Pilonidal sinus: a comparative study of treatment methods

Varnalidis, I.*, Ioannidis, O.**, Paraskevas, G.***, Papapostolou, D.*, Malakozis, S.G.**, Gatzos, S.**, Tsigkriki, L**, Ntoumpara, M.*, Papadopoulou, A*, Makrantonakis, A.**, Makrantonakis, N.**
*Plastic Surgery Department, General Regional Hospital 'George Papanikolaou'. Thessaloniki, Greece
**First Surgical Department, General Regional Hospital 'George Papanikolaou'. Thessaloniki, Greece
***Department of Anatomy, Medical School, Aristotle University of Thessaloniki, Thessaloniki, Greece

Correspondence to: Orestis Ioannidis,
Alexandrou Mihailidi 13, 54640 Thessaloniki, Greece
Tel: +302310845470, fax: +302310551301, email: telonakos@hotmail.com

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Abstract

Introduction: Pilonidal disease is a very common anorectal problem without a clinical consensus on its optimal management.

Objective: To compare the methods used by our clinic and determine the outcomes in relation to healing, hospitalization time and recurrence.

Materials and Methods: We have studied all the cases of patients with pilonidal sinus that were treated surgically in our clinic from January 1, 1997 to December 31, 1999.

Results: A total of 111 patients were treated of whom 92 (82.8%) were men and 19 (17.2%) were women. Ages ranged from 16 to 65 years with an average age of about 25.1 years. Of the 111 patients, 63 were treated with marsupialization and the remaining 48 were treated by excision (29 with open excision and 19 with the primary suture technique). One hundred and two (91.9%) patients were discharged from the hospital after the surgical procedure, while the remaining 9 patients were hospitalized for 24 hours. The healing time for marsupialization was 27.3 days, the primary suture technique was 11.7 days and the open excision method took 46.4 days. Recurrence was observed in 16 patients (14.4%). Recurrence appeared in 4 (6.35%) of the 63 patients subjected to marsupialization, 1 of the 29 patients subjected to open incision, and 11 (57.8%) of the 19 patients subjected to primary closure.

Conclusion: In the absence of inflammation and/or recurrence, marsupialization is the surgical method of choice as it has a low percentage of recurrence and an acceptably short healing period. In apparently large, inflamed and recurrent situations, open excision is preferred.

Keywords: marsupialization, primary closure, open excision, healing time, recurrence.

Introduction

Pilonidal disease is a very common anorectal problem that most often arises in the hair follicles of the natal cleft of the sacrococcygeal area. Incidence was calculated to be 26 cases per 100,000, affecting males twice as much as females, and is most common in young adults of working age. Men are thought to be at higher risk because of their hirsute nature. Pilonidal sinus is also associated with obesity (37%), sedentary occupation (44%) and local irritation or trauma (34%) [1]. A lack of personal hygiene does not appear to contribute, although the Hawthorne effect may have influenced responses where the q factor was entered into profile questionnaire [1,2]. During the Second World War, pilonidal disease very commonly appeared in jeep drivers, leading to the disease being known as, “jeep disease” [3].

Pilonidal disease can appear as an acute abscess along with sinus tract formation. A more complex manifestation can be characterized by chronic or recurrent abscesses with extensive, branching sinus tracts [4]. The common form is an acute abscess characterized by the existence of a midline pit in the natal cleft typically identified 4 to 8 cm from the anus. The skin enters the sinus giving the opening a smooth edge. This primary tract leads into a subcutaneous cavity, which contains granulation tissue and usually a nest of hairs that are present in two thirds of cases in men and in one third of those in women and may be seen projecting from the skin opening. Many patients have secondary lateral openings 2 to 5 cm above the midline pit. The skin opening and the superficial portion of the tract are lined with squamous cell epithelium, but the deep cavity and its extensions are not.

Today pilonidal sinuses are widely accepted to be acquired abnormalities [5,7] as a result of the drainage of a hair follicle [8] that ruptured in the subcutaneous fat, producing acute or chronic inflammation [9] resulting in an abscess or a tract [7]. The invasion of the follicle occurs through the expandable orifice of the vestigial scent gland [10] and is a result of inflammation and rupture in the subcutaneous fat of the follicle [10,11].

The management of pilonidal disease depends on its presentation and ranges from simple incision and
drainage to a wide excision with extensive reconstructive procedures. There is no clinical consensus on the optimal management of the pilonidal sinus and our objective is to compare the methods used by our clinic and determine the outcomes in relation to healing, hospitalization time and recurrence. We also try to determine the statistical occurrence based on sex and age.

Materials and Methods

We have studied all the cases of patients with Pilonidal sinus that were treated surgically in our clinic from January 1, 1997 to December 31, 1999. The variables studied were:
- Age
- Sex
- Method of treatment
- Time of hospitalization
- Time of healing
- Recurrence

Results

Our clinic surgically treated 111 patients presenting with pilonidal sinus from January 1, 1997 to December 31, 1999. Among these 111 patients, 92 (82.8%) were men and 19 (17.2%) were women. Ages ranged from 16 to 65 years with an average age of about 25.1 years.

In our clinic we practice the Open or Primary Suture Excision and marsupialization techniques. There was no inflammation in any of the 111 treated patients. If there was prior inflammation, it was treated first with incision and drainage followed by administration of medication, including antibiotics and non-steroid anti-inflammatory drugs.

Of the 111 patients, 63 were treated with marsupialization and the remaining 48 were treated by excision (in 29 of them open excision was preferred, while the remaining 19 received the primary suture technique). From the total number of patients, 102 (91.9%) were discharged from the hospital after the surgical procedure, while in the remaining 9 cases, hospitalization for 24 hours was deemed necessary.

The time of healing (Figure 1) of the patients that were subjected to marsupialization peaked at 40 days (average 27.3), in contrast to the patients subjected to the primary suture technique, which peaked at 15 days (average 11.7). The patients that were subjected to the open excision method had a healing time that peaked at 90 days (average 46.4).

Recurrence of sinus disease (Figure 2) was observed in 16 patients (14.4%). Four (6.35%) of the 63 patients subjected to marsupialization experienced recurrence. Of the 29 patients subjected to open incision, there was only 1 (3.45%) recurrence, while 11 (57.8%) of the 19 patients subjected to primary closure experienced recurrence.

Discussion

Pilonidal disease affects men [12,14] between 16-25 years of age most often. Usually it is associated with obese [15,17] and hirsute individuals who experience profuse sweating and have a sedentary lifestyle [3,18]. The treatment of pilonidal disease is mostly surgical. The most commonly used procedures today are: simple incision, excision, plastic surgery techniques, marsupialization and fistulotomy.

Simple incision implies a midline incision through the mouths of the pits and is effective in those cases of so-called raphe cannulization where infection spreads from pit to pit [11,19]. After unroofing the tract it is cleaned and drained. The final cure is done after the end of inflammation [20,22]. This is usually reserved for acute infective swelling. Recurrence is frequent and is mostly used in acute situations where relief of pain is urgent.

Excision is used for chronic and recurrent pilonidal sinuses. Excision of all involved skin and subcutaneous tissue may be necessary for definitive treatment. These wounds may then be managed openly, with healing by secondary intention, allowing the wound to granulate, or is closed by primary suture [23,24].
the sinus open permits adequate drainage. The healing requires more time, but has lower recurrence [25]. In the primary suture the pilonidal sinus is excised and the wound sutured by using deep tension sutures tied over a primary suture the pilonidal sinus is excised and the incision is scrubbed to remove hair and granulation tissue. Then, the skin flaps are sutured to the presacral fascia and the wound healing is done by secondary intention [11,33]. It is vital to have a strong front tract in order to succeed.

Fistulotomy involves milosis of the cavernous resource, opening up, removal of hair and scrubbing of granulation tissue and healing by secondary intention [34,35].

For our cases, we used incision and drainage of the abscessed bladders followed by excision (Open or with Primary Closure) and marsupialization [36]. Clear criteria for selecting the treatment method do not exist [37]. Nevertheless, it is emphasized that Primary Closure should be used in small, uncomplicated bladders [38] and the open excision in larger bladders [39].

After incision and drainage of the bladder has been performed, and after inflammation has subsided, a permanent treatment can be applied. Based on our 111 observed surgical cases, marsupialization is the surgical method of choice as it had a low percentage of recurrence and an acceptably short healing period [37]. It should be noted that selecting marsupialization as a treatment method presupposes the absence of inflammation and that the case is not a recurrence [40]. In apparently large, inflamed and recurrent situations, we should prefer the Open Excision, where the healing time is longer but the percentage of success is greater [41].

References

1. Sondenaa K, Andersen E, Nesvik I, Soreide JA. Patient characteristics and symptoms in chronic pilonidal sinus disease. Int J Colorectal Dis. 1995;10(1):39-42.
2. Akinci OF, Bozer M, Uzunoy A, Duzgun SA, Coskun A. Incidence and aetiological factors in pilonidal sinus among Turkish soldiers. Eur J Surg. 1999;165(4):339-42.
3. Louis A Buie. Classic articles in colonic and rectal surgery. 1980-1975: Jepp disease (pilonidal disease of mechanized warfare). Dis Colon Rectum. 1992;25(4):384-90.
4. Bendewald FP, Cima RR. Pilonidal disease. Clin Colon Rectal Surg. 2007;20(2):86-95.
5. King ES. The nature of the pilonidal sinus. Aust N Z J Surg. 1947;16(3):182-92.
6. Patey DH. A reappraisal of the acquired theory of sacrococcygeal pilonidal sinus and an assessment of its influence on surgical practice. Br J Surg. 1969;56(6):463-6.
7. Patey DH, Scarff RW. Pathology of postanal pilonidal sinus; its bearing on treatment. Lancet. 1946;2(6423):484-6.
8. Bascom J. Pilonidal disease: origin from follicles of hairs and results of follicle removal as treatment. Surgery. 1980;87(5):567-72.
9. Sorell JA. Pilonidal disease. Surg Clin North Am. 1994;74(6):1303-15.
10. Bascom J. Pilonidal disease: long-term results of follicle removal. Dis Colon Rectum. 1983;26(12):807-41.
11. Bascom J, Bascom T. Failed pilonidal surgery: new paradigm and new operation leading to cures. Arch Surg. 2002;137(10):1146-51.
12. Karydakis GE. New approach to the problem of pilonidal sinus. Lancet. 1973;2(7843):1414-5.
13. Brearley R. Pilonidal sinus; a new theory of origin. Br J Surg. 1955;43(177):62-8.
14. Clothier PR, Haywood IR. The natural history of the post anal (pilonidal) sinus. Ann R Coll Surg Engl. 1984;66(3):201-3.
15. Bascom J. Surgical treatment of pilonidal disease. BMJ. 2008;336(7649):842-3.
16. Klass AA. The so-called pilo-nidal sinus. Can Med Assoc J. 1956;75(9):737-42.
17. Menzel T, Dorner A,ramer J. [Excision and open wound treatment of pilonidal sinus. Rate of recurrence and duration of work incapacity]. Dtsch Med Wochenschr. 1997;122(47):1447-51.
18. Kronborg O, Christensen K, Zimmermann-Nielsen C. Chronic pilonidal disease: a randomized trial with a complete 3-year follow-up. Br J Surg. 1985;72(4):303-4.
19. Flannery BP, Kidd HA. A review of pilonidal sinus lesions and a method of treatment. Postgrad Med J. 1967;43(499):353-8.
20. Bascom J, Bascom T. Utility of the cleft lift procedure in refractory pilonidal disease. Am J Surg. 2007;193(5):606-9.
21. Jensen SL, Harling H. Prognosis after simple incision and drainage for a first-episode acute pilonidal abscess. Br J Surg. 1988;75(1):80-1.
22. Rickles JA. Ambulatory surgical management of pilonidal sinus. Am Surg. 1974;40(4):237-40.
23. Armstrong JH, Barcia PJ. Pilonidal sinus disease. The conservative approach. Arch Surg. 1994;129(9):914-9.
24. Lord PH, Millar DM. Pilonidal Sinus: A Simple Treatment. Br J Surg. 1965;52:298-300.
25. Miocinovic M, Horzic M, Bunoza D. The treatment of pilonidal disease of the sacrococcygeal region by the method of limited excision and open wound healing. Acta Med Croatica. 2000;54(1):27-31.
26. Jones DJ. ABC of colorectal diseases. Pilonidal sinus. BMJ. 1992;305(6850):410-2.
27. Serour F, Somekh E, Krtuman B, Gorenstein A. Excision with primary closure and suction drainage for pilonidal sinus in adolescent patients. Pediatr Surg Int. 2002;18(2-3):159-61.
28. Chintapatla S, Safarani N, Kumar S, Haboubi N. Sacrococcygeal pilonidal sinus: historical review, pathological insight and surgical options. Tech Coloproctol. 2003;7(1):3-8.
29. Karydakis GE. Easy and successful treatment of pilonidal sinus after explanation of its causative process. Aust N Z J Surg. 1992;62(5):385-9.

30. Morden P, Drongowski RA, Geiger JD, Hirschl RB, Teitelbaum DH. Comparison of Karydakis versus midline excision for treatment of pilonidal sinus disease. Pediatr Surg Int. 2005;21(10):793-6.

31. Solla JA, Rothenberger DA. Chronic pilonidal disease. An assessment of 150 cases. Dis Colon Rectum. 1990;33(9):758-61.

32. Spivak H, Brooks VL, Nussbaum M, Friedman I. Treatment of chronic pilonidal disease. Dis Colon Rectum. 1996;39(10):1136-9.

33. Bascom JU. Repeat pilonidal operations. Am J Surg. 1987;154(1):118-22.

34. Kitchen PR. Pilonidal sinus: excision and primary closure with a lateralised wound - the Karydakis operation. Aust N Z J Surg. 1992;52(3):302-5.

35. Kitchen PR. Pilonidal sinus: experience with the Karydakis flap. Br J Surg. 1996;83(10):1452-5.

36. Abrahamson DJ. Outpatient management of pilonidal sinuses: excision and semiprimary closure technic. Mil Med. 1978;143(11):753-7.

37. Petersen S, Koch R, Stelzner S, Wendlandt TP, Ludwig K. Primary closure techniques in chronic pilonidal sinus: a survey of the results of different surgical approaches. Dis Colon Rectum. 2002;45(11):1458-67.

38. Briggs M. Principles of closed surgical wound care. J Wound Care. 1997;6(6):288-92.

39. Nordon IM, Senapati A, Cripps NP. A prospective randomized controlled trial of simple Bascom's technique versus Bascom's cleft closure for the treatment of chronic pilonidal disease. Am J Surg. 2009;197(2):189-92.

40. Akca T, Colak T, Ustunsoy B, Kanik A, Aydin S. Randomized clinical trial comparing primary closure with the Limberg flap in the treatment of primary sacrococcygeal pilonidal disease. Br J Surg. 2005;92(9):1081-4.

41. Senapati A, Cripps NP, Thompson MR. Bascom's operation in the day-surgical management of symptomatic pilonidal sinus. Br J Surg. 2000;87(8):1067-70.