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Sacrococcygeal Pilonidal Sinus: A Comparative Study of Excision with Laying Open and Bascom's Technique

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Abstract

Background: Pilonidal Sinus is a disease that most commonly arises in the hair follicles of the natal cleft of the sacrococcygeal area of young adults. Principles of treatment require eradication of the sinus tract; complete healing of the overlying skin and prevention of recurrence.

This study aims at assessing the difference between a midline excision with Laying open and Bascom's method as a surgical treatment for Sacrococcygeal Pilonidal sinus in regarding to the duration of hospital stay, the time required for complete healing and complications.

Methods: Over a period of ten months, from December 2018 to September 2019, sixty three male patients with Sacrococcygeal Pilonidal sinus disease were prospectively studied in Hit General Hospital, Anbar, Iraq. Thirty five patients were operated on by midline excision with laying open and healing by secondary intention, without closure, group(A); the remaining twenty eight patients were operated on by Bascom's method, group (B). The principle outcome measures recorded were duration of hospital stay, duration of complete healing, wound Infection, abscess formation and recurrence of the disease. Data were statistically analyzed by using T-Test and Chi square.

P value equal or less than (≤ 0.05) was considered significant.

Results: The age range was from fourteen to fifty years with a mean age of (29.4±6.03) years in group (A) and (29.2±5.93) years in group (B). The mean duration of the disease was (20.2±8.7) months in group (A) and (17.6±7.8) months in group (B). The majority being drivers, with their main presenting symptom being discharge at the lower back in forty six patients (73.01%), either serous, serosanguineous or purulent. Duration of hospital stay was longer in patients of group (A) than those of group (B), (P = 0.049). Duration of complete healing was longer in patients of group (A) than those of group (B), (P = 0.002). The cases of longer duration of healing were due to wound infection and abscess formation. After the period of follow up (one to nine) months, the difference in postoperative complications in both groups were not significant, (P = 0.237).

Conclusions: Bascom's method is the ideal operation for a symptomatic Sacrococcygeal Pilonidal sinus. It has the advantages of short hospital stay, early wound healing, low frequency of wound infection and no recurrence of the disease and subsequently reduction of the total cost and rapid return to work.

Recommendations: Keeping the surgical wound dry and clean; Shaving of hair every two weeks and encouraging the patients to return to their normal activity as soon as possible.

Appreviations : (Cm) Centimeter ; (G.A) : General Anesthesia ; (Ml) Milliliter ;
(mm) Millimeter; ***(***MRI) Magnetic Resonance Imaging; (P) Probability; (PNS) Pilonidal Sinus; (USA) United States of America.

Keywords Pilonidal sinus, Excision withLaying Open, Bascom's Technique, Bascom’s procedure, Pilonidal abscess.

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Introduction

Pilonidal sinus (PNS) disease is a common condition described by Herbert Mayo in 1830[1] and subsequently by Anderson in 1847[2] then by Hodges in 1880[3]. It characteristically involves the Sacrococcygeal area but is also reported in the axilla [4], inter-digital cleft and finger pulp [5], umbilicus, inter-mammary[5], nose, neck[6] and Penis[7]. The etiology of this disease is debatable. Hodges in 1880 introduced the term Pilonidal and proposed a theory of congenital origin [3]. A century later, Patey [8] postulated the theory of an acquired condition which is now widely accepted.

Sacral PNS disease is an acquired condition, usually seen in young adults and manifests by midline pits in the natal cleft and associated with hair (mainly thick stiff type of hair) [9]. The underlying pathophysiologic feature is enlarged hair follicles due to midline vacuum and pulling forces; when plugged with hair or keratin, the follicle rupture leading to a foreign body reaction within the presacral subcutaneous tissue and subsequent acute and chronic abscess. It dominantly presents in males and especially in the hairy piles persons [9].

Sacrococcygeal Pilonidal sinus disease is a common condition causing discomfort and can be associated with considerable morbidity and have significant socioeconomic impact on affected individuals, sometime for prolonged period [10]. It is most common in the third decade of life, its peak age incidence between puberty and 40 years [10]. Men are affected three to four times more commonly than women [11]. The disease is still important because it provokes many complications postoperatively and no standard operation approved by all surgeons for its treatment [12].

The management of Pilonidal sinus disease is variable, debatable, and problematic. A number of surgical treatment options exist [13]: simple incision and drainage with laying open, excision and primary closure[13], rhomboid excision and Limberg flap procedure[14], lateral Bascom's technique[15], phenol application[16], cryosurgery and marsupialization and Laser surgery[17]. Midline Excision with Laying Open (excision and packing) and Modified Bascom's Technique are the two principal surgical options for a chronic symptomatic Sacrococcygeal PNS treatment in this study.

Aim of Study

This study aims at assessing the difference between a midline excision with Laying open and a modified Bascom's method as a surgical treatment for Sacrococcygeal Pilonidal sinus in regarding to the duration of hospital stay, the time required for complete healing and complications.

Objectives

1. Reduce the length of stay in hospital.
2. Acceleration of wound healing.
3. Complications and recurrence rate should be minimal.
4. Enabling the patient to resume normal social activities as early as possible.
5. Treatment must be acceptable to the patient in terms of discomfort, impact upon body image and self-esteem.

Patients And Methods

From December 2018 to September 2019, Sixty Three male patients with symptomatic chronic Pilonidal sinus of the natal cleft were treated in Hit General Hospital, Anbar, Iraq. Thirty Five patients were operated by Midline Excision with Laying open and healing by secondary intention, without closure group (A); The remaining twenty eight patients were operated by a Modified Bascom‘s method group (B). Most of the patients were followed up for six months. The data were collected to study the following variables: Age incidence; Presenting symptoms; Duration of symptoms; Treatment methods (Excision with Laying open versus Modified Bascom‘s method); Occurrence of complications (bleeding, wound infection, hematoma, seroma and abscess); Duration of hospital stay; The time required for complete healing and the recurrence rate.

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Surgical Procedures:

The patients were admitted the day before or on the day of operation, all the patients were operated under general anesthesia, Patients were placed in the prone (Jack Knife) position. The buttocks were retracted with adhesive tapes. The sacral area was completely shaved and disinfected with povidone iodine solution, and drapes were arranged.

In Group (A):

To localize the extension of the tract, probing was used in some cases, and then a symmetrical elliptical incision around the midline natal cleft was made to enclose all the sinuses and tracts. With continuous sharp dissection, the incision was carried down to presacral fascia to ensure the removal of all the possibly involved tissue. All the sinuses and their extensions were excised completely as shown in figure (1).

Hemostasis was secured by cauterization and tight packing applied, figure (2). The packs were usually removed the day following operation and a loose pack was left inside the wound with daily dressing till time of healing.

Healing process occurred by granulation tissues formation and secondary intention. Complete healing of the wound is shown in figure (3).

Fig.1 Excision of sacral PNS

Fig. 2 Tying nylon suture over the pack

Fig. 3 Healed Scar of PNS

In Group (B):

Under general anesthesia a lateral incision, (3-7) cm in length according to the extent of disease (Bascom's procedure) was made (2-3) cm from the midline, and the incision was deepened and kept as close as possible to the sinus tract, Figure (4). All diseased tissue was removed en bloc. The resultant cavity is shown in Figure (5). All midline Pilonidal openings were debrided and stayed open for drainage; care was taken to indentify all pits by stretching the post anal skin caudally; careful hemostasis was performed then Skin edges and the immediate subcutaneous fat were then approximated with (2/0) nylon sutures, A light dressing was applied to the closed wound, Figure (6). We avoided a dead space using pressure dressing. The nylon sutures were removed after ten to fourteen days from surgery. Complete healing occurs at about one month postoperatively sa shown in Figure (7)

Figure 4: Lateral Incision and Removal of Sinus Tract.

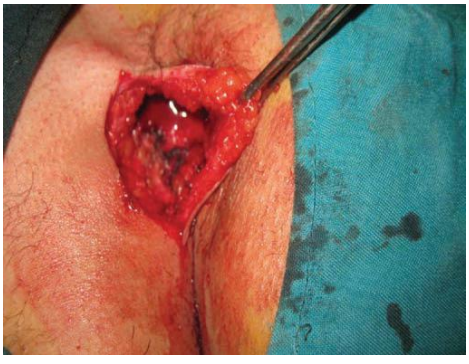

Figure 5: Residual Cavity after Removal of the Pilonidal Sinus.

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Figure 6: Skin Sutures were Made and Sinus Pits Debrided and Left Open.

Figure 7: The Final Appearance at about One Month Postoperatively.

Follow up

The patients were seen in the surgical outpatient clinic for wound inspection and removal of stitches in Bascom's cases and inspection of open wound in the open wound cases weekly in the first month after operation then every fifteen to thirty days, after that according to the individual cases. After complete healing, there was one visit each two months or followed up by phone. All symptoms, signs, the time of complete healing and complications were recorded in an analysis scheme for each cases every visit. The patients were instructed to shave the natal cleft every two weeks for six months after the operation.

Results

Age groups: Sixty three male patients with a symptomatic PNS were operated on, with age ranged from (14- 53) years. Midline excision with laying open, group (A), with a mean age of (29.4±6.03) years and Bascom's Technique, group (B), with a mean age of (29.2±5.93). Most of the patients (73.02%) were in the age interval of (24-33) years as shown in table (1).

Table 1: Distribution of Patients According to the Age.

Age (Years)	Group A	Group B	Total	
	Number of Patients	Number of Patients	Number of Patients	%
14-23	4	3	7	11.11
24- 33	25	21	46	73.02
34-43	5	3	8	12.69
44- 53	1	1	2	3.18
Total	35	28	63	100.00

The mean duration of the disease was (20.2±8.7) months in group (A) and (17.6±7.8) months in group (B). Most of the patients (60.31%) were in the period of (13-24) months as shown in table (2).

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Table 2: Distribution of Patients According to the Duration of the Disease.

Duration (Months)	Group A	Group B	Total	
	Number of Patients	Number of Patients	Number of Patients	%
1 – 12	5	7	12	19.05
13 – 24	22	16	38	60.31
25 – 36	6	5	11	17.46
37 – 48	2	0	2	3.18
Total	35	28	63	100.00

The main presenting symptom was a discharge at the lower back in forty six patients (73.01%), (serous, sero-sanguineous or purulent). It is important to note that almost all patients with long standing disease (more than one year) gave a history of having a purulent discharge during sometime in the history for which they might or might not have received treatment until the condition changed into a chronic state. Although in seventeen patients (26.99%), discharge was not the main presenting symptom, but most of these had this symptom as an additional one to his presenting symptom or had a history of such a discharge during the presented duration as, table (3).

Table 3: Distribution of Patients According to the Main Presenting Symptoms.

Main Presenting Symptom	Group A	Group B	Total	
	Number of Patients	Number of Patients	Number of Patients	%
Discharge Serous, Sero- sanguineous or Purulent	25	21	46	73.01
Pain	9	7	16	25.40
Pouting Granulation Tissue	1	0	1	1.59
Total	35	28	63	100.00

The mean duration of hospital stay in group (A) was (1.8±0.95) days, while in group (B) it was (0.6±0.52) days, which clearly demonstrates the much shorter hospital stay in group (B) than in group (A). P value (0.049) was considered to be statistically significant as shown in table (4) and chart (1).

Table 4: Duration of Hospital Stay in Both Groups.

Hospital Stay (Day)	Group A		Group B		P Value
	Number of Patients	%	Number of Patients	%	
0 (Day of Operation)	21	60.00	27	96.43	0.049
1	12	34.29	1	3.57	
2	2	5.71	0	0	

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Total	35	100.00	28	100.00	

The mean time required for complete healing in group (A) was (37.7±9.98) days, most of them in the interval of (25-38) days, while in group (B); it was (19.1±6.39) days and most of the patients in the interval of (10–24) days. P value (0.002) is considered to be statistically significant, table (5) and chart (2).

Table 5: The Time Required for Complete Healing in Both Groups

Number of Days	**Group A**		**Group B**		**P Value**
	Number of Patients	**%**	**Number of Patients**	**%**	
0 - 24	-	-	25	89.29	0.002
25 - 38	24	68.57	2	7.14	
39 - 53	7	20.oo	1	3.57	
54 - 67	4	11.43	-	-	
Total	35	100.00	28	100.00	

Regarding Complications:

Wound infection: Three patients (8.57%) in group (A) and two patients (7.14%) in group (B) were developed wound infection, that responded well to the increased frequency of dressing, broad spectrum antibiotics and twice daily washing of the area by detergent and water.

Bleeding: Two patients (5.71%) in group (A) only were shown bleeding, that respond well to increase pressure on the wound by Packs and adhesive plaster.

Abscess formation: One patient (3.57%) in group (B) only was developed it, which was treated by removal of (one to two) stitches, simple drainage under local anesthesia and broad spectrum antibiotics.

Recurrence, Hematoma and Seroma: Not recorded in both groups.

P value (0.237) was not significant.

Table (6) shows the complications mentioned above in both groups

Complications	**Group A**		**Group B**		**P value**
	Number of Patients	**%**	**Number of Patients**	**%**	
Wound Infection	3	8.57	2	7.14	0.237
Bleeding	2	5.71	0	0	
Abscess	0	0	1	3.57	
Recurrence, Hematoma and Seroma	0	0	0	0	
Total	5	14.28	3	10.71	

The follow up period was ranged from (one to nine) months. The mean in group (A) was (4.6±1.5) months and in group (B) was (4.9±1.7) months as shown in table (7).

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Table 7: The Follow up Period.

Follow up Period (Months)	Group A	Group B	Total	
	Number of Patients	Number of Patients	Number of Patients	%
1 - 3	7	5	12	19.05
4 - 6	26	19	45	71.43
7 - 9	2	4	6	9.52
Total	35	28	63	100.00

Discussion

Sixty three male patients were divided into group (A) with a mean age of (29.4±6.03) years and group (B) with a mean age of (29.2±5.93) years. All Patients were operated on under G.A for a symptomatic Pilonidal sinus disease.

The mean duration of the symptoms prior to the reporting of the patients to the hospital was (20.2±8.7) months in (group A) and (17.6±7.8) months in (group B), which were identical to the study performed by Samar J Al-Hamoud and Alaa S Abdal Jabbar 2001(2.4 years) [18]. Most patients presented in the third decade of life which is the age at which the sex hormones are known to maximally affecting the pilosebaceous glands[9]. Other study performed by Sattar Kadhium 2010 shows that most patients present in the second and third decade of life [34].

The main presenting symptoms were discharge (73.01%) and pain (25.40%), which were identical to other studies [9] (78% and 34%) in both groups respectively.

Hospitalization in group (A), (34.29%) patients was discharged on the same operative or on the first postoperative day. while in group (B), the majority (92.86%) were discharged on the same operative or on the first postoperative day. This difference was considered to be statistically significant, and was identical to the study done in the Queen Alexandra Hospital by Senapati A [15], his study shows that no patient needed hospitalization postoperatively; while those in group (A) needed hospitalization for pain control and change of dressing as a result of the wide defect.

The mean time needed for complete healing in group (A) was (37.7±9.98) days. Other studies with excision and laying open show (90) days by Samar J, Al-Hamoud (2001)[18] and (60) days by Urhan MK (2002) [14]. While in group (B), the mean healing time was (19.1±6.39) days was Comparable to similar studies (10.3) days by Al-Hassan (1990) [20] and (28) days by Thomson [15].

The difference in the mean healing time in both groups was significant.

Regarding postoperative complications: Wound infection occurred in three patients (8.57%) in group(A) and in two patients (7.14%) in group (B), all responded well to the increasing frequency of dressing, broad spectrum antibiotic and twice daily washing of the area by a detergent and water. Abscess occurred in one patient (3.57%) in group (B) possibly due to the early closure of the lateral wound without suction drainage. These were treated by simple drainage under local anesthesia and broad spectrum antibiotics. Similar studies using the lateral approach as performed by Senapati 2000 [15] where 17 patients (7.8%) out of 218 developed abscesses due to the cause mentioned above. Wound infections (8.57%, 7.14%) and Abscess formation (0%, 3.57%) in both groups (A and B) respectively are slightly different but not significant. Chintapatla S [21] also showed that there is no difference in the rate of infection between the two methods (8.9%, 5.7%) respectively. Hematoma and seroma was not recorded in both groups (zero percent). The recurrence rate was equal to zero. This was due to: *First*: In group (A): The wide local excision and the formation of a broad scar after complete healing was leading to a reduction of the local hair growth, fewer hair follicles near the midline and the flattening of the natal cleft and reduction of the buttocks friction. Hence the possibility of hair folliculate is less.

Second: In Bascom's procedure, pits will be formed under the influence of gravitational pull on the post anal skin [15]. This may account for the success of the procedure in keeping the recurrence to a minimum by detaching the midline skin from the post sacral fascia.

Third: The short period of this study (ten) months only may be considered as a positive causative factor.

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Therefore, the difference in the means of hospitalization and complete healing time between group (A) and (B) were significant.

The follow up period was ranged from (one to nine) months with a mean of (4.6±1.5) and (4.9±1.7) months in both groups (A and B) respectively.

Conclusions

Bascom's operation fulfils many requirements of the ideal operation for symptomatic Pilonidal sinus. It is a simple procedure that is easy to learn and to undertake, and is suited for a day case surgical procedure. Furthermore, the patients are self caring in the postoperative period. It has a shorter duration of hospitalization, healing time and a minimal morbidity for the patient, as well as with a remarkable reduction of the total cost, and hence, early return of the patients to their usual works can be done.

Recommendations

Concerning the results of the study, the suitable recommendations are:

1. Wound area must be kept clean by washing it in the morning and evening, (use Normal Saline 0.9% or plain water and a soft cloth). After washing, drying the area by a hair dryer or a soft towel and kept it dry for at least five days to minimize the risk of infection to advance inside. Damp or wet dressing should be replaced with a dry clean one.
2. The area around the wound should be kept free of hairs by shaving every two weeks.
3. Further investigations of those factors that delay wound healing should be thoroughly evaluated.
4. We encouraged the patients to return to their normal activity as soon as possible because it was observed that the wounds healed more quickly in those patients who resumed their normal routine before the healing of the wound because of improvement of both immune response and blood supply to the wound.
5. Before deciding which type of operation to have, the patient should discuss the advantages and disadvantages of each surgical technique with the surgeon in order to make sure that he understands the relevant benefits and risks.

References

1. Mayo H. Observations on injuries and diseases of the rectum. London: Burgess & Hill, 1833.
2. Anderson AW(1847) Hair extracted from an ulcer. Boston Med Surg 115: 95-97.
3. Hodges RM. Pilonidal sinus. Boston Med Surg J 1880; 103:485-486.
4. Ohtsuka H, Watanble T. Pilonidal sinus of the axilla: Report of five patients and review of the literature. Ann Plas Surg 1994 Sept; 33(5): 322-5.
5. Grant I, Mahaffey PJ (2001) Pilonidal sinus of the finger pulp. J Hand Surg (Br) 26(5):490–491.
6. Migata T.Toh, Doi F. Pilonidal Sinus on the Neck. Surg Today 1992; 22(4): 379-82.
7. Val-Bernal JF, Azcarretazabal T, Garijo MF (1999) Pilonidal sinus of the penis. A report of two cases, one of them associated with actinomycosis. J Cutan Pathol 26(3):155–158.
8. Patey DH. Areappraisal of the acquired theory of Pilonidal sinus Br J Surg 1969; 56:463-466.
9. Silva JH da. Pilonidal cyst: cause and treatment. *Dis Colon Rectum*. Aug 2000; 43(8):1146-56.
10. Hull TL, Wu J. (2002): Pilonidal disease. Surg. Clin. North Am.; 82: 1169-1185.
11. Sondenaa K, Nesvik I, Andersen E, et al. Bacteriology and complications of chronic pilonidal sinus surgical treatment. *Colorectal Dis* 1995;10(3): 161-66.
12. Bilgin Of, Beng: sun U, Eryavuz Y, Bayar S, Atalay A. Aras N.[the various surgical techniques in pilonidal sinus]. Pilonidal cyst: cause and treatment. *Dis Colon Rectum*. Aug 2000; 43(8):1146-56.
13. Sondenaa K, Nesvik I, Andersen E, et al. Recurrent pilonidal sinus after excision with closed or open treatment: final result of a randomised trial. *Eur J Surg*. Mar 1996;162(3):237-40.
14. Urhan MK, Kucukel F, Topgul K, Ozer I, Sari S (2002) Rhomboid excision and Limberg flap for managing pilonidal sinus: results of 102 cases. Dis Colon Rectum 45:656–659.
15. Senapati A, Cripps NPJ, Thompson MR. Bascom's operation in the day surgical management of symptomatic pilonidal sinus. Br J Surg 2000 Feb; 86:1067-70.

ISSN NO: 2770-2936
Date of Publication:05-01-2022

16. Schneider IH, Thaler K, Kocherling F (1994) Treatment of pilonidal sinuses by phenol injections. Int J Colorectal Dis 9:200–202.
17. Odili J, Gault D (2002) Laser depilation of the natal cleft an aid to healing the pilonidal sinus. Ann R Coll Surg Engl 84(1):29–32.
18. Al-Hamoud SJ, Abdal Jabbar AS. Management of Sacrococcygel pilonidal disease. Saudi Med J 2001 Sep; 22 (9):762-4.
19. Sattar Kadhium. Sacro-Coccygeal Pilonidal Sinus. Iraqi Med J 2010; 56 (2): 119,1
20. Akinci OF, Coskun A, Uzunkoy A (2000) Simple and effective surgical treatment of pilonidal sinus: asymmetric excision and primary closure using suction drain and subcuticular skin closure. Dis Colon Rect 43(5):701–706.
21. Chintapatla S, Safarani N, Kumar S. Sacrococcygeal pilonidal sinus: Historical review, pathological insight, surgical options. Tech Coloproctol. 2003; 7:3–8.