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Original study

Pilonidal Sinus: Single Periphery Hospital Experience

Pilonidal sinüs; Taşra hastanesi tecrübesi.

Saadeldin Ahmed Idris[1], Abdul Ghani Qureshi[2]
Alzaeim Alazhari Uninersity, Faculty of Medicine, Department of Surgery[1],
and Consultant of Surgery[1], KRT, Sudan, and Almikhwah General Hospital, Al-Baha, KSA
Baqai Medical University, Faculty of Medicine, Department of Surgery[2], Karachi, Pakistan,
and Consultant of Surgery[2], Almikhwah General Hospital, Al-Baha, KSA

Corresponding address: Prof. Saadeldin Ahmed Idris, saadeldinahmed@hotmail.com

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ABSTRACT

Despite the numerous publications during the last eight decades, considerable discrepancies in the treatment of patients with the sacrococcygeal pilonidal disease still exist. A cohort study aimed to explore our experience in the management of this entity.

The study included 24 patients with the chronic pilonidal disease, 18 males and 6 females, with the male to female ratio of 4:1. Their mean age was 22.96 ± 4.329 years. Multiple openings were seen in 79.2%. Surgical technique was Limberg flap, simple primary closure, and open approach, healing by secondary intention applied in 58.3%, 25%, and 16.7% respectively. Patients were discharged from hospital when became fully mobilized, pain controlled and drain had been removed. The mean hospital stay was 2.4 days. The overall recurrence rate with follow up of 1 year was 4.2%.

Adopting a simplified criterion for handling sacrococcygeal sinus depends on sinus extension and the number of openings will result in a good outcome.

Keywords: Pilonidal sinus, excision, flap, infection, antibiotic, recurrence.

ÖZET

Son yirmi yıldaki sayısız yayına rağmen, sakrokoksigeal pilonidal hastalığı olan hastaların tedavisinde önemli farklılıklar hala mevcuttur. Bukohort çalışmada, bir taşra hastanesi yönetimindeki deneyimimizi paylaşmayı amaçladık.

Çalışmada kronik pilonidal hastalığı olan 24 hasta, 18 erkek ve 6 kadın, erkek: kız oranı 4: 1 idi. Ortalama yaşları 22.96 ± 4.329 yıl idi. Olguların %79.2'inde çoklu sinüs ağzı görülmüştür. Cerrahi teknik sırasıyla % 58.3, % 25 ve% 16.7 oranında uygulanan Limberg flebi, basit primer kapatma ve açık yaklaşımdı. Tamamen mobilize olduktan sonra hastalar ağrı kontrolü yapıldıktan ve dren çıkarıldıktan sonra hastaneden taburcu edildler. Hastanede kalış süresi ortalama 2.4 gün idi. Bir yıllık izlemde nüks oranı % 4,2 idi.

Sakrokoksigeal sinüsün tedavisi için basitleştirilmiş bir kriterin benimsenmesi sinüsün uzunluğuna ve sinüs ağızlarının sayısına bağlı olarak iyi bir sonuçla tamamlanabilecektir.

Anahtar kelimeler: Pilonidal sinus, eksizyon, flep, enfeksiyon, antibiyotik, nüks.

INTRODUCTION

The term pilonidal is derived from the Latin word pilus meaning hair and nidus meaning nest (1,2). It is a chronic benign subcutaneous collection due to the implan-tation of loose hair into the depth of natal cleft which spontaneously drains through the openings (3,4). Sacrococcygeal pilonidal sinus (Nadi vrana) is commonly seen in young males (3-5). Men are thought to be at higher risk because of their hirsute nature (6). Implantation of hair leads to infection and abscess formation later leading to discharging sinus that might need urgent drainage (3,4). Affected individuals present with pain, discharging sinus, and swelling near the natal cleft of the buttocks or in the midline of the

sacrococcygeal area of the back. A pilonidal sinus tunnels under the skin often with more than 1 tract or direction (7).

A more complex manifestation can be characterized by chronic or recurrent abscesses with extensive, branching sinus tracts. 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 (6). Previous hypotheses suggested that it congenital in nature originated from postcoccygeal cells and residual glands (2), but current views are that the disease is acquired (2,6).

The associated risk factors are increased sweating with sitting and friction, poor personal hygiene, obesity, local trauma, and narrowness of natal cleft (4).

Classification of pilonidal disease is important for adequate and standardized treatment. In 2017, Karakaş and his colleagues proposed a new approach for classification of pilonidal disease into six types. First five types covers sacrococcygeal region and the sixth type is about non-sacrococcygeal region. Classification of sacrococcygeal region based on dividing sacrococcygeal region into four parts by lines as intergluteal sulcus, gluteal region, lumber region and perianal region (Fig. 1).

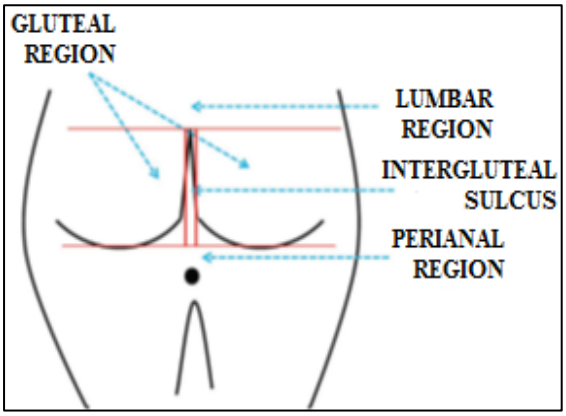

Figure 1: Lines and regions of classification.

Accordingly they classified pilonidal disease as; Type I: A: Limited at intergluteal sulcus with single sinus orifice, B: Limited at intergluteal sulcus with more than one sinus orifice. Type II: Orifices of sinus or fistula extent from intergluteal sulcus to right/left gluteal region. Type III: A: Orifices of sinus or fistula extent from intergluteal sulcus to lumbar region, B: Orifices of sinus or fistula extent from intergluteal sulcus to perianal region. Type IV: Complex pilonidal sinus (orifices of sinus or fistula extent from intergluteal sulcus to lumbar and/or perianal and/or gluteal region). Type V: Recurrent pilonidal sinus. Type VI: Non-sacrococcygeal pilonidal sinus (umbilical, interdigital, genital (penis or vulva), breast, eyelid or mixed type such as umbilical and sacrococcygeal) (8).

The management of pilonidal disease depends on its presentation. Various treatment modalities have been advocated for pilonidal sinus, ranging from conservative to surgical but overall treatment of pilonidal sinus is frequently unsatisfactory because of its high recurrence rate (3).

Surgical techniques include radical excision of the sinus up to pre-sacral fascia and lying the wound open to heal by granulation which takes a long time and needs regular dressing and meticulous wound care (9), excision with marsupialization, excision with primary closure and techniques involving various flaps procedures (3). Excision with primary closure obviates a large wound but in the process, the chances of wound infection; wound dehiscence and recurrence are very high (9).

This study was carried out to explore our experience in the management of sacrococcygeal pilonidal sinus and to evaluate the outcome and complications.

MATERIAL AND METHOD

A cohort study was conducted in Almikhwah General hospital, Al-Baha, KSA during the period from January 2017 to December 2018. It included all patients from both gender satisfied.

Inclusion criteria was a sinus in the natal cleft of the sacrococcygeal area and patients older than 16 years. Whereas patient having systemic conditions that might affect postoperative wound healing like diabetes mellitus, human immunodeficiency virus positive patients, and who are on cancer chemotherapeutic drugs, immunosuppressant therapy all were excluded from the study.

All the routine blood investigations followed by pre-anesthetic check-up of all the patients were done and informed consent for the surgery was taken. Patients were admitted on the day of the elective surgery. Shaving of hair in operative field and washing with antiseptic solution was done in operating room before anesthesia. All the surgeries were done under general anesthesia. A single dose of third generation cephalosporin was given intravenously 30 minutes before induction as hospital protocol. Patients were kept in prone jack-knife position, buttocks separated apart by strap for wide exposure, and betadine skin preparation was done. All the sinuses were identified and injected with methylene blue dye. The area to be excised is marked and flap lines are marked when required.

Depends on the number of openings and size of the sinus whether an elliptical incision or a rhomboid incision (with each side equal in length) was made incorporating all the sinuses in it (Fig. 2), deepened down to the sacrococcygeal fascia and specimen including skin, sinuses and sinus tracts and hair, all were removed. The excised specimen was sent for histopathology.

Complete haemostasis was achieved using diathermy. Wound was generously irrigated with normal saline. The defect closure was made by Limberg flap in case of rhomboid incision. A rhomboid

was marked around the lesion with a marking pen, and one of the angles was extended and dropped as with a conventional Limberg's flap.

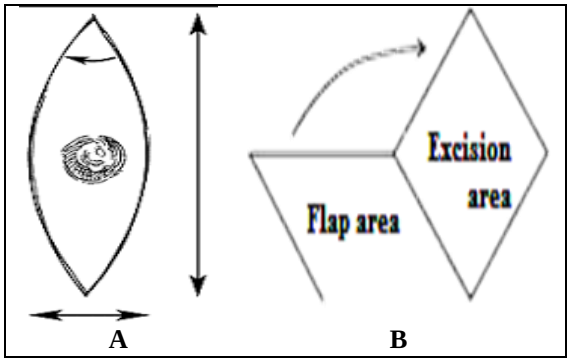

Figure 2: Mapping schemes for **A** elliptical incision, **B** rhomboid flap

When required a suction drain is placed in the wound cavity through a separate stab incision. Subcutaneous tissue is approximated with interrupted vicryl 2-0 suture with a round needle. The skin is closed with interrupted prolene 3-0 suture with a cutting needle. Drain is removed within 48 hours. Post-operatively the patients required one or two doses of intravenous paracetamol, intramuscular non-steroidal anti-inflammatory drug or opiate analgesics after which they were switched to oral analgesics and antibiotics.

Length of hospital stay, postoperative complications recurrence and patients' satisfaction were recorded. Patients were initially followed up after 1 week during which the wounds were assessed. The sutures were removed at the second follow up on 14th day. There after the patients were followed up monthly for 6 months.

The collected data was managed statistically using SPSS. The numerical data was expressed as percentage and mean. The categorical data was compared between groups using Student's t text.

RESULTS

The studied patients had been diagnosed with sacrococygeal pilonidal sinus and they were evaluated for the management options with consultant surgeons. Patients with only one sinus tract were managed with elliptical excision and primary closure. Patients with more than one sinus tract were treated with rhomboid incision and closure with Limberg flap. Whereas patients with previous sinus infection were managed with wide excision and let open to heal with secondary intention.

Twenty eight patients with sacrococygeal disease were evaluated. Three patients had severe abscesses, and one patient had diabetes mellitus were excluded from this study. Therefore 24 patients remained for the final assessment. There were 18 (75%) males and 6 (25%) females with a ratio of 4:1. the difference among gender was significant (P<0.05). Their mean age was 22.96 ± 4.329 years (Range, 16 to 31 years).

Discharge from the sinus and swelling was the two main complaints. The mean duration of symptoms until day of surgery was 72.3750±47.45324 days and varies between 21 and 180 days.

Nineteen (79.2%) patients presented with multiple sinus openings while 5 (20.8%) were having single opening. Females have 50% single sinus opening, where as males tend to have multiple sinus openings (88.9%), the difference was statistically significant (P=0.042) (Figure 3 and table 1).

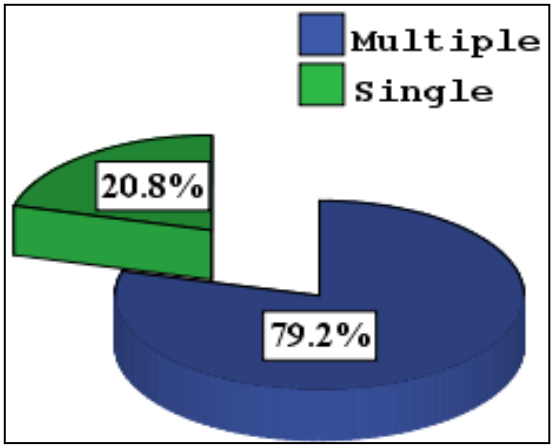

Figure 3: Number of openings in sacrococygeal pilonodal sinus

Table 1: The distribution of sinus openings in among gender.

Gender	Sinus opening		Total
	Single	Multiple	
Male	2	16	18
Female	3	3	6
Total	**5**	**19**	**24**

Fourteen (58.3%) patients underwent Limberg flap procedure, 6 (25%) underwent open procedure while the rest four (16.7%) underwent simple primary closure of the defect. All patients early mobilized in first day and most of them were discharged from hospital in second postoperative day.

The mean duration antibiotics usage was 3.9± 3.4 days (range 1 - 11 days). The incidence of minor complications was 12.5% (3 cases). One patients (4.2%) treated with open approach developed mild infection which was treated with antibiotics and regular dressing, and 2 patients treated with Limberg approach developed seroma (8.3%) that treated with regular dressings.

Postoperatively, analgesics was given to all patients, it took 3 to 5 days to control pain with a mean needed period was 3.5±0.6 days.

The mean length of hospital stay was 2.4± 0.8 days (range 1 - 4 days). The difference between group was not significant (P=0.8).

Overall recurrence rate with follow up of 1 year was 4.2 % (One case). Of 6 patients treated with open procedure and healing by secondary intention 1 patient developed recurrence of sinus (rate of 16.7%). Whereas patients treated by Limberg flap or primary closure did not showed recurrence.

The patients were asked whether or not they were satisfied with the surgical course and the appearance of the surgical scar, and the cosmetic satisfaction rate was found to be 83.3 % (Table 2).

Table 2: Patient's satisfaction.

Satisfaction	Frequency	%	
Good	14	58.3	83.3
Moderate	6	25	
Poor	4	16.7	
Total	24	100.0	

DISCUSSION

Sacrococcygeal pilonidal sinus disease is a painful burden to the patients. It's peak incidence mainly encountered in males' between15 and 24 years of age and it is rare after 40 years of age (10).

The mean age of the patients in the current study was 22.96 years; it was less than the reported by others when mean age of patients was ranging between 23.5 to 27.15 years (10,11).

Many surgical treatment methods for sacrococygeal pilonidal sinus have been described in literature but the controversy remains regarding the ideal treatment method. Whatever treatment is used, an ideal operation should be simple, ensures speedy return to work, not requiring a prolonged hospital stay, causes minimal pain, with a minimal patient inconvenience, with high cosmoses and has a low recurrence rate (1,3,12).

We adopted early discharging the patient when became fully mobile, pain free and drain has been removed. Accordingly, the mean hospital stay in this study was 2.4 days. It is comparable to studies by Urhan et al. and Katsoulis et al. where the reported mean hospital stay was 3.7 and 4 days respectively (13,14). Whereas it was in concordance with the findings that reported by Jethwani et al. (15). Mohamed et al. in a comparative study of three different surgical interventions; wide excision and left wound open, limited wide excision and left wound open and excision with primary closure. They observed significant difference in terms of hospitalization (16). Füzün et al. in another comparative study found that the hospital stay is longer in patients who were managed with closed technique (17). In contrary, the current study found that hospital stay is not affected by the surgical technique.

Common post-operative complications encountered are bleeding and infection (5).

The incidence of minor complications was 12.5% in the present study and it is comparable with earlier report where it was 16.6% (18).

Open excision of the sinus is still widely practiced. It requires meticulous and easily applicable wound care to accelerate healing and preventing superficial closure as well infection aiming to prevent wound recurrence. In this study the incidence of infection was 4.2% and seen in patient treated by open approach. Simple mid line closure of intergluteal skin, following excision of the sinus, has been reported with variable success rates (18). In the current study all patient treated by simple closure passed uneventful course.

Limberg techniques do not only cover the wound but also flatten the natal cleft, reduce hair accumulation, mechanical irritation and risk of recurrence (6). In the current study all patients treated by Limberg approach did not develop recurrence during follow up period. This finding is comparable to that reported in literature when recurrence rate for Limberg flap varies from 0.8 to 2.7% (19).

There is still an ongoing debate in application of prophylactic antibiotics in pilonidal sinus surgery. Although affected areas are generally considered dirty with high bacterial load, the majority of these patients reveal no signs of surgical site infection especially after rhomboid excision with Limberg transposition (20). In the current study patients treated by Limberg and simple closure approaches tend to receive antibiotics in prophylaxis manner while those treated by open technique and secondary intention tend to receive longer course of antibiotics with a mean duration of antibiotics usage of 3.9 days (up to 11 days).

Conclusion

Using strict criterion for each type of the sacrocoygeal sinus depends on the sinus extension and its number of openings will reduce hospital stay, unnecessary use of antibiotics, complications rate and it also might reduce the time to resume normal activities.

Limberg flap reconstruction is easy to perform, learn and design. It is useful in complex sinuses with multiple pits, simple closure approach is useful for not complex sinuses along the midline away from anus, while radical excision leaving large defect is effective in the treatment of recurrent pilonidal sinus or those with lateral extension.

Further larger longitudinal studies should be done to verify the obtained results. The current study may pave the way to reduce unnecessary administration of antibiotics, recurrence and patient's satisfaction.

Author's contribution

Saadeldin A. Idris and Abdul Ghani Qurashi conceived of the presented idea, developed the theory, treated the patients, collected the data, discussed the

results and contributed to the final manuscript. Saadeldin A. Idris performed the data entering and verified the analytical methods. All authors discussed the results and contributed to the final manuscript.

Conflicts of interest

The authors declare that there is no conflict of interest.

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