

A CASE SERIES OF RHOMBOID FLAP SURGERY IN PILONIDAL SINUS

Avinash Sharma¹, Surendra Kumar Jain², Prakhar Nagar³, Priya Singh¹

¹Post Graduate Student, Department of Surgery, JNUIMSRC, Jaipur, Rajasthan, India

²Professor, Department of Surgery, JNUIMSRC, Jaipur, Rajasthan, India

³Assistant Professor, Department of Surgery, JNUIMSRC, Jaipur, Rajasthan, India

Received : 07/08/2023
Received in revised form : 05/09/2023
Accepted : 16/09/2023

Keywords:

Rhomboidal Flap, Recurrent Pilonidal Sinus, Sacrococcygeal Pilonidal Sinus.

Corresponding Author:

Dr. Prakhar Nagar,

Email: prakhar.nagar@rediffmail.com

DOI: 10.47009/jamp.2023.5.5.241

Source of Support: Nil

Conflict of Interest: None declared

Int J Acad Med Pharm
2023; 5 (5); 1222-1225



Abstract

Background: A pilonidal sinus (PNS) is a small cyst or abscess that occurs in the cleft at the top of the buttocks. A PNS usually contains hair, dirt, and debris. It can cause severe pain and can often become infected. If it becomes infected, it may ooze pus and blood and have a foul odor. The exact cause of pilonidal sinuses is unclear. It is generally thought they are caused by loose hairs pushing into the skin. They could also be caused by deep layers of skin being stretched and moved, leading to a hair follicle rupturing. **Aim of the Work:** This study aimed at evaluating the outcomes of management of pilonidal sinuses by rhomboid flap. **Methods and Methodology:** This retrospective study of cases with recurrent pilonidal sinus, was done at the department of general surgery at JNUIMSRC, Jaipur from the period of 3 years from July 2020 to July 2023 with medium follow up period of three months. **Patient's preparation:** Patients were admitted to hospital before operation. Full history and clinical examination were done. Full routine investigations were carried out which included complete blood picture, Prothrombin time and concentration, Blood glucose level, Serum creatinine, liver enzymes, serology and Blood typing. **Parts preparation** from the middle of the back down to the back of the thigh by shaving. Informed Consent was taken by patient for Surgery. A prophylactic broad spectrum antibiotic (cefotaxime 1gm) was administered before the operation. The collected results were statistically analyzed considering the following parameters. **Conclusion:** Based on this study, it seems to us that the rhomboid flap is a good alternative for pilonidal sinus, It permits early return to complete activity, does not require prolonged postoperative attention, and has very low recurrence rate and postoperative morbidity which may compensate the inconveniences related to an unfavourable cosmetic look. Proper dressing and epilation of hair is the most important way of success of the operation.

INTRODUCTION

A pilonidal sinus (PNS) is a small cyst or abscess that occurs in the cleft at the top of the buttocks. A PNS usually contains hair, dirt, and debris. It can cause severe pain and can often become infected. If it becomes infected, it may ooze pus and blood and have a foul odor. The exact cause of pilonidal sinuses is unclear. It is generally thought that they are caused by loose hairs pushing into the skin. They could also be caused by deep layers of skin being stretched and moved, leading to a hair follicle rupturing. It has been postulated that hair penetrates into the subcutaneous

tissues through dilated hair follicles, which is thought to occur particularly in late adolescence, though follicles are not found in the walls of cysts. Upon sitting or bending, hair follicles can break and open a pit. Debris may collect in this pit, followed by development of a sinus with a short tract, with a not clearly understood suction mechanism involving local anatomy, eventually leading to further penetration of the hair into the subcutaneous tissue. This sinus tends to extend cephalad, likely owing to mechanical forces involved in sitting or bending. A foreign body-type reaction may then lead to formation of an abscess. If given the opportunity to

drain spontaneously, this may act as a portal of further invasion and eventually formation of a foreign body granuloma. Infection may result in abscess formation.^[1-3] Microscopically, the sinus where the hair enters is lined with stratified squamous epithelium with slight cornification. Additional sinuses are frequent. Cyst cavities are lined with chronic granulation tissue and may contain hair, epithelial debris, and young granulation tissue. Cutaneous appendages are not seen in the wall of cysts, meaning the cysts lack epithelial lining, unlike the sinus. Cellular infiltration consists of polymorpho nuclear lymphocytes (PMNs), lymphocytes, and plasma cells in varying proportions. Foreign body giant cells in association with dead hairs are a frequent finding. In summary, 3 pieces are instrumental in this process: (1) the invader, hair; (2) the force, causing hair penetration; and (3) the vulnerability of the skin. This process has been well characterized by Patey and Scarff as well as a number of other authors from the second half of the 20th century through today. We used a full thickness rhomboid-shaped flap which extends down to the gluteal fascia. These flaps were renowned for their robust vascularity and therefore flap necrosis was not a major issue. The rhomboid flap has been modified and has successfully decreased the wound infection and separation rates even further. The rhomboid flap involved lateralizing the distal part of the midline suture line.

Aim of the Work

This study aimed at evaluating the outcomes of management of pilonidal sinuses by rhomboid flap.

MATERIALS AND METHODS

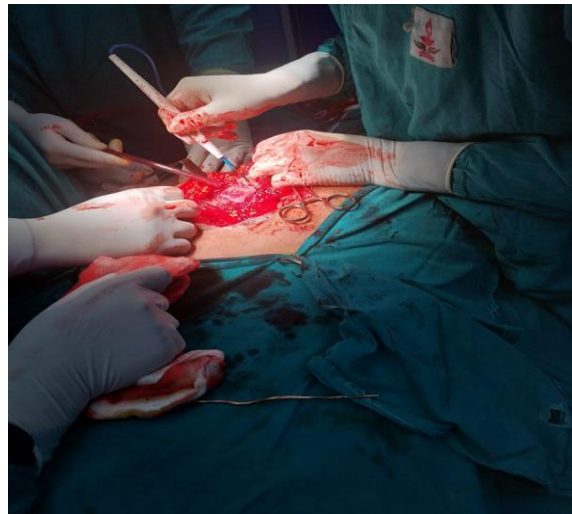
This retrospective study of cases with recurrent pilonidal sinus, was done at the department of general surgery at JNUIMSRC, Jaipur from the period of 3 years from July 2020 to July 2023 with follow up period of 6 months.

Patient's preparation: Patients were admitted to hospital before operation. Full history and clinical examination were done. Full routine investigations were carried out which included complete blood picture, Prothrombin time and concentration, Blood glucose level, Serum creatinine, liver enzymes, serology and Blood typing. Parts preparation from the middle of the back down to the back of the thigh by shaving. Informed Consent was taken by patient for Surgery. A prophylactic broad spectrum antibiotic (monocef 1gm) was administered before the operation.

The collected results were statistically analysed considering the following parameters.

- Age
- Sex
- Operative technique.
- Postoperative complications (infection, seroma, ischemia and necrosis, ugly scar)

- Follow up 3 months followed by 6 month. Postoperative recurrence if any.



Operative procedure

Under general anaesthesia, in prone position with buttocks strapped outwards to table using wide plaster after cleaning and draping, rhomboid and tissue of full thickness skin and subcutaneous fat is excised including the midline with its long axis in the midline. Angles of rhomboid WAS 60° and 120°. Angles are adjusted meticulously as shown in the pictures; flaps were elevated, rotated and sutured. Suction drain was placed underneath. Buttock straps should be released before suturing. Subcutaneous absorbable sutures are placed. First suture placed over the angles of other sutures. Pressure dressing is placed.

RESULTS

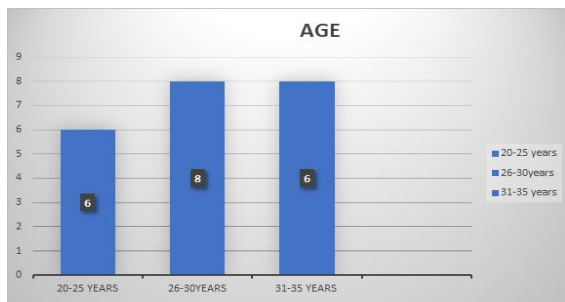


Figure 1: Showing Age

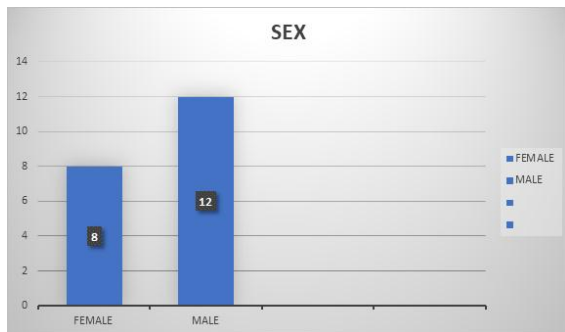


Figure 2: showing sex ratio

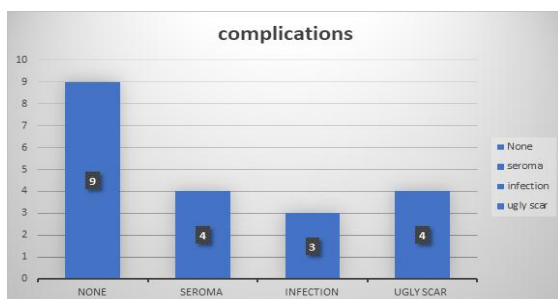


Figure 3: Post-operative complications: include infection (3 cases), seroma (4 case), and ugly scar (4case)

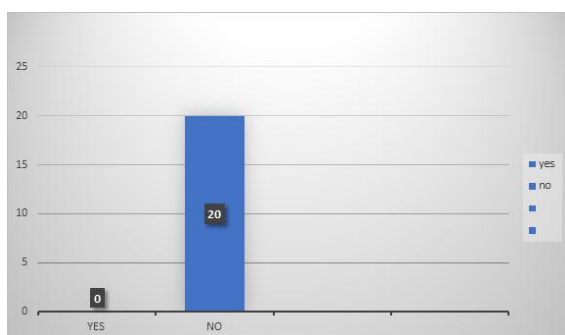


Figure 4: Showing Recurrence rate

DISCUSSION

Pilonidal disease is an infection under the skin in the gluteal cleft. This is a common source of morbidity and loss of work productivity in healthy young adults. A large number of surgical techniques (with varying complexity) have been described in the literature for the treatment of this disease; many of which are unfamiliar to general surgeons. Such diversity suggests that no single technique has emerged as the favourite to prevent recurrence of this condition. These include conservative non excisional care, phenol injection, pit excision and tract brushing

(Millar-Lord procedure), Bascom procedure, excision and leaving the wound to granulate, excision and marsupialization, excision and primary closure with mid-line or asymmetric incisions, or excision and closure using local flap. These latter included Karydakis procedure, Rhomboid flaps, Modified flap, Z-plasty, V-Y flaps, oval rotational flaps, or other reconstructions. Each method has its own advantages Nevertheless, it seems to us that the rhomboid flap is a good alternative for pilonidal sinus. It permits early return to complete activity, does not require prolonged postoperative attention, and has very low recurrence rate and postoperative morbidity which may compensate the inconveniences related to an unfavourable cosmetic look.^[4-7]

In this study the age ranged between 20 to 35 years with mean = 24.7years which is slightly similar to results reported by Nareshkumar and Ramya,^[8] where the mean age was 26.2 years (range 19–36 years), Jan et al,^[9] mean age was 25 years (range of 17-45 years), Ibrahim used mean age of 23±5 years (range 17-30years),^[10] Arumugam et al,^[11] the median age was 28 years (range 16–64 years).

In this study, the results regarding to gender type 12 male (60%) and 8 female (40%) disagree with those reported by Nareshkumar and Ramya,^[8] who used 18 Male (90%) & 2 Female (10%), Jan et al,^[9] used 40 male (83%) and 8 female (17%), Ibrahim,^[10] (18 Male (90%) & 2 Female(10%),0 Arumugam et al,^[11] 47 males(88%) and 6 females (12%).

In this study the postoperative complications included infection (3case)15%, seroma (4 case) 20%, and ugly scar (4 case) 20%, among 20 case and (9 case) with complete healing without complications (65%), which slightly agrees with results reported by Nareshkumar and Ramya,^[8] Wound infection 2case (10%) Seroma 4 cases (20%) Jan et al,^[9] wound infection was reported in 5 patients(18%) seroma none of patients (0%)flap necrosis none of patients (0%), Arumugam et al,^[11] wound infection was observed in 7 case (13%), but totally disagreed with results reported by Ibrahim,^[9] where no wound complications was remarked in the rhomboid flap group.

In this study considering no postoperative recurrence similar to (0), Ibrahim,^[10] none of patients had recurrence (0%), but not similar to results reported by Jan et al,^[9] There was only 1case recurrence (2%), Arumugam et al,^[11] 4 case developed a recurrence (7%).

CONCLUSION

Based on this study, it seems to us that the rhomboid flap is a good alternative for pilonidal sinus, It permits early return to complete activity, does not require prolonged postoperative attention, and has very low recurrence rate and postoperative morbidity which may compensate the inconveniences related to an unfavourable cosmetic look. Proper dressing and

epilation of hair is the most important way of success of the operation.

REFERENCES

1. Galan N, Akin M, Gokbayir H, et al. (2015): Rhomboid excision and Limberg flap for managing pilonidal sinus. *Diseases of the colon & rectum*; 10(9):945-8.
2. Hull TL and Wu J (2012): pilonidal disease. *Surgical clinics of North America (Anorectal surgery)*, 82:1169-85.
3. Khanna A, Rombeau JL (2011): Pilonidal disease. *Clin Colon Rectal Surg.*, 24(1):46-53.
4. Da Silva JH (2016): Pilonidal cyst: cause and treatment. *Dis Colon Rectum*, 43(8): 1146–56.
5. Ghnnam WM and Hafez DM (2011): laser hair removal as adjunct to surgery for pilonidal sinus: our initial experience. *J. Cutan. Aesthet. Surg.*, 4(3):192-195.
6. Lee PJ, Raniga S, Biyani DK et al. (2013): sacrococcygeal pilonidal disease. *Colorectal disease*, 10:639-652.
7. Marzouk DM, Abou-Zeid AA, Antoniou A et al. (2008); sinus excision, release of coccytaneous attachments and dermal-subcuticular closure (XRD procedure): a novel technique in flattening the natal cleft in pilonidal sinus treatment, *Ann. R Coll. Surg. Engl.*, 90(5):371-376.
8. Nareshkumar S and Ramya M (2017); Rhomboid Flap Reconstruction for Pilonidal Sinus Disease, 6(4): 2277 – 8179.
9. Jan H, Khan U, Khan MM et al. (2015); Rhomboid Flap and the Pilonidal Sinus Disease. *Pak J Surg.*, 31(1):16-19.
10. Ibrahim HA (2008); Rhomboid Flap for Management of Pilonidal Sinus A Comparative Study. *Kasr El Aini Journal of Surgery*, 9(1): 11-18.
11. Arumugam PJ, Chandrasekaran TV, Morgan AR et al.(2003): The rhomboid flap for pilonidal disease. Blackwell Publishing Ltd. *Colorectal Disease*.