

Excision with Primary Closure and Suction Drainage for Pilonidal Sinus in Adolescent Patients

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ABSTRACT:

BACKGROUND :

Controversy persist regarding the treatment of pilonidal sinus. Sacrococcygeal pilonidal disease is a common chronic disorder of the natal cleft that is often considered a minor problem, but may cause substantial in convenience and local infection. Therefore, adequate treatment of a pilonidal sinus is important in order to improve the quality of life of affected patients.

OBJECTIVE:

To evaluate the technique of excision with primary suture and suction drainage (PSD) for the treatment of pilonidal sinus in adolescent patients.

METHODS:

Between 1996 and 2005, forty patients aged 14-19 years (are range 16.4) underwent PS excision with primary closure and suction drainage. Anesthesia was general in 18 (45%) and spinal in 22 (55%). Prophylactic cephalosporine was used is I.V antibiotic. Excision of the sinus done down to the social fascia. Closed continuous suction drain was used.

RESULT:

No complications due to the anesthesia were observed. Twenty five patients (62.5%) had day case surgery, while the others fifteen patients, (37.5%) were hospitalized for 2-4 days (average 2.3 days). The drain was removed on post operative day 3-6 days (average 3.2 days) primary healing with no postoperative complications occurred in 36 patients (90%). Postoperative infections requiring incision , drainage, and lay-open occurred in 3 cases (7.5%). No recurrence was found at 12-months follow-up. One recurrence (2.5%) was noted 2 years after surgery.

CONCLUSION:

Excision with primary closure and closed-suction drainage as an ambulatory procedure is thus a simple and effective method of treatment of uncomplicated PS in adolescents.

KEY WORDS: pilonidal sinus, adolescent, primary closure, drainage.

INTRODUCTION:

Management of (PS) is contraversial and frequently unsatisfactory, with multiple therapeutic approaches described in the literature^[4,5]. No method was found to satisfy all requirements. Excision, curettage and packing, marsupialization, excision with closure, injection of sclerotic agents, destruction of the tract, irradiation, various plastic and rotational procedures and definitive graft treatment have been proposed^[2,4]. Except for the difficult recurrent PS that may require a flap technique^[6], the most widely used methods for treatment include excision with Lay-open and secondary healing of the wound or excision with primary suture.

THE AIM OF THIS STUDY :

was to evaluate the technique of excision with primary suture and suction drainage (PSD) for treatment of PS in adolescent patients.

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MATERIALS & METHODS:

Between May 1996 and September 2005, 40 patients were treated by EPSD for PS. There were 24 males (60%) and 16 females (40%). Ten patients had undergone previous incision and drainage of a pilonidal abscess (range 1-22 months average 12.6 months prior to surgery), 5 of them twice. Three often patients had undergone previous definitive surgery elsewhere. No patient had signs of acute infection at the time of surgery. Either general (GA) or spinal anesthesia (SA) was induced according to the choice of the patient, and a first or second – generation cephalosporin was used as I.V antibiotic prophylaxis. The position of the patient is in prone, the sinuses were injected with a few ml methylene blue in order to stain all of the sinuses and their branches. An elliptical excision was marked around the sinuses with its long axis midline-oriented. The skin incision was deepened down to the presacral fascia with

PILONIDAL SINUS

diathermy, excising all the marked tissues. Fascia was not included in the excision. Careful hemostasis was achieved with diathermy. The subcutaneous plane was closed by a layer of interrupted sutures including the sacral fascia in the midline. Sutures were not tied until a multiple – hole, closed-suction drain was placed across them and brought out well laterally. Continuous suction was connected to the drain in order to prevent fluid collection during closure, and the sutures were tied. Skin closure was performed using interrupted fine nylon sutures.

The drain was removed after cessation of exudates, but not earlier than 2 days after surgery, and the

dressing was replaced once daily. Sutures were removed after 10 days. The patients were followed up at 1, 2, 4, 6 and 12 months after surgery. Shaving of the natal cleft twice monthly for 1 year was strongly recommended in order to prevent early recurrence of the PS in the immature scar tissue.

Statistical analysis was performed using student's *t-test* for comparison of independent samples. A *P-value* of less than 0.05 was considered significant.

RESULT:

The average duration of symptoms until surgery was 11.8 months. There were 24 males (60%) and 16 females (40%), with on average age of 16.4 years (range 14-19), female patients were significantly younger than males (mean 15.8 vs 16.8 years respectively $P < 0.05$). Table -1-

Table -1: Sex distribution of the sample.

Sex	Number	Percentage %
Male	24	60
Female	16	40

G.A. was used in 18 patients (45%) and spinal anaesthesia in 22 patients (55%). Patients who underwent GA were significantly younger (15.5 vs

17.2 years, respectively, $P < 0.001$). Twenty five patients (62.5%) were treated as day – case surgery and the other fifteen patients (37.5%) had hospital stays from 2-4 days (average 2.3). Table -2-

Table -2: Types of surgery of the sample

Type of surgery	Number	Percentage %
Degree	25	62.5
In patient	15	37.5

The drain was removed 3-6 days after the procedure (average 3.2). Thirty-six patients (90%) had primary healing and no complications in the postoperative course. One had gaping of the wound on the 5th postoperative period, treated conservatively, and later secondary suturing was done. Three patients (7.5%) had wound infection that required incision, drainage, and lay-open. Two

of them were operated upon as a day-cases and the 3rd in the hospital. In two of these patients, wound infections occurred on the 3rd and 4th postoperative day. In the 3rd, a physician who was not familiar with the protocol removed the drain erroneously on the day after operation in spite of persistence of exudates. Wound infection occurred on the 4th postoperative day.

Table -3: Complications of the closed method.

No. of patients	%	Complication
1	2.5	Gaping of the wound
2	7.5	Wound infections

In all complicated cases, treatment consisted of daily change of dressing, until wound closure occurred (average 2 months). No recurrence of the disease was noted among those patients during the 12-months follow up period. However the one whose drain had been removed erroneously had a recurrence 2 years after surgery.

DISCUSSION:

PSs present from puberty on ward when sex hormones exert effects on the pilosebaceous glands in the natal cleft^[1,2] with a peak incidence in young adults^[1,5,7,8]. The mean age of pediatric patients has been reported to be 15.3 years. In the young patient, the PS must be differentiated from sinuses overlying the sacrum (when the skin is pigmented and hairy) and also from coccygeal sinuses that are congenital skin adherences to the coccyx^[1,9]. Overall there is a male predominance of 3:1^[1,2,5,9,10] and affected females tend to be younger, probably because of their earlier onset of puberty^[1]. Our data regarding the patient's ages and gender distribution are compatible with these findings.

The definitive treatment for PS is excision of all chronically infected tissue. The depth and width of the surgical wound depend upon the size of the PS cavity and any associated sinus tracts, and it does not routinely include deeper layers^[5,8]. Non of our patients had evidence of involvement of the sacral fascia at surgery. We believe its important to keep the fascia undamaged during excision, since it is not involved in the disease and has a significant role in the closure of the wound without a residual cavity.

Several points should be considered in the choice between primary closure and healing by secondary intention (Lay-open) after excision of the sinus. In the incision and curettage method^[11]. Excision of the infected tissue may be incomplete, the wound is left open for several weeks, and the recurrence rate is up to 20%. Thus, the open technique, which requires prolonged local care, prolonged close supervision to prevent pocketing, with regular curettage of granulation tissue to avoid premature closure or bridging of the skin edges over an incompletely-healed cavity^[1,4,5,7]. Moreover a prolonged open postoperative wound may be difficult to accept, particularly in the pediatric population.

Excision with primary closure offers complete healing to most patients within 2 weeks compared to 2-3 months with the open technique^[4,5,12], and is related to formation of an infected hematoma in the wound cavity^[10]. To avoid this complication, some authors recommend drainage after primary

closure^[7,10]. We treated our patient by EPSD. The drainage procedure used was relatively simple and of short duration (average 3.2 days). The rate of primary healing was 90% (36 patients), while the postoperative infection rate was 7.5% (3 patients). No fluid collection was observed in our patients.

Comparable results have been obtained by others who used a similar surgical technique in a patient population that consisted mainly of adults.

Willimas^[10] reported a series of 31 patients with 29 infection – free wound unions, 2 wound breakdown, and no recurrence. In a series of 112 patients, Akinci et al^[13] found 2 (1.8%) wound infection, 2 wound breakdown, 3 (2.7%) collections, and 1 (0.9%) recurrence. In this work, it was noted that collections were reduced to 0% by using a suction drain. In our opinion, drainage by a closed – suction system is essential for success of primary closure after PS excision by preventing hematoma formation and maintaining early postoperative obliteration of the potential space created by the excision. The drain should be left in place until cessation of secretions, generally between (3-6 days), but its presence is not a reason for prolonged hospitalization, indeed most of our patients treated as a day case setting with the drain in place.

Creation of a midline scar has been mentioned as a factor that would result in a higher recurrence rate by acting as a site for reinsertion of hair^[1]. Results of procedures that keep the incision away from the natal cleft suggest a healing time and failure rate similar or lower to that of primary closure with a midline scar, but a lower recurrence rate (<10% vs 18%, respectively)^[4,13]. The low recurrence rate in our series (2.5%) suggest that a midline scar is not a major cause of recurrence. The use of subcuticular skin closure may avoid needle holes in the natal left that contribute to early hair insertion^[13].

PSs are difficult to cure, and recurrences occur regardless of the surgical technique used^[14] at a rates as high as 50%. The average recurrence rate 1 year following the open method is 13% (range 0%-63%) and after primary closure 15% (range 2%-53%)^[2,5,8]. In our series, there was no recurrence of pilonidal disease within 12 months of surgery. The only recurrence (2.5%) occurred 2 years following the procedure.

Williams^[10] and Akinci et al.^[13] who used similar techniques, also reported low recurrence rate (0% and 0.9% respectively).

PILONIDAL SINUS

CONCLUSION:

Surgical treatment of a PS in adolescent patients should be done as soon as possible after its appearance. Excision avoiding the sacral fascia and primary closure with drainage by a closed-suction system is the preferable method of treatment.

In addition, prophylactic antibiotics and meticulous postoperative shaving of the natal cleft twice monthly for at least 1 year may play an important role in the prevention of postoperative complications and recurrences.

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