ORIGINAL ARTICLE

Comparative Study for Treatment of Sacrococcygeal Pilonidal Sinus with Simple Wide Excision Versus Limberg Flap

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ABSTRACT

Background: Pilonidal sinus is common in various professions and cumbersome for day to day working. Recurrence after the treatment is commonly noted in various treatment modalities. Therefore various methods for treatment are being practiced for the management of this ailment. In view of this, recent addition of rhomboid excision and Limberg flap repair as feasible procedure for treatment of pilonidal sinus disease is a good option. Therefore, our aim is to evaluate the role of rhomboid excision of the pilonidal sinus with Limberg flap by comparing this procedure with the traditional excision and secondary healing.

Methods: This prospective study recruited 30 patients with sacrococcygeal pilonidal sinus. The patients were randomly divided into two equal groups. Rhomboid excision of the sinus with Limberg flap was performed in 15 patients (group A) and excision of the sinus with secondary healing was offered to other 15 cases (group B). Demographic data and surgical outcome were compared between both groups.

Results: Group A showed significant early return to work and significant less postoperative pain than group B. Similarly, incidence of wound dehiscence, postoperative hematoma, seroma and post-operative infection was less among group A. Wound healing with group B patients with open wound takes long time to heal with lot of discomfort for the patient even for many days.

Conclusion: Rhomboid excision and Limberg flap repair is an advantageous and effective modality than simple excision with secondary healing in treatment of sacrococcygeal disease. In addition, it is safe and easy procedure; it may prove to be an ideal treatment option in management of pilonidal sinus today and in the days to come.

Keywords: Limberg flap, sacrococcygeal pilonidal sinus

INTRODUCTION

Sacrococcygeal pilonidal sinus is a chronic condition which is usually noted in males. Young adults with specific professions are the main victims of this ailment[14,25]. This may be acquired or congenital but it may be more common with acquired conditions[12]. Patients usually present with localized pain, discharge and episodes of abscess formation[4]. Due to recurrent nature of the disease many procedures are in vague[23]. There is no gold standard procedure being in practice till now. Various procedures are excision with primary closure, excision and marsupialization and excision with flap rotation are being practiced[12]. Various modifications of this procedure such as rhomboid, v y advancement and Z placement have been in use[12,24]. Every procedure is leaving behind various set of complications. Recurrence is the main complication, others are infection with wound dehiscence and post operative pain.

Our aim in this study is to evaluate the role of wide excision with secondary healing and excision with Limberg flap.

METHODS

This prospective study was carried out at Avicenna Hospital from May 2017 to January 2018. Thirty patients with primary sacrococcygeal pilonidal sinus subjected to two different treatment modalities. Group A with 15 patients had excision and rhomboid flap and second group B consisted of 15 patients whom underwent wide excision and healing with secondary intention. All included patients were consented. Patients were excluded from this study, having systemic disease affecting wound healing, presence of acute inflammation or associated with abscess formation.

All patients were admitted to hospital the day before operation. The intergluteal area was shaved before surgery. Prophylactic parenteral broad-spectrum antibiotics were given at the time of induction of anesthesia (Ceftriaxone,1 gram I.V). Patients were operated under spinal or general anesthesia. The patients were placed in prone position with lateral traction of the buttocks with wide adhesive tapes. Appropriate sterilization of the surgical area with povidone- iodine solution was performed. Delineation of the course of the sinus was helped by injection of methylene blue (1-3cm) or introduction of blunt probe to avoid missing of excision of any side tracks.

In group A, rhomboid-shaped incision was made around the sinus which was equal in length on each side from the mouth of the sinus. The excision was at least 1cm away from the sinus. Rhomboid fascio-cutaneous flap was divided and mobilized from the underlying gluteus muscle. The flap was sutured without tension in 2 layers (subcutaneous fat with 3/0 polygalactin and closure of the skin with prolene 2/0). Suction drain was put behind the flap and removed on the fifth to seventh postoperative day. The skin stitches were removed on the 14th postop day.

In the case of wound infection or hematoma, the wound was drained by removal of few sutures with regular daily dressing and covered with broad spectrum antibiotics.

In group B, vertical elliptical incision around the sinus was done extending to the presacral fascia. The incision was deepened extending to the presacral fascia. After making sure of good hemostasis, wound was packed with polyfex and povidone–iodine soaked gauze pieces.

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Follow up was done to all patients as per performa up to three months in regular outpatient's visits. Operative work was completed within six months. We used student's test to verify the comparative study between both groups and p <0.05 was considered statistically significant.

RESULTS

The study included 30 patients with primary sacrococcygeal pilonidal sinus. These cases were randomly divided into two equal groups. Excision of the sinus with rhomboid skin incision and Limberg flap was applied in group A patients. In Group B patient's sinus excision and wound left for secondary healing. Demographic data and postoperative complications were noted in both groups as shown in (Table 1). The main symptoms were pain and intermittent discharge in both groups and recurrence.

Table 1: Demographic data and postoperative complications in both groups

Complications	Group A				Group B			
	Mild	Moderate	Severe	Total	Mild	Moderate	Severe	Total
Pain	02	02	01	05(33.33%)	03	03	04	10(66.67%)
Bleeding	01	01	00	02(13.33%)	03	02	03	08(53.33%)
Wound Infection	01	00	01	02(13.33%)	02	01	02	05(33.33%)
Recurrence	00	01	00	01(0.06%)	02	02	01	05(33.33%)

Table 2

	Group A	Group B
Number of patients	15	15
Age in year (mean±SD)	18-40 years (27.4±6.2)	20-45 years (29.2±8.4)
Gender (M/F)	13/2	14/1

DISCUSSION

Pilonidal sinus consists of a symptom complex with clinical presentations ranging from asymptomatic pits to painful draininglesions[7,11].

Sacrococcygeal pilonidal disease is a common disabling condition. Predominantly it is noted in young people. Male are affected more in numbers than females as per Table 1. This was consistent with other many studies[1,12,19,20 24]. People with professions like driving and people having prolonged sittings are predominantly suffering from this ailment. Due to excessive pressure hairs are penetrated in to the subcutaneous tissues leading to abscess formation. These patients have discharge&uncomfortablewettingofundergarmentsdueto off andonpressure.Additionally,themaincomplaintofour patients was pain, intermittent discharge and intermittent abscess formation. This was in agreement with other related studies[11,7,19,21].Thissortofproblemisembarrassingforthe normal workinginthesociety.Nomethodoftreatmentisreal answer for this but few successful surgical procedures are now available to reduce its recurrence which is the major complication resulting in considerable morbidity and loss of work days[11]. Successful surgical treatment of pilonidal disease requires wide excisionofthesinusandunderlyinghairnests[21]. Consequently,a fullbasketofsurgicaltechniquesvariedfrom simple curettage to extensive flap techniques have been published. The ideal procedure to eradicate the disease should eliminate the natal cleft so as to take off the anatomical predisposition for the recurrenceofthesinus.23.Skinflapsto coverasacraldefectafter wide excision have been described & rhomboid flap technique involves creation of a flap to facilitate primary closure and to obliterate the deep natal cleft. Initially, the rhomboid flap procedure was indicated for complex and recurrent cases, but now it has been recommended as a first line management of chronic sacrococcygeal pilonidal sinus[8,16].

In the present study, we managed 15 patients with wide surgical excision and closure of the defect with rhomboid flap. The surgical outcome was evaluated by comparing this flap procedure with a similar number of patients undergoing traditional method of surgical excision and secondary healing. The operative time among the flap group (group A) is more than simple excision group (group B).

This timing is parallel with other similar studies[5,20,24]. However, group (A) showed significant statistical difference in comparison with group B as regards; time to walk without pain, and time to return to work. The results in this study agree with other related comparative studies[12,19,25] (Table .2).

Furthermore, the early postoperative surgical outcome of our patients showed that the reported incidence of wound infection, wound dehiscence and formation of subcutaneous hematoma were less among the flap group series in comparison with the other group. Many other current studies documented similar reported results[12, 23,24,25]. Great number of studies used vacuum drains after rhomboid flap to abolish the dead space and to prevent complications such as hematoma, seroma and recurrence[11,20,24,25]. In our study we used suction drains in group A which is in line with other studies (Table 2).

On the other hand, smaller number of studies reported that there was no significant difference between the use of drains or not on the surgical outcome[9,21].

The main causes of recurrence after surgical management of pilonidal sinus disease are the possible results of incomplete resection, postoperative dead space, excessive flap tension. Few more causes are chronic inflammation, trauma and the nature of body hairs and skin. Midline incision and deep intergluteal sulcus could particularly cause to the poor results[22,23].

Early post operative complications were noted within two weeks of surgery such as seroma, haematoma, abscess and sinus formation. Late complication was recurrence noted within 3 months and 6 months after surgery. Recurrence was noted in one patient in group A

patients and two in the group B patients with wide open excision.

During the follow up period, our results showed that recurrence occurred in one patient only in the flap group (3.3%) and two patients in group B. These recorded results were close to the incidence of recurrence of other similar related studies[5.12,14,19,20,21] .

CONCLUSION

Rhomboid excision and Limberg flap repair is an advantageous and effective modality than simple excision with secondary healing in treatment of sacrococcygeal pilonidal disease. In addition, it is safe and easy procedure. It may be an ideal treatment option in management of pilonidal sinus.

REFERENCES

1. Akin M, Leventoglu S, Mentes BB, Bostanci H, Gokbayir H, Kilic K, et al. Comparison of the classic limberg flap and modified limberg flap in the treatment of pilonidal sinus disease: a retrospective analysis of 416 patients. Surg Today. 2010;40(8):757-762.
2. Arora KB, Arora R, Arora A. Lateral advancement flap for sacrococcygeal pilonidal sinus: reassessment study. Int Surg J. 2017;4(6):1968-72.
3. Bascom JU. Pilonidal disease: correcting over treatment and under treatment. Contemp Surg. 1981;18:13-28.
4. Bronshtein M, Solt I, Blumenfield Z, Arad A. Pilonial sinus-the tale of the fetal trail. Eur J Obstet Gynecol Reprod Biol. 2005;119:255-6.
5. Dass TA, Zaz M, Rather A, Bari S. Elliptical excision with midline primary closure versus rhomboid excision with limberg flap reconstruction in sacrococcygeal pilonidal disease: a prospective, randomized study. Indian J Surg. 2012;74(4):305-8.
6. Eryilmaz R, Sahin M, Alimoglu O, Dasiran F. Surgical treatment of sacrococcygeal pilonidal sinus with the Limberg transposition flap. Surgery. 2003;134(5):745-9.
7. El-Khadrawy O, Hashish M, Ismail K, Shalaby H. Outcome of the Rhomboid Flap for Recurrent Pilonidal Disease. World J Surg. 2009;33(5):1064-8.
8. Eryilmaz R, Sahin M, Alimoglu O, Dasiran F. Surgical treatment of sacrococcygeal pilonidal sinus with the limberg transposition flap. Curr Surg. 2005;62(4):387-90.
9. Erdem E, Sungurtekin U, Nessar M .Are postoperative drains necessary with the Limberg flap for treatment of pilonidal sinus? Dis Colon Rectum. 1998;41(11):1427-31.
10. Horwood J, Hanratty D, Chandran P, Billings P. Primary closure or rhomboid excision and Limberg flap for the management of primary sacrococcygeal pilonidal disease? A meta-analysis of randomized controlled trials Colorectal Disease. 2012;14(2):143-51.
11. Jamal A, Shamim M, Hashmi F, Qureshi MI. Open excision with secondary healing versus rhomboid excision with Limberg transposition flap in the management of Sacrococcygeal Pilonidal Disease J Pak Med Assoc. 2009;59(3):157-60.
12. Jamal A, Shamim M, Hashmi F, Qureshi MI. Open excision with secondary healing versus rhomboid excision with Limberg transposition flap in the management of Sacrococcygeal Pilonidal Disease J Pak Med Assoc. 2009;59(3):157-60.
13. Karydakis GE. Easy and successful treatment of pilonidal sinus after explanation of its causative process. Aust N Z J Surg. 1992;62:385-9
14. Lee PJ, Raniga S, Biyani DK, Watson AJ, Faraghern IG, Frizelle FA. Sacrococcygeal pilonidal disease. Colorectal Dis. 2007;10:639-52.
15. Lee PJ, Raniga S, Biyani DK, Watson AJ, Faragher IG, Frizelle FA. Sacrococcygeal pilonidal disease. Colorectal Dis. 2008;10:639-50.
16. Lodhi FB, Ijaz S, Shafio M. Pilonidal sinus: Use of Limberg flap in the treatment. Professional Med J. 2006;13(3):435-9.
17. Mentes O, Bagci M, Bilgin T, Ozgul O, Ozdemir M. Limberg flap procedure for pilonidal sinus disease: results of 353 patients. Arch Surg. 2008;393:185-9.
18. Rafi Y, Butt TM, Rehman HA, Rafiq K, Chaudhary AM. Pilonidal disease: a conservative approach to the problem. Ann King Edward Med Uni. 2001;7:83-4.
19. Shabbir F, Ayyaz M, Farooka MW, Toor AA, Sarwar H, Malik AA. Modified Limberg's flap versus primary closure for treatment of pilonidal sinus disease: a comparative study. J Pak Med Assoc. 2014;64(11):1270-3.
20. Singh J, Kumar A, Pandove P, Singla R, Pal Kaur A, Kumar K. Outcome of Wide Excision versus Limberg Flap Repair in Pilonidal Sinus: A Comparative Study. Ann Surg Int.
21. Schoeller T, Wechselberger G, Otto A. Definite surgical treatment of complicated recurrent pilonidal disease with a modified fasciocutaneous V-Y advancement flap. Surg. 1997;121:258-63.
22. Sakr M, Habib M, Shabeed AA. Assessment of Karydakis technique as compared with midline closure for the management of chronic pilonidal sinus. J Pelvic Med Surg. 2006;12:201-6.
23. Topgul KJ. Surgical treatment of sacrococcygeal pilonidal sinus with rhomboid flap Eur Acad Dermatol Venereol. 2010;24(1):7-12.
24. Tavassoli A, Noorshafiee S, Nazarzadeh R. Comparison of excision with primary repair versus Limberg flap. Int J Surg. 2011;9(4):343-6.
25. Velasco AL, Dunlap WW. Pilonidal disease and hidradenitis. Surg Clin North Am. 2009;89(3):689-701
26. Khan PS, Hayat H, Hayat G. Limberg flap versus primary closure in the treatment of primary sacrococcygeal pilonidal disease; a randomized clinical trial. Indian J Surg. 2013;75(3):192-4. 2016;2(5):2-27