

The treatment of non complicated sacrococcygeal pilonidal sinus by minimal excision and primary closure technique

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Abstract:

Background: The surgical treatment of pilonidal sinus varies from wide excision and laying the wound open or excision with primary closure or excision with the use of skin graft in some special cases.

Objectives: The objectives of this study is to determine the efficacy of treating non complicated pilonidal sinus disease with minimal excision and primary closure technique, complications and recurrence rate.

Patients and methods: This is a prospective study conducted in shahid ahmed ismaiel hospital in rania – As sulaimania IRAQ during the period from December 2013 to January 2016 and was carried on one hundred (100) consecutive patients with non complicated non recurrent pilonidal sinus patients who were treated with minimal excision and primary closure technique. The data were analyzed focusing mainly on complications mainly infection, gapping, wound disruption, recurrence rate and patient's compliance to antibiotics use and local wound care. The results obtained were compared with other similar studies.

Result: One hundred patients with non complicated pilonidal sinus were treated with minimal excision and primary closure technique. Fifteen patients developed superficial wound infection, seventeen patients developed simple superficial wound gapping. Three patients developed deep wound infection with disruption. Four patients developed recurrence and they were treated with re-excision and skin graft placement. Minimal follow up was six months, Operations were done under general or spinal anesthesia. Operative time ranged between 12 to 22 minutes (mean time 17 minutes).

Conclusion: Minimal excision and primary closure technique for the treatment of pilonidal sinus disease is associated with short hospital stay, shorter off work time, less cost, low complications rate and low chance of recurrence.

Key words: Pilonidal sinus, minimal excision, primary closure, recurrence rate.

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Introduction

Pilonidal disease (cyst, infection) consists of a hair-containing sinus or abscess occurring in the intergluteal cleft (1). Pilonidal disease is a common pathology in general surgery practice, male patients are more affected than female patients by a ratio of 3:1 (2).

The development of pilonidal disease was attributed by Karydakos to three main factors: the invader that is a loose hair, the force of insertion and the vulnerability of skin to the insertion of hair at the depth of the natal cleft. The three factors are aided by risk factors such as obesity, moisture, hairy back, prolonged sitting and negative suction of these loose hairs through a small breach in the skin leading to inflammation and later infection (3).

Surgical treatment of pilonidal disease is challenging due to high rate of wound infection, impaired wound healing and recurrence of disease after some time (4).

Various different techniques have been used with variable success rates, but no single method can be labelled as the ideal treatment and sometimes the operation is worse than

the disease itself. Both techniques of sinus excision with secondary healing or performing marsupialization result in a midline wound that takes several weeks to heal and there is a significant recurrence rate because of open wound.

Excision and primary closure is a preferable method as compared to simple excision and secondary healing. Primary closure results in lower wound dehiscence and infection, quicker healing time, fewer post operative visits, reduced pain and shorter off work time (5).

Patients and Methods

This prospective study was conducted in shahid ahmed ismaiel hospital – As sulaimania IRAQ after obtaining approval from authorities and after fully informed written consent signed by the patient. It was carried out on one hundred consecutive patients with primary non recurrent sacrococcygeal pilonidal sinus with midline pits, from the 1st of December 2013 to the 1st of January 2016 with minimum follow up period of about six months.

All the patients included had single or multiple pits, which were in the midline only.

Patients who had midline and lateral pits at the same time were considered “complex” disease so they were excluded from the

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study.

The number of pits, the presentation of the patient, age, sex, treatment, complications, inpatient stay and postoperative outcome was recorded. Mean age at presentation was 24.1 years (15-42 years), with 29 females and 71 male patients. All patients were treated surgically with minimal excision and primary closure.

Technique: Shaving of the operation area was done in the ward one hour preoperatively. Operation was done while the patient in prone position under general or spinal anesthesia. Both buttocks were strapped widely by elastoplaster and the site of operation prepared with povidone iodine 10% and draped usually. One gram of i.v ampiclox was given at the time of operation, followed by further three doses of I.V. antibiotics through the first 24 hours postoperatively then oral antibiotics continued for another six days.

No probing was done and we did not use methylene blue to recognize the tract, we depend on the colour difference between the sinus wall (dark-hair containing) and the adjacent normal tissue {fig.1}.



D shaped incision done with initial boundaries of about 1 cm above the upper pit and 1 cm below the lower pit and 0.5-1 cm aside of pits {fig.2} .



Diathermy had never been used in all operations
After doing the incision, we deepen it to about 1-1.5 cm with blunt dissection until we recognize the sinus wall, then we continue dissection all around the sinus aiming for total excision without rupturing the sinus.

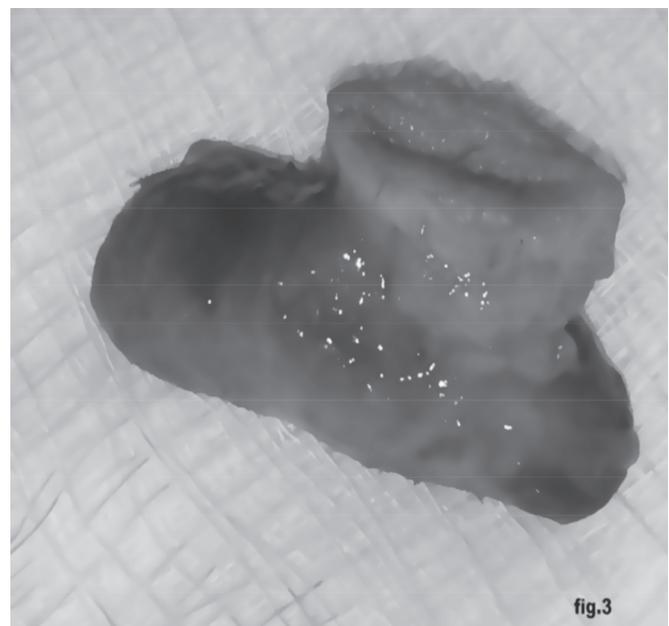
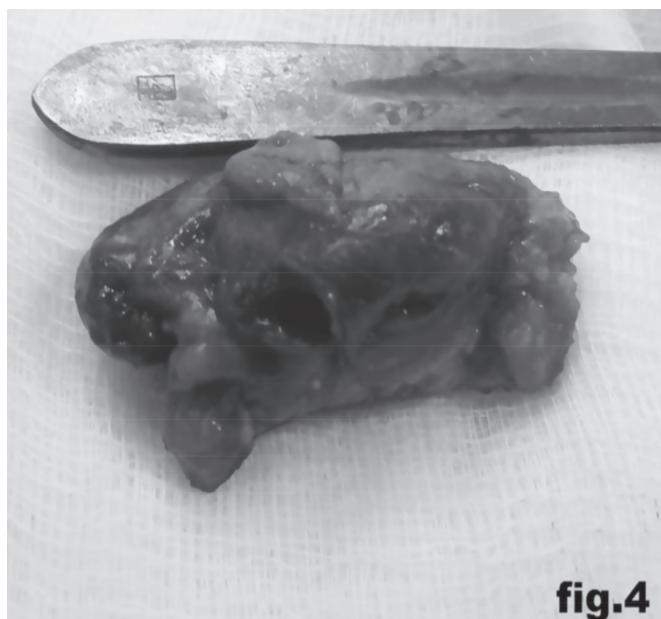


Fig.3}
If rupture occurred it will be obvious through the protrusion of its contents so we do more lateral excision to ensure excision of the whole sinus and leaving the normal healthy tissue only, {fig.4}.



After completion of excision, haemostasis was secured before and after elastoplastic traction cutting. The wound was closed in layers and the skin closed by subcuticular polypropylene suture.

No drain was put and all the excised sinuses were subjected to histopathological examination.

Patients were discharged home 8 hours after the operation and were kept on 7- day course of antibiotics with alternative day dressing {to give more chance of having clean dressing as the area is subjected to contamination more frequently than other areas}. Stiches were removed on 10th postoperative day.

Patients were advised to avoid prolonged pressure on the site of operation and to ensure shaving and good hygiene to the operated area for a period of 6 months. Operations were done under general or spinal anesthesia and the mean operating time was about seventeen minutes (in a range of 12-22 minutes). Visits for postoperative follow up were scheduled at one month, three months, six months and one year postoperatively.

Results:

The follow up parameters include wound seroma, infection, disruption, pain and recurrence.

Recurrence was defined as the presence of any persistent purulent/ blood stained discharge from the previously operated or nearby area during the follow up.

This rate was compared with recurrences observed in other international studies.

Sixty nine patients (69%) presented with intergluteal pain and thirty seven patients (37%) presented with intermittent discharge, while seven patients (7%) presented with sensation of mass or small hole in their intergluteal area .

The patients were seventy nine males (79%) and twenty one

females (21%).

The mean age was (24.1 years) with average between (15 and 42 years).

The postoperative hospital stay time was about 8 hours and the healing time was between 10 and 20 days.

Fifteen patients (15%) developed superficial wound infection, nine of them were non compliant with antibiotics use and local hygiene and dressing instructions, only one of these fifteen patients developed recurrence. seventeen patients (17%) developed simple wound gapping, four of them were non compliant patients, {which means they did not take antibiotics or do dressing properly and according to the instructions}.

Another three patients (3%) developed deep wound infection with disruption, all of these three patients were ((non compliant)) and all of them and they developed recurrence. Four patients (4%) developed mild seroma and were treated by simple aspiration with good response.

According to the mentioned above we had four patients (4%) who developed recurrence , all of them had post operative wound infection and all of them were non compliant to antibiotic treatment and local hygiene .

The recurrence was identified in the follow up period mainly between three and six months postoperatively and the recurrent cases were treated by re-excision and rhomboid flap placement.

Discussion:

Herbert Mayo described a hair containing sinus in 1833(6), but the term pilonidal (latin: pilus= hair and sinus = nest) was not described until it was suggested by Hodge at 1880(7). The disease most commonly involves the sacrococcygeal region between the buttocks but it also occurs in axilla, umbilicus and in the interdigital space. Interdigital pilonidal sinus is an occupational disease and the hair within the interdigital clefts belong to the costumers (8). The disease affects males more than females probably due to their more hirsute nature (9) and more in caucasians than asians or africans (10). Pilonidal sinus was also branded as (jeep disease) during the second world war, because of the high incidence among jeep drivers (11). The primary sinus may have one or many openings, all of which are strictly in the midline between the level of the sacrococcygyal joint and the tip of the coccyx (8). Malignant changes is a relatively rare complication of pilonidal disease, most commonly squamous cell carcinoma, arising after decades of antecedant pilonidal disease (12). Malignancy arising in a chronic wound seems to have worse prognosis than cutaneous malignancy arising de novo on skin, hence early detection is imperative (13). A number of procedures have been proposed to treat chronic pilonidal sinus, the simplest method involves deroofting the tract, curretting the base and marsupialization of the wound. The wound must then be kept clean and free of

hair until healing is complete (often requiring weekly visits for wound care). Alternatively a small lateral incision can be created and the pit excised this method is effective for most primary pilonidal sinuses (1). In general, extensive resection should be avoided. Complex and /or recurrent sinus tracts may require more extensive resection and closure with Z-plasty advancement flap or rotational flap (1). The multitudes of surgical procedures advocated to eradicate pilonidal disease, combined with the lack of prospective trials attests to the lack of superiority of one method over the others (8). The ideal surgical technique for the treatment of pilonidal sinus should involve minimal financial cost, allow patients to return earlier to work, be simple to perform, not require a prolonged hospital stay, inflicts minimal pain and have low disease recurrence rate (14). By using the wide local excision technique we create a big defect because we remove a large amount of normal tissue as well as the affected tissue, which require either closure of the wound under tension, or flap reconstruction which is a prolonged operation and obliterate the natal cleft which is a normal anatomy. We tried in this study to perform a simple procedure for the treatment of pilonidal sinus which involves minimal excision and primary closure. In a way that ensures the elimination of tissue tension and the complete excision of diseased tissue with the preservation of healthy tissue. Moreover, this procedure will not interfere with healing time or increase complications such as wound seroma, infection, disruption and recurrence.

The inappropriate intake of antibiotics and irregular dressing of the operation site may be the cause of the wound infection which occurred in 15% of the patient also the excessive pressure on the operation site (mostly squatting) may be the cause of the wound gapping which occurred in 17% of the patients and we are still advising them to avoid this position in the early postoperative period. We think that the combination of both may result in deep wound infection and disruption which occurred in 3% of the patients. The total recurrence rate in our study was 4% (4 patients) . We have two local studies to compare with, one of them was done on sixty patients in Saudi Arabia in which the recurrence rate was 5 % (15). The other involved thirty patients in Egypt and they encountered a 3.3% recurrence rate (16). Different studies have shown an overall recurrence rate of 4% by using karydakis technique (17-18-19). Bascom's technique has a higher success rate (20). There were two studies that used a nearly similar method to that we have used, they encountered a recurrence rate of 5.6% and 8% respectively (11-21). Some other studies recorded the recurrence rate following other modalities of treatment of pilonidal sinus and were as follows:

Simple drainage 25%,(22) open excision 5%, (23) simple midline closure 4.2%(24). Accordingly we can see obviously that the minimal excision and primary closure technique is

superior to other methods. Also primary closure was found to be better in terms of hospital stay and postoperative work off (25) and less morbidity and more cost effective than excision and open packing (9). Recurrence of pilonidal disease: could be due to

either part of the sinus (complex) have been overlooked at the primary operation, new hairs enter the skin or the scar, or persistence of a midline wound caused by shearing forces and scarring (8).

In our study we found a strong relationship between recurrence and patient's compliance with the antibiotics intake and postoperative dressing and local wound hygiene and we believe that this is the main cause of recurrence.

Conclusions:

The treatment of uncomplicated pilonidal sinus by minimal excision and primary closure found to be an easy operation with better results regarding financial cost, hospital stay, time off work, complications and with less chance of recurrence. The recurrence may be strongly related to postoperative antibiotics administration and wound care . Recurrent cases need to be operated by wider excision and flap reconstruction.

Author's contributions:

Dr. Nabil Isam Naiem :Conception or design of the work, Data collection, Data analysis and interpretation and Drafting the article

Prof. Tharwat Idrees Sulaiman: Final approval of the version to be published and Critical revision of the article

References:

- (1) *Schwartz's principles of surgery – 10th edition F.charles Brunicardi. Chapter 29 p-1233.*
- (2) *Doueid O., Alain R., Mahmood D., Tarek B., Ali S, Abdo j. 25 years experience in the management of pilonidal disease. Open J Gastroenterology 2014 ;4:1-5.*
- (3) *Mahmood A. Karydakis flap operation for chronic pilonidal sinus Pak J Surj 2007;23-65-69.*
- (4) *Katsoulis I., Hibberts F., Carapeti E. Outcome of treatment of primary and recurrent pilonidal sinus with limberg flap. Surgeon 2006;4(1). 7-10.*
- (5) *Werkgartner G. "Knowledge based therapy of the pilonidal sinus" Eur Surg 2004;36(3):170-1.*
- (6) *Chintapatla S., Safarini N., Sacrococcygeal pilonidal sinus historical review: pathological insight and surgical options Tech. Coloproctol 2003;7:3-8.*
- (7) *Da silva JH. Pilonidal cyst: cause and treatment, Dis Colon Rectum 2000;43:1146-1156.*
- (8) *Williams NS. The anus and the anal canal in Baily & Love's short practice of surgery (25th) edition Arnold publishers: london 2008:ch69 p1240-70.*

- (9) Sondenaak K., Nevsik I., Abderson E., Natas D., Soreide JA. Characteristics and symptoms in chronic pilonidal sinus disease *Int.J. Colorectal Dis* 1995;10(1):39-42.
- (10) Berry DP. Pilonidal sinus disease. *J Wound care* 1992;1(3):29-32.
- (11) Mentos O., Bagci M., Bilgin T., Coskun I., Ozgul O., Ozdemir M., Management of pilonidal sinus disease with oblique excision and primary closure results of 493 patients . *Dis Colon Rectum* 2006;49:104-108.
- (12) Abboud B., Ingea H., Recurrent squamous cell carcinoma arising in sacrococcygeal pilonidal sinus tract. Report of a case and review of the literature. *Dis Colon Rectum* 1999;42:525-8.
- (13) Trent TJ., Krisner RS., Wounds and malignancy advanced skin wound care 2003;16(1):31-4.
- (14) Ciccolo A., Rossito M., Panacea D., Manfre A., Ardizzone A. Treatment of pilonidal disease in short stay surgery: personal method *Ann. Ital. Chir* 2004;75:603-605.
- (15) Khanzada T. Recurrence after excision and primary closure of pilonidal sinus *Pak J Med Sci* June 2007 vol.23 no.3 375-379.
- (16) Elgohary H., Pilonidal sinus minimal excision and primary closure under local anaesthesia. *The Egyptian J. of surgery* 2015,34:287-292.
- (17) Patel H., Prolonged delay in healing after surgical treatment of pilonidal sinus is avoidable *Colorectal Dis* 1999;1:107-10.
- (18) Anyanwu AC., Karydakos operation for sacrococcygeal pilonidal disease experience in a district general hospital *Ann. R Col Surg Engl.* 1998;80:197-9.
- (19) Kitchen PR. Pilonidal sinus experience with karydakos flap *Br. J. Surg* 1996; 83: 1452-5.
- (20) Bascom J. Pilonidal sinus in: current therapy in colon and rectal surgery Newyork, Dekker, 1990;32-9.
- (21) Dalenback J. Prospective follow up after ambulatory plain midline excision of pilonidal sinus and primary suture under local anaesthesia efficient , sufficient and persistent *Colorectal Dis.* 2004;6(6):488-93.
- (22) Hoseini SV. The comparison between drainage, delayed excision and primary closure with excision and secondary healing in the management of pilonidal sinus abscess. *Int. J. Surg.* 2006 ; 4: 228-231.
- (23) Lee HC. Pilonidal disease in singapore clinical features and management *Aust. NZ J Surg* 2000;70:196-198.
- (24) Al-jaberi TM. Excision and simple primary closure of chronic pilonidal sinus *Eur. J. Surg* 2001;167:133-135.
- (25) Shah PS. An experience of closed versus open surgical methods for treatment of pilonidal sinus disease . *Med Channel* 2005;11(1):65-7.