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A study on different modalities of treatment for pilonidal sinus

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Abstract

Background: Excision with lay open method and excision with primary closure (simple closure, z-plasty, limberg flaps are both radical methods for treating pilonidal sinus. The ideal operation should be simple and should not require a prolonged stay, have low recurrence, failure rate and post-operative complication.

Aim & Objective: The main objective of the present study to compared different techniques for treatment of sacrococcygeal pilonidal sinus.

Methodology: It was a cross sectional study. The materials for this study was taken from the patient admitted to Owaisi hospital from Jan 2013-Dec 2014 (2yr period) Twenty eight patients with pilonidal sinus who were admitted to Owaisi hospital

Results: In the present study, 15 out of 28 cases were treated by excision and lay open method.

The mortality was nil, but the recurrence was 1 and 2 failures were noticed (totally 22.6% failure) in terms of morbidity. Patients abstained from work till the wound healed i.e. 44-68 days(average 49.5 days).The remaining 13 cases were operated by excision and primary closure (simple closure, z-plasty, limberg flap method) out of which 8 cases were treated with z-plasty and 2 cases with simple primary closure and 3 cases with limberg flap method. The mortality was nil, the recurrence rate and post-operative complications were nil and all patients returned to work early within 7 days.

Conclusion: Finally we concluded that all cases where closure is possible should be treated with different closure techniques (simple closure, z-plasty, limberg flap). Deep gluteal cleft is flattened with z-plasty and limberg flap technique. Hence the suction effect is obliterated. All predisposing factors are countered by flap technique hence flap techniques are ideal for treatment for pilonidal sinus.

Keywords: Sacrococcygeal pilonidal sinus, z-plasty, limberg flap, primary closure

Introduction

Pilonidal Disease includes Pilonidal Sinus, Pilonidal Cyst and Pilonidal Abscess. Though also seen in other parts of the body, it is a common disorder of the sacro- coccygeal region. It is a painful condition usually occurring in the intergluteal region. For many years the cause of sacrococcygeal pilonidal sinus has been matter of debate.

When the treatment is considered, there was a frequent lack of success of the surgical methods of excision regarding morbidity, healing, recurrence and cure. The choice of a particular surgical approach depends on the surgeon's familiarity with the procedure and perceived result in terms of low recurrence of sinus and a quick healing of resulting cavity or surgical wound. Conservative non-operative management, closed methods, laying the tract open, wide excision and open drainage, wide excision and primary closure, and limited excision are the methods currently used [1-3].

From the profusion of studies, it is apparent that various methods are being tried and no one method is universally acceptable. Recurrence rates vary with the technique, operator and length of follow-up.

The ideal operation for pilonidal sinus disease should be simple, require short or no hospitalization, and have a low recurrence rate. There should be minimal pain and wound care, rapid return to normal activity, and finally the treatment should be cost effective [3-5]. Hence in this study we have compared different techniques for treatment of sacrococcygeal pilonidal sinus. The results of this would help in better decision making for the surgeon on the choice of operative procedure for treatment of sacrococcygeal pilonidal sinus.

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Aims of Study

1. To study the different types of treatment available for pilonidal sinus.
2. To study the age and sex incidence.
3. To know the incidence with reference to hospital inpatient and surgical patients.
4. To study the incidence in relation to occupation.
5. To study the various predisposing factor.
6. To compare the surgical procedures with regard to
 - a Duration of hospital stay
 - b Rate of wound healing

Materials and Methods

The materials for this study was taken from the patients admitted to Owaisi hospital from Jan 2013-Dec 2014 (2yr period).

Twenty eight patients with pilonidal sinus who were admitted to Owaisi hospital during the period of Jan 2013-dec 2014 were introduced into the study.

All cases were diagnosed in the out-patient department and admitted in surgical inpatient wards.

In the wards detailed history was taken which included occupation, age, sex, complaints like duration of sinus, discharge, presence of pain and other associated illness.

On general examination, apart from routine examination, special attention was given to the presence and distribution of hair over the body and also obesity.

On local examination the site, number, type of sinuses(primary and secondary) discharge from the sinuses, tenderness, any hair protruding from the sinuses, condition of the skin surrounding the sinus were examined.

Digital rectal examination, proctoscopy were done in all patients to rule out fistula in ano.

All the patients were subjected to the following investigation-HB%, BT, CT, TC, DC, ESR, FBS, PLBS, urea, creatinine, urine for albumin, sugar and microscopy. ECG in all leads, chest X ray and special investigation like X-ray of the lumbo sacral spine and sonogram in few cases.

No cases was treated conservatively. All cases were surgically managed.

Pre operatively surgical technique was planned either an excision with primary closure or excision with lay open method.

Case selection for primary closure.

- Midline single sinus
- Minimal or no discharge
- No swelling
- Surrounding skin normal

Intraoperatively when there is no wide ramification of secondary track while injecting methylene blue in the sinus track as a guide in all cases.

In the remaining cases excision with lay open method was adopted.

Pre-operative preparation

- a Written consent was obtained after explaining the surgical procedure and its results.
- b Nil by mouth after 10pm the previous night of operation.
- c Injection tetvac 0.5ml intramuscular.
- d Xylocaine test dose.
- e Preparation i.e. shaving of the back, intergluteal region and suprapubic region.
- f Soap water enema the previous night and morning on the day of surgery.
- g IV ciprofloxacin and IV metrogyl given in all cases one hr before surgery.

All the 28 patients were operated under spinal anesthesia. Patients were put in jack knife position. The natal cleft was exposed by strapping and separated the gluteal region. The parts were painted with betadine solution and surgical spirit. In all cases methylene blue was injected through the primary sinus and elliptical incision was placed longitudinally circling the sinus/sinuses and deepened vertically till the fascia covering the sacrum and coccyx.by sharp dissection the tissue enclosed within the incision was separated from the sacrococcygeal fascia and removed. The ramification from the secondary sinus track was inspected by observing the methylene blue extension and excised. After obtaining the hemostasis by ligating the bleeding points, the deep wound was approximated and closed with no.1 chromic catgut after removing the strapping which exposed the natal cleft. Chromic catgut no. 1 stitches were taken from the subcutaneous tissue of one side to the other by taking midline bite. The skin was approximated with silk thread and pressure bandage was applied in the midline firmly reinforced with T bandage.

In case of excision with lay open method, wide excision of the track was carried out and the wound was packed with betadine ribbon gauge. After obtaining hemostasis the skin was approximated with tension suture over gauge, dressed and pressure reinforced with T-bandage.

The specimen was cut open in the operation theatre looked for the presence of hair in the pilonidal sinus and then sent for histopathological examination.

Sinogram

Sinogram (of the sinus over the right gluteal region, to the right of the gluteal cleft) done by passing an infant tube and injection of contrast under pressure AP and prone shoot through lateral views were done.

The sinus tract appears to be shallow, extending into the superficial gluteal muscle. No evidence of any communication seen with rectum.

The second sinus at the cranial end of the gluteal cleft itself, appears to be very superficial (with the injected contrast leaking out immediately).

Post operatively all patients were kept nil orally till next morning and all cases were treated with ciprofloxacin, metronidazole and analgesic for 5-7 days.

All patients were allowed to sleep on their backs only. In all patients the wound was inspected after 48 hrs removing the T bandage and pressure bandage.

In case of primary closure, no patient had any post op complications. Otherwise, the primary sutures wound was cleaned with spirit and dresses. Suction drain was kept in cases of Z plasty and limberg flaps. The wound was inspected in two days till the sutures were removed and patients were discharged from the hospital.

In case of excision with lay open method, the pressure packing was removed after 48hrs and cleaned with hydrogen peroxide and betadine. The wound was then packed and dressed with sterile pad and bandaged. The wound inspection was done alternate days and dressed till patients were discharged from the hospital.

In case of excision with primary closure, sutures were removed on 8th to 10th of post-operative period and then the patient discharged the next day with advice to come for checkup once in 15 days for first 3 months and then once a month for the first 1 yr.

In post-operative period out of 13 primary closures no post op complications were noted.

In case of lay open technique one recurrence was noticed out of 15.

Except for the two post-operative complications and one recurrence, in all other cases the post-operative period was uneventful.

In the case of excision with lay open method the patients were discharged, usually on 8th or 12th day with advice to come twice weekly for wound inspection and dressing till the wound healed. In postoperative period one recurrence and 2 failures were noted which were treated by conservative management overall recurrence rate is 22%.

Results

Table 1: In relation to hospital admissions

Period	Total No. of surgical cases	Total no. of Pilonidal cases admitted	Incidence per 1000
Jan 2013 Dec 2013	15000	13	0.80
Jan 2014 Dec 2014	16000	15	0.90

In the present study the incidence of pilonidal sinus with respect to admitted cases was .80 per 1000 during the yr 2013 and .90 per 1000 in yr 2014.

Table 2: Age Incidence

Age in Yrs	No. of cases	%
10-15	2	7
16-20	6	21
21-25	15	54
26-30	2	7
31-35	2	7
36-40	1	4.1
Total	28	100

Table 2 shows that majority of patients are in the age group of 16-30 years and only few patients above 30 years. In 16-25 age group incidence is more comprising almost 75% of the patients.

Table 3: Sex of the patients

Sex	No. of cases	%
Male	25	89
Female	3	11

Sex ratio M: F = 8.3: 1

Table 4: Occupation of the cases

Occupation	No. of cases	%
Students	13	46.4
Drivers	8	28.5
Clerks	4	14.4
Barbers	0	0
Others	3	10.7
Total	28	100

In the present study the majority of cases were students and drivers.

Table 5: Pilonidal sinus in relation to site

Site	No. of cases
Sacrococcygeal	25
Web spaces	3
Umbilicus	Nil
Amputation stump	Nil

In the present study all cases of pilonidal sinus presented in sacrococcygeal region.

Table 6: Hairy distribution

Hairy distribution	No. of cases	%
Hairy	18	64.2%
Non hairy	10	35.8%

Out of 28 cases of pilonidal sinus 18 cases presented with diffuse hair over the body and 10 cases were of non-hairy individuals.

Table 7: Pilonidal sinus in relation to hair in the excised specimen

Hair in the pilonidal sinus	No. of cases	%
Present	17	60.7%
Absent	11	39.3%

In the present study out of 28 cases of excised specimen, 17 specimen contained hair in them.

Table 8: Pilonidal sinus in relation to the non-hairy individuals who showed hair in the excised specimen

Type of patient	No. of cases	%
Non hairy	10	100%
Hair present	3	30
Hair absent	7	70

In the present study out of 10 hairy individuals 3 showed hair in the excised specimen, conforming that some shed hairs from other parts of the body can be sucked into the pilonidal sinus.

Table 9: Pilonidal sinus in relation to the non-hairy individuals who showed hair in the excised specimen

Operative procedure	No. of cases	%
Excision lay open	15	53.5%
Excision & primary closure	13	46.5%
Total	28	100%

Out of 28 cases admitted in the year Jan 2013-Dec 2014, 13 cases were selected for excision and primary closure and 15 cases were selected for excision and lay open method.

Table 10: In relation to different surgical techniques in primary closure

Operative procedure	No. of cases	%
Z-plasty	8	61.5%
Simple primary closure	2	15.3%
Limberg Flap	3	23%
Total	13	100%

Out of 13 cases selected for excision and primary closure 8 cases were taken for z-plasty 2 cases for primary closure and 3 cases for limberg flap.

Table 11: Pilonidal sinus in relation to complaints

Patient complaints	No. of cases	%
Pain	28	100%
Discharge	28	100%
Sinus	28	100%
Swelling	3	10.7%

In the present study swelling is an unusual complaint and presentation in most of the cases.

Table 12: Pilonidal sinus with respect to obese and non-obese individuals

Type of patients	No. of cases	%
Non-obese	26	92.8%
Obese	2	7.2%

Only 8% were obese though obesity is a predisposing factor.

Table 13: Pilonidal sinus in relation to recurrence and post-operative complications

No. of cases	No. of recurrence	No. of failures	%
Primary closure cases (13)	Nil	Nil	Nil
Laying open method (15)	1 (7.3%)	2 (15.2%)	22.5%

In the present study recurrence and failures are observed only in excision and lay open method (22.6%)

Table 14: Pilonidal sinus in relation to duration of hospitalization, wound healing and unemployment-present study

Method	Period in hospitalization	Time taken for wound healing	Period in abstinence from work
Excision in the primary closure	9-13 days	9-12 days	7
Excision in the lay open method	8-14 days	44-66 days	44-68 days

Discussion

In the present study 28 patients of pilonidal sinus were inducted from Owaisi hospital from the time period of JAN 2013 to DEC 2014. There is no clinical consensus over the optimal management of pilonidal sinus. Advocates of open healing by secondary intention argue that this method reduces both wound tension and wound infection because free drainage can occur. Advocates of the surgical closure approach argue that healing is improved by eliminating the rolling action of the buttocks which can be achieved by flattening the gluteal cleft [6,7]. At the end of our study, we reviewed the literature to compare our results with world statistics.

1. The commonest age of presentation was between 16-25 years. Pilonidal disease commonly affects adults in the second to third decade of life. Pilonidal cysts are extremely uncommon after age 40 years, and the incidence usually decreases by age 25 years
2. The male and female ratio was 8.3:1. According to previous studies Male preponderance with a male: female ratio of 3 to 4:1 .in children the ratio is opposite with a female: male ratio of 1:4.
3. Majority were students (46.4%), drivers (28.5%), clerks (14.4%) and others (10.7%). It is seen most commonly in students which is followed by drivers and clerks others may represent barbers.
4. Majority were hairy individuals (64.2%) and 35.8% were non hairy individuals. Hair broken off by the friction against clothing and shed short hairs, whether originating from the nape of the neck, back or buttocks tend to collect in the cleft of the notes or post anal dimple.
5. Among the non-hairy individuals 30% had hair in excised specimen. Free hairs from other parts of the body can invade the follicles' open mouth and creating foreign body reaction.
6. Hair in the pilonidal sinus was seen in 17(60.7%) of the excised specimen. Karydakos theory attributed the hair insertion process to three main factors:
 - a The invader, which is the loose hair
 - b The force, which causes the insertion
 - c The vulnerability of the skin to the insertion of hair at the depth of the natal cleft.

- a The invader, which is the loose hair
- b The force, which causes the insertion
- c The vulnerability of the skin to the insertion of hair at the depth of the natal cleft.

Only 2(8%) patients were obese though obesity is predisposing factor. Being obese can be a major factor for occurrence of pilonidal sinus.

Almost all presented with pain, discharge and sinus except three who in addition presented with swelling hence swelling is an unusual presentation in the pilonidal sinus. 9. Out of 28 cases 15 were operated by excision with lay open method, no post-operative complication were observed in the post-operative period and all patients discharged within 8-14 days. The time required for the wound to heal was 44 days to 68 days (average 49 days).one recurrence and 2 failures was noticed during the follow up period of one year. Totally 22.6% failure noticed all patients abstained from work till complete wound healing that is for 44-66 days (average 48days) [8-10]. Patients were selected for primary closure and operated with excision and primary closure. All patients were discharged between 9th and 13th day of the post-operative period. Out of the 13 cases no recurrence was noticed.

The different types of primary closure done were z-plasty on 8 cases, simple primary closure on 2 cases and limberg flap done in 3 cases [11].

No patient developed post-operative complications (local wound sepsis).The sutures were removed on 7th post-operative day all wounds healed well. But all patients returned to work, 7days after discharge from the hospital, voluntarily.

Conclusion

In the present study, finally we concluded that, all cases where closure is possible should be treated with different closure techniques (simple closure, z-plasty, limberg flap).Deep gluteal cleft is flattened with z-plasty and limberg flap technique. Hence the suction effect is obliterated. All predisposing factors are countered by flap technique hence flap techniques are ideal for treatment for pilonidal sinus.

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Conflict of Interest

Nil.

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