.51 % were between 16-25 years and 24.49 % were more than 25 years.

Graph 1: Gender

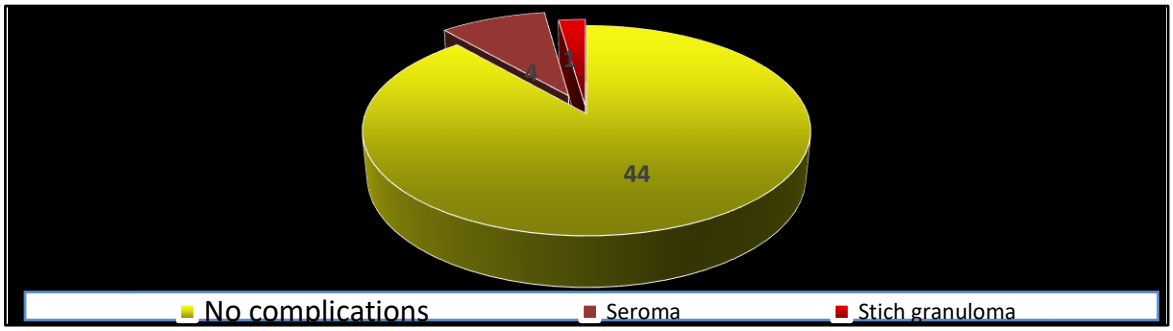


All patients were assessed for severity , investigated and then they underwent limberg flap surgery .Post operative patient were made to lie on sides and then made to ambulate after first post operative day with drain in situ.The patient received antibiotics and regular dressing of the wound . Drain was removed between post-operative day 5 to 7.Suture was removed on follow up visit on around 10th post operative day (Fig 4).Patient was discharged with advice of not to apply pressure on the operative region for 3 weeks .

Fig 4: POD 10 :After suture removal

All patients are followed up for a duration of 1 month and then as and when required by the patient. 4 patients had complication of seroma formation ,out of which 1 was lost to follow up .Patient with seroma took 2 weeks to heal with regular dressings .One patient developed stich granuloma which was managed conservatively.No recurrence so far.

Graph 3: Complications



All other patients wound healed well with minimum scarring ,very less post operative pain and with no recurrence so far .None needed readmission due to pilonidal sinus and most patients returned to work after 3 weeks .

Discussion

Pilonidal sinus may consists of primary and secondary sinuses .It is common in hairy people .Tuft of hairs in the tract is a common presentation .The rate of malignant degeneration is estimated at 0.1% in patients with chronic pilonidal disease[7].Most patients with malignancy were over the age of 50 years and had chronic pilonidal disease for several years.

In acute phase initially drainage of the abscess is done and antibiotics are given ,later definitive treatment is undertaken like excision of the diseased tissue till sacrococcygeal fascia ,excision with Z plasty ,karydakis excision ,Rhomboid (limberg) flap or bascom technique.Reconstruction of the defect with Limberg flap has many advantages as it is easy to perform and design and it flattens the natal cleft with large vascularized pedicle,sutured without tension .This in turn maintains good hygiene ,reducing the friction ,preventing maceration and avoiding scar in the midline.

Conclusion

Sacrococcygeal pilonidal sinus is a dilemma to the patient because of the weeping and smelling bottom as well as for the treating surgeon because of its repeated infection, persistent pain with discharge and high recurrence rates with regular procedures .Limberg flap reconstruction helps in excision of the pilonidal sinus without distortion of the contour of the bottom. This technique is easy to perform in quick time,short hospital stay ,early return to daily life and very low complications and recurrence rates which further can be reduced by meticulous skin closure ,without skin edge eversion and with a wide flap to obliterate midline natal cleft. Limberg flap procedure is found better than simple excision and closure ,marsupialization[8,9], other flap procedures.

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