



The outcome of opened method versus closed method of chronic Pilonidal Sinus (PNS) AT- Baquba Teaching Hospital

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Abstract

Background :- Pilonidal sinus is a common surgical disease affects young adults involving characteristically the sacrococcygeal area, the best way of management remains controversial and it can be treated by wide excision and lay the wound open to heal by granulation tissue (opened method) or excision of the sinus with primary closure (closed method).

Aim of the study :- To compare the outcome of opened method versus closed method of chronic pilonidal sinus (PNS) of sacrococcygeal area in terms of hospital stay, wound healing, return to work and postoperative complications.

Patients and methods :- A 100 middle aged patients 80 males (80%) and 20 females (20%); were treated for Pilonidal sinus disease in Baquba Teaching Hospital Between april 2015 and april 2017. 44 cases were operated by closed method; the remaining 56 cases were operated by opened method .

Results:- Sixty patients, 80 males (80%) and 20 females (20%) were treated for PNS over a period of two years. 56(56%)patients were managed by opened method and 44(44%)patients were managed by closed method. In opened method the mean time of healing was 44 days, while in closed method 14 days, and 20 patients developed delayed healing 13patients(13%) In opened method, while 7 patients (7%) in closed method and 20 patients developed recurrence 6 patients (6%) in opened method, while 14 patients (14%) in closed method with one year follow up.

Conclusions:- Closed method was found to be better than open method in chronic pilonidal sinus in terms of recovery, hospital stay and time off work. But open method was found superior to closed method in recurrence rate.

Keywords: pilonidal sinus, open method, closed method

Introduction

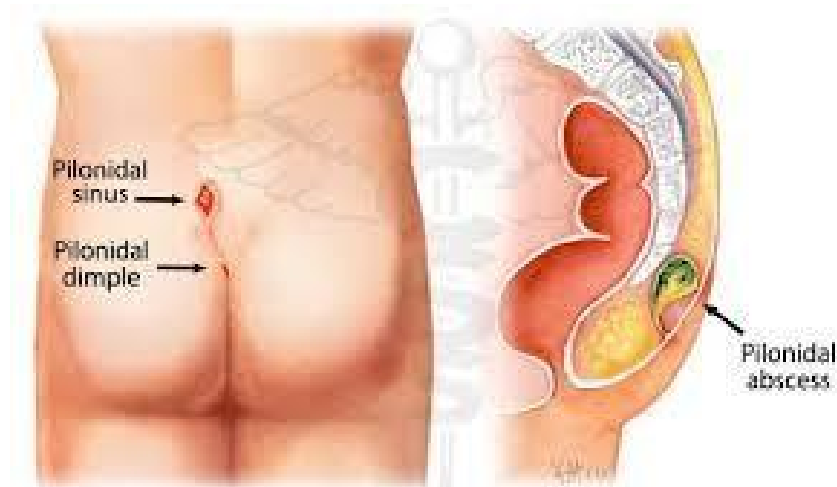
The term 'pilonidal sinus' describes a condition found in the natal cleft overlying the coccyx, consisting of one or more, usually non-infected, midline openings, which communicate with a fibrous track lined by granulation tissue and containing hair lying loosely within the lumen. A common affliction among the military, it has been referred to as 'jeep disease'.¹

The diagnosis of pilonidal sinus is confirmed by the presence of primary midline openings, or pits, in the

intergluteal cleft, approximately 5 cm superior to the anus.²

Hairs disconnected from the skin may be seen protruding from the pits. The sinus tract is lined with squamous epithelium, and extends for a variable distance.²

Figure no.1



Secondary tracts or abscess cavities may branch off the primary tract. Secondary openings are marked by elevations of granulation tissue and discharge of seropurulent material.³

Most tracts run in a cephalad direction; less than 10 per cent run caudad and may be difficult to distinguish from anal fistula or hidradenitis. Careful examination will reveal one or more midline pits, although these may occasionally be obscured by edema.⁴

Differential diagnosis includes skin furuncle, syphilitic or tubercular granuloma, osteomyelitis with draining sinuses, and actinomycosis.⁵

Sacrococcygeal pilonidal sinus disease is a common surgical problem constituting a significant portion of the patients treated in surgery clinics worldwide.³ It commonly affects young men and does not occur in childhood, which suggests that it has an acquired etiology.⁶ The estimated incidence of sacrococcygeal pilonidal sinus disease is 26 per 100,000, people and males are affected twice often as women.⁷ The condition is more common in Caucasians than Asians or Africans due to different hair characteristics and growth.⁸ Hairy skin, obesity, excessive sweating, wearing of tight clothing, occupations such as barbers and sitting for long periods are among the predisposing factors leading to PNS of the natal cleft.⁹

Pilonidal sinus disease may present as an asymptomatic, acute, chronic or recurrent condition¹⁰, but the most common presenting complaints are discharge, pain and swelling.¹¹ However, thorough examination with investigations is recommended in order to exclude associated pathologies.¹² PNS can be associated with considerable morbidity and have

significant socioeconomic impact on individuals affected.

Various surgical techniques like laying the track open, electurization chemical treatment with phenol, marsupialization, wide excision, excision with primary simple midline or asymmetric closure and techniques involving various plastic procedures have been tried for sacrococcygeal pilonidal sinus disease. Ideal treatment for this disease is controversial¹³ as all the treatments currently available have their pros and cons. So widely acceptable and ideal treatment modality has still not yet been established and in majority of the cases surgeon uses his own surgical experience. Ideal treatment is one which encompasses decreased time, low cost,¹⁴ less early postoperative complications, rapid time of recovery, minimal hospital stay and rapid recovery to work and results in least number of long-term recurrences.¹⁵

The most commonly performed procedures are excision with primary closure and excision with laying the wound open for healing by second intention. All surgical procedures have their merits and demerits and the management of PNS is often unsatisfactory.¹⁶

Sacrococcygeal pilonidal disease occurs in the midline. Increased depth of the intergluteal sulcus leads to an anaerobic media and increased anaerobic bacteria content.^{17, 18}

Also the vacuum effect created between heavy buttocks is thought to play an additional role in pilonidal disease development. The vacuum effect sucks the anaerobic bacteria, hair, and debris into the subcutaneous fat tissue.

If these factors responsible for the development of the disease are not eliminated, they will play a major role in the development of disease recurrence as well^{19,20}.

Most operations cure the sinus but risk development of recurrence, either in short term (failed wound healing) or long term (new sinus development).²¹

The aim in all surgery should be to minimize both financial cost of the community (treatment efficiency) and the cost to the patients in term of time off work, number of dressing, postoperative visits, complications and recurrence (treatment effectiveness).

The higher the incidence of pilonidal sinus in young adult males and it is rare in people over the age of 40 years this suggest that it is a self limiting condition, perhaps the strength of hair and its ability of their pricking in the skin less with the age, as it had been found in this study, this was also reported by multiple studies and references.^{22,23,24}

Aim of study

To compare the outcome of opened method versus closed method of chronic pilonidal sinus (PNS) in terms of hospital stay, wound healing, return to work and postoperative complications.

Patients and Method

Sixty patients with sacral pilonidal sinus disease were studied prospectively from April 2015 till April 2017 in Baquba Teaching Hospital. Each case was followed up for at least one year. Those cases were uncomplicated and have no other associated diseases and were approved the study.

A total number of 100 patients had been included, they were randomized into two groups:

Closed method group which was included (44) patient, open method group which was included (56) patient.

The follow up of patient ranged from 1-2 years. Blood sugar estimation was carried out for all patient preoperatively.

We record the following data, operative time, duration of hospitalization, time taken for complete wound healing, wound complications and recurrence rate.

In closed method Patients were placed in the prone position. After cleaning the skin with disinfectant, an ovoid incision is made around the opening of the sinus tract about 1 cm away from either side.

Firm pressure and outward pull make the skin taut and control bleeding and the sinus is cut out en bloc.



Figure no.2

The wound is closed after all bleeding sites are controlled the skin can be closed and the dead space eliminated by a series of interrupted vertical mattress sutures. The suture is introduced 1 cm or a little more

than the margins of the wound to include the full thickness of the mobilized flap of skin and subcutaneous tissue.

A second bite includes the fascia in the bottom of the wound. The suture is then continued deep into the opposite flap. The suture is directed back to the original side as it passes back through the skin

margins. When tied, this obliterates the dead space and accurately approximates the skin margins. The sutures should be placed at intervals of not more than 1 cm.

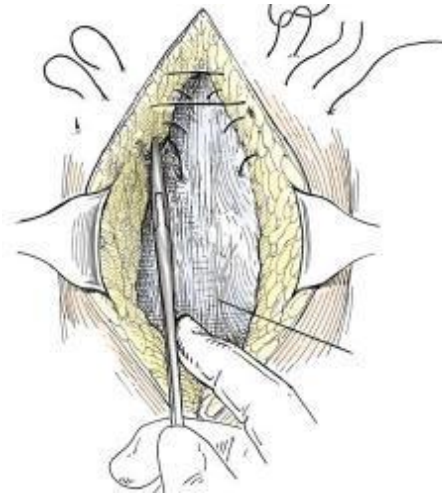


Figure no.3

A pressure dressing is applied with great care, Administration of Cefixime capsule 400mg once daily plus Metronidazole tab 500mg three times daily after

operation and continued for 1 week. Stiches were removed 14 days post operatively.



Figure no.4



Figure no.5

In open method patients treated with excision of pns with all its side tracts and then the wound was left open to heal by secondary intention. After cleaning the skin with disinfectant, an elliptical incision was given to include all the sinus tracts. If any sinuses were situated laterally, the incision was extended to include that. Dissection was carried down to the fascia covering the coccyx. Then traction was given and by gauze dissection and scissors, the cyst was usually removed intact. Hemostasis was secured with diathermy. The wound was then left open, followed by application of sterile dressing soaked in povidine. Over this, a firm dry dressing of gauze and wool is applied and secured gently with Nichiban. The wound was examined on the second post-op day. Daily bath irrigations and gauze dressings were changed regularly every day.

All patients were treated by oral antibiotics in the form of Cefixime capsule 400 mg once daily plus Metronidazole tablet 500 mg three times daily for 2 weeks and paracetamol tablet 500 mg on need.

Statistical Analysis:

All data were collected and analyzed by using SPSS

(statistical package for social science). Statistical analysis was performed using Chi-squared test to compare discrete variables and Student’s (t)test was used to compare mean time of healing and to compare mean age in between groups.. p < 0.05 was considered statistically significant for all tests.

Results

The study involved sixty adolescent and young adult patients complaining of sacral PNS were admitted to Baquba Teaching Hospital, Baquba, Iraq from April 2015 and April 2017. 44 patients were treated by closed method or primary closure, and the other 56 patients were treated by open method or healing by secondary intention.

The mean age of the Sixty patients was (28 ± 4.3) year with a range of (16 – 42).

There were 80 men (80%) , their mean age was (25.5 ± 3.6) year with a range of (17-42) year. Women were represented (20%) of all cases (13 out of 60), with a mean age of (20.8±2.8) year and the range was (16-30). Male to Female ratio was 4 :1

Table No.1. Comparison of close and open methods in terms of age of patients

Age	Mean±SD	95% CI
Closed method	27.86±8.49	22.95-32.76
Open method	29±10.98	23.15-24.85

Mean time of healing

It had been found that the mean time of healing was (44± 5.12) days in Opened method group, versus (14 ± 2.2) days in closed method group, on the other hand the healing time range of patients group was (34 - 67) day and (11) - day respectively. Table no.2

There was a highly significant difference in mean time of healing in between groups; the patients who were assigned to opened method need longer time for healing rather as those who were assigned to closed method (P.value < 0.001).

Duration of hospital stay

Overall median hospital stay was 4 days. In close method, 57.14% (n=16/28) patients had hospital stay of 3 days and in open method 62.5% (n=20/32) patients had hospital stay of 5 days (P.value < 0.01). Table no.2

Time off work in days

Mean time off work was 16.42+4.45 and 29.00+3.72 in close and open groups respectively with (p-value < 0.01). Table no.2

Delayed Healing:

versus (7%) 7 patients out of 44 in closed method group. (p-value < 0.01). Table no.2

Delayed healing (more than 2 months) was occurred in 20 patients out of 56 in opened method group (13%)

Table no.2 Comparison of close and open methods in terms of healing time, duration of hospital stay and time off work

Variable	method	Mean±SD	p-value
Mean Healing Time in days	Close Method	14±2.2	0.0001
	Open Method	44±5.2	
Duration of Hospital Stay in Days	Close Method	3.50 ± 0.6504	< 0.01
	Open Method	4.75±0.5774	
Time off Work In Days	Close Method	16.4286±5.4591	< 0.01
	Open Method	29.0 ±3.7238	
Delayed Healing N (%)	Close Method	2(7.14%)	< 0.01
	Open Method	4 (12.5%)	

Wound infection and itching

Overall wound infection and itching were the most common complications (17% each). In open method wound infection (25%) was the most common complication and in close method itching was more common (29%). All the cases were managed conservatively by application of local antiseptics dressings and use of oral antibiotics according to culture and sensitivity reports. In all the infected cases staphylococcus aureus and streptococcus hemolyticus were grown which were sensitive to amoxicillin+clavulanic acid (augmentin). Table no.3

Haematoma/seroma/Hypertrophic scar

Four patients in closed method developed small postoperative haematoma/seroma but no intervention was needed and it resolved with conservative treatment. Hypertrophic scar occurred in closed group only 6(.Table no.3)

Recurrence rate:

Recurrence was (12%) and (7%) in closed and open methods respectively in 24 months of follow-up. Overall recurrence rate was 10% .

Table no.3 Complications of close and open methods of chronic pilonidal sinus

Complications		Close Method (n=44)	Open Methods (n=56)	Total (n=100)	
Short Term Complications	Wound Infection	7	25	32	
	Itching	8	2	10	
	Chest Infection	4	2	6	
	Wound Dehiscence	4	0	4	
	Hematoma	4	0	4	
	Seroma	4	0	4	
	Post-Op Pain	0	4	4	
	Bleeding From Wound	0	2	2	
Long term complications	Recurrence	6	4	6	
	Hypertrophic scar	6	0	6	

Discussion

Male to female ratio in this study was 4:1 compared to reports from western countries where male to female ratio vary between 1.5:1 and 4:1^{22,27} and is due to reluctance among females to seek medical attention due to bashfulness, it may also represent the relative rarity of pilonidal sinus in our female patient population.²⁵

In this study, the achievement of primary healing in patients treated with primary closure a mean period of 14 days is significant in comparison with 44 days for patients treated by excision without suture.

Allen-Mersh TG, AL-Homound SJ et al, AL-Hassan HK et al Reported figures for healing time for excision without suture varies from 42-90days.^{22,26,27}

McCallum IJ²⁸ and Al-Khamis A²⁹. studies were show that PNS excision with primary closure without tension result in many respects ; less bleeding , less wound breakdown, lower infection rate ,reduced wound pain, fewer postoperative visits, short time off work, and faster healing time.

The mean duration of hospital stay was significantly shorter (3.5+0.65 days) in close method than the open group (4.75+0.57 days). Similarly Al-Salamah SM al³⁰ have shown a significantly shorter hospital stay for excision with midline closure group (mean= 3.6±1.4 days) than for excision without closure group (mean=4days). Malik AM et al³¹ had similar results showing the mean stay of 3.23 days and 6.74 days in

Karydakos closure and open excision group respectively. These studies support close method of PNS in terms of short hospital stay.

In this study, recurrence in open method was noted in 6 (6%) compared to patients in closed method 14 (14%) which is statistically significant P. value < 0.01 .

Allen-Mersh TG ,da Silva, Senapati A et al, shows that each method of treatment has its advocate but it seems that the lowest recurrence rates (4-6%) following laying open while recurrence rate was(8-25%) in excision with primary closure^{22,32,33} Most recurrences in both this study and other series have been found to occur within a short time of surgery (less than 6 months).

Conclusion

The results of our study indicates that the treatment of pilonidal sinus with closed method better than open method in shorter time of healing rapid return to work and less nursing and medical care .but the recurrence rate higher in closed method

Recommendations

We recommend to use the closed method in management of PNS with good surgical technique, good wound care and using antibiotics regularly. If there is no sign of infection and abscess formation

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