Original Article

COMPLICATIONS IN PILONIDAL SINUS AFTER EXCISION AND PRIMARY CLOSURE

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ABSTRACT

Objective: The objective of the present study was to determine the complications of pilonidal sinus after excision and primary closure.

Methodology: This was an interventional quasi experimental study conducted at Central Hospital, Arar, Northern borders Region, Saudi Arabia between October 2015 and September 2016. The data was collected from all indoor elective patients who underwent excision and primary closure of chronic pilonidal sinus disease. This data was analyzed with special reference to complication rate and was compared with local and international studies.

Results*:* Fifty nine male patients with pilonidal sinus treated with excision and primary closure were included in the study. Four patients (6.78%) developed wound infection and were treated with appropriate antibiotics; 1 patient (1.69%) developed hematoma, which needed evacuation and healed by itself; 2 patients (3.39%) developed seroma, which was drained by needle and settled on compression dressing; and the recurrence was observed in 2 patients (3.39%) only. In remaining 50 patients (84.74%), course to healing went uneventful and full recovery was achieved as observed in the follow up period.

Conclusion: Excision with primary closure of chronic pilonidal sinus disease resulted in full recovery in a good percentage of cases, short hospital stay and earlier discharge. A few patients developed complications and were successfully treated. The recurrence rate was also negligible.

KEY WORDS: Pilonidal sinus, excision and primary closure, complications.

INTRODUCTION:

Pilonidal sinus (PNS) is a common disease in males at the back of the sacrococcygeal region. Rarely, can involve umbilicus and axilla and inter digital web spaces in hands of barbers. PNS may be asymptomatic, presenting as acute pilonidal abscess, chronic pilonidal sinus or complex/recurrent pilonidal sinus disease[1]. Surgical treatment of PNS disease is difficult due to high rates of post-operative wound infection, delayed healing because of improper excision and high recurrence rate. Various operative methods have been employed with variable success rates. Often operative results are worse than the disease itself. Open techniques of excision following secondary healing or marsupialization result in a midline wound that takes several weeks to heal due to poor blood supply and more recurrence rate because of infection[2].

In order to avoid early recurrence and post-operative infection, various flap techniques and lateralization of anal cleft have been tried. The common feature of these procedures is to reduce the dead space and minimize tension in the suture line by keeping the suture line away from midline, which has a poor blood supply[3], however these operations are more difficult to perform and need high expertise.

Primary closure after excision is a preferable method as compared to simple excision and leaving the wound to heal by secondary intention. Primary closure has lower chances of post-operative infection and wound dehiscence, rapid healing by primary

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intension, less postoperative visits, less pain, earlier hospital discharge and social mobility[3].
The objectives of the present study were to determine the occurrence of complications (e.g. seroma, hematoma and infection) as well as recurrence rate after excision and primary closure of PNS at the Central Hospital, Arar, Northern borders Region, Saudi Arabia.

METHODS:

Study design:

This was an interventional quasi experimental study.

Patients:

Inclusion criteria: All indoor patients who underwent primary closure after excision of pilonidal sinus in the sacrococcegeal area from October 2015 to September 2016 at Central Hospital, Arar, Northern Border Region, Saudi Arabia were included in the study.

Exclusion criteria: The patients who presented with acute pilonidal abscess and/or with recurrence before due dates of research were excluded from this study.

Procedure:

All patients underwent routine physical examination and laboratory investigations for the preparation of surgery. Standard surgical operation and perioperative management was employed. Operative area was shaved an hour before the commencement of operation in order to minimize infection. All patients were operated under general or spinal anesthesia. Patients were intubated on operation table and kept in prone position. Both buttocks were parted widely by elastic sticking surgical bandage. Operative area was painted with povidone-iodine followed by irrigation with sterile methylated spirit. Antibiotic prophylaxis of 1.2 gm amoxicillin-clavulinic acid (after test dose) and metronidazole 500 mg stat was given intravenously preoperatively and continued for 3 days after operation. Antibacterial therapy was continued orally for another three days. During operation pilonidal sinuses were probed and methylene blue dye was injected forcefully in blind sac by syringe with wide bore cannula to see the deep extended branches for removal in total. A surrounding oval to elliptical incision was made around the sinuses and deepened to excise by diathermy till the whole tract was excised. Hemostasis was meticulously secured and rechecked after cutting and removing the elastic sticking appliance. Interrupted tension sutures were applied by using polypropylene 1 suture. Wound inside was closed in layers with vicryl absorbable 2/0 sutures without tension and any dead space was obliterated. Skin sutures were applied by using polypropylene 2/0. Tension sutures were tied over the wound by pressure dressing. A vacuum-drain was placed in the wound for suspected bleeding cases. The vacuum-drain was removed when the drainage stopped or was negligible. All the excised specimens were subjected to histo-pathological examination for the detection of any additional organic disease.
Patients were discharged a week after the operation. Tension sutures were removed a day before discharge. Skin sutures were removed on first follow up in out-patients department, about 3-5 days after discharge. Patients were given instructions for sits bath and personal hygiene. All operated cases were reviewed one month after surgery in out-patient department followed by three monthly follow up for one year.
During the follow up occurrence of complications (seroma, hematoma and infection) and recurrence rate were observed. Recurrence was defined as the presence of any pus, blood or foul smelling discharge in the vicinity of operated area which persisted more than one month.

RESULTS:

59 male patients suffering from pilonidal sinus were operated by excision and primary closure. Their age ranged from 16-60 years with a mean of 40 years. The majority of patients (79%) were between 21 to 40 years. The distribution of age is given in Figure1.

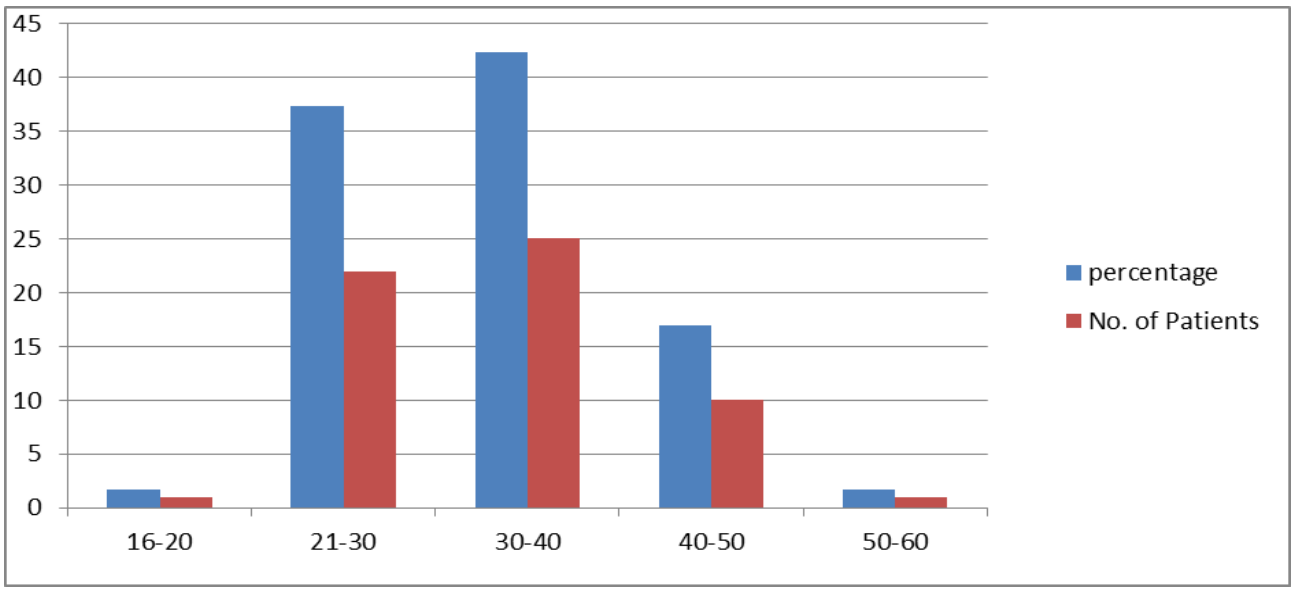

Figure 1. The distribution of age of 59 male patients of PNS, who were operated by excision and primary closure.

The mean post-operative hospital stay was six days, with a range of 5-7days and mean time to return to work was 21 days (Range, 14-30 days). The mean time for drain removal was 4 days (Range, 2-9days). Tension sutures were removed on a day before discharge in all patients.

Table. 1. Complications after excision and primary closure in PNS (n=59).

S. No	Complications/status	No. of patients	Rate
1	Wound infection	4	6.78%
2	Hematoma	1	1.69%
3	Seroma	2	3.39%
4	Recurrence	2	3.39%
5	Uneventful recovery	50	84.74%

The histopathological examination of the biopsy samples revealed non-specific chronic inflammatory changes in all 59 cases. There was no report of any malignant change

Regarding the complications, out of 59 patients; 4 (6.78%) had wound infection, which were regularly dressed on daily basis for one to two weeks and given appropriate antibiotics; 1 patient (1.69%) developed hematoma, which was evacuated and healed by itself; 2 patients (3.39%) developed seroma, which was drained by needle and settled on compression dressing; and 2 patients (3.39%) had recurrence, which were re-operated after 3 months, the wound left open for secondary healing. After the appropriate management all patient with complications or recurrence ended up with full recovery and uneventful course. The complications have been summarized in Table 1.

DISCUSSION:

"Pilonidal sinus" mostly occurs in the saccrococcygeal region between the buttocks. Rarely, may involve axilla, umbilicus, or inter-digital web spaces. Inter-digital pilonidal sinus is seen as occupational disease of barbers and the hairs without follicles belong to the customers [1,2].The condition is more common in Caucasians than Asians or Africans due to different hair characteristics and growth pattern[3]. In the northern region of Saudi Arabia the majority of the people are farmers or sheep and camel grazers, who drive long distances in hot weather on pickups and jeeps with hard seats, predisposing to the pilonidal sinus.

Pilonidal sinus is rarely seen before puberty and after 45 years of age. Males are affected more due to hirsute body nature[4-6]. In our study maximum cases were in the age group of 21-40 years (79%) and all were males. Non-occurrence of pilonidal sinus in females in our study could be due to the peculiar Islamic life-style of these ladies, which include regular ablution and baths and do not have to drive.

Rarely, squamous cell carcinoma may develop after decades of antecedent's pilonidal diseas.[7] Once malignancy arises in a chronic pilonidal sinus case has worse prognosis than cutaneous malignancy occurring de novo on skin, hence early detection is imperative[8]. In histopathological reports of our study, no case of malignancy was detected and all cases were reported to be non-specific chronic inflammation.

The surgical treatment of pilonidal sinus is controversial. Multiple surgical techniques are employed to treat complex pilonidal sinus, however, no single procedure is ideal in all respect[1]. An ideal operation should be simple and end up with rapid wound healing, minimal complications and recurrence rates. Moreover, it should require shorter hospital stay, decreased time off work and be cost effective[3].

Karydakis has described a technique of asymmetrical wound closure just away from midline. Different studies have shown an overall recurrence rate of 4% by using Karydakis technique[10-12]. Bascom's technique has a higher success rate. It involves an incision lateral to midline. Midline pits are excised and the abscess cavity is drained laterally 2-3cm away from midline and curetted[13] .Complicated and recurrent pilonidal sinuses and chronic non-healing midline wounds should be treated by Limberg flap, Rhomboid flaps, Z-plasty or gluteal myocutaneous flaps. Tekin treated 162 patients using Limberg flap technique with an average hospital stay of four days and recurrence rate of only 2%[14]. Other studies have shown wound complications and recurrence rates of 0-12.5% and 0-5% respectively[15-18]. These operations however require major surgery and are cosmetically not appealing. They may be viewed as "sledge hammer to crack a nut" where lesser operations are equally preferable[19]. Allan and Mersh reviewed many surgical procedures available for symptomatic pilonidal sinus disease[9]. The failure rate reported in that was 1-43% for wide excision and marsupilzation and 0-37% for primary closure after excision.

Excision away from the midline and primary closure adopted in our study for the treatment of pilonidal sinus provided better results than many other techniques used in studies mentioned above or included in the Allan and Mersh review, with a recurrence rate of only 3.9%. Moreover, the results were also superior to two recent studies using similar to our procedure, i.e. excision and primary closure, which reported the recurrence rates of 5.6% and 8%[20,21]. However, results of some other studies which adopted same technique reported similar results to our study in terms of minimum hospital stay, less postoperative work off, fewer complications and low recurrence rates[22, 23, 24].

CONCLUSION:

In the present study excision with primary closure of chronic pilonidal sinus disease in male patients of Northern Border Region of Saudi Arabia, resulted in full recovery in a good percentage of cases, short hospital stay and less postoperative work off. A few patients developed complications like infection, hematoma and seroma which were successfully treated during the post-operative follow-up. The recurrence rate after one month of follow-up was also negligible (3.93%). Histopathology report of all excision biopsies revealed chronic nonspecific inflammation.

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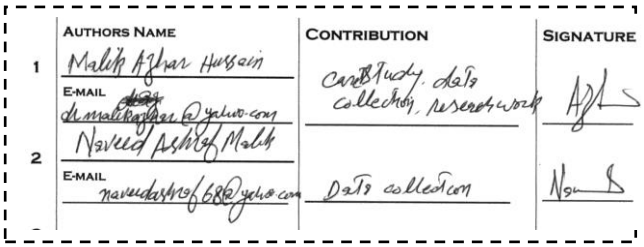

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1	Malik Azhar Hussain E-MAIL [illegible]	Case study, data collection, research work	
2	Naveed Ashraf Malik E-MAIL naveedashraf68@yahoo.com	Data collection	

BE GENEROUS BUT NOT EXTRAVAGANT, BE FRUGAL BUT NOT MISERLY.

THE BEST KIND OF WEALTH IS TO GIVE UP INORDINATE DESIRES.

ONE WHO HOPES INORDINATELY, IMPAIRS HIS DEEDS.

Hazrat Ali (Karmulha Wajhay)