Original Article
A new approach: oblique excision and primary closure in the management of acute pilonidal disease

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Abstract: Aim: To compare incision and drainage with oblique excision and primary closure in the treatment of pilonidal abscesses. Materials and methods: In this prospective study, one of two surgeons at the same hospital performed incision and drainage as the treatment method for patients presenting with pilonidal abscesses. (Group A). The other surgeon performed oblique excision and primary closure (Group B). The rate of development of chronic pilonidal sinus and time to return to active work were assessed using the chi-square and Student's t-tests to compare the two methods of treatment. Of the 128 patients, incision and simple drainage was applied to 69 patients and primary closure was applied to 59 patients. Results: The rate of development of chronic pilonidal sinus was 78.8% in Group A and 6.0% in Group B (P < 0.001). In Group A, the average healing time and time to return to active work were 18 and 25 days, respectively. In Group B, these times were 22 and 27 days, respectively (P < 0.001). Conclusion: Oblique excision and primary closure may be a preferable treatment for acute pilonidal abscesses because of its low rate of chronic sinus development.

Keywords: Pilonidal abscess, incision and drainage, oblique excision and primary closure

Introduction

Pilonidal sinus develops most frequently in the sacrococcygeal region and leads to impairment of daily activity and comfort of living; in some cases, it may also lead to loss of manpower. A number of conservative and surgical approaches have been described for the management of pilonidal sinus. However, the recurrence rate remains, and the search for an ideal standard treatment approach thus continues [1-7]. Approximately half of sacrococcygeal pilonidal sinuses present as abscesses [8, 9]. When a pilonidal abscess is left undrained, it leads ultimately to extensive tissue damage and potential sepsis. A pilonidal sinus that presents with recurrent pilonidal abscess development can spread to the anal canal and the perianal region [10-13].

Conventional treatment of pilonidal abscess includes incision and simple drainage. This method may prevent spreading of the abscess and subsequent extensive tissue damage. However, chronic pilonidal sinus develops after simple drainage at a rate of 16.0-92.5%, requiring surgical intervention [14-16]. Various approaches have been proposed to decrease the risk of development of chronic pilonidal sinus following the treatment of pilonidal abscess. In the present prospective study, on the treatment of acute pilonidal abscess, we compared incision and simple drainage with oblique excision and primary closure in terms of the rate of development of chronic pilonidal sinus, healing time, and return to active work.

Materials and methods

This prospective study included 128 patients with acute pilonidal abscesses who presented to the Emergency Unit of Safa Hospital from August 2009 to August 2011. The patient's medical data's were prospectively recorded and investigated. Those patients with recurrent development of acute abscesses secondary to
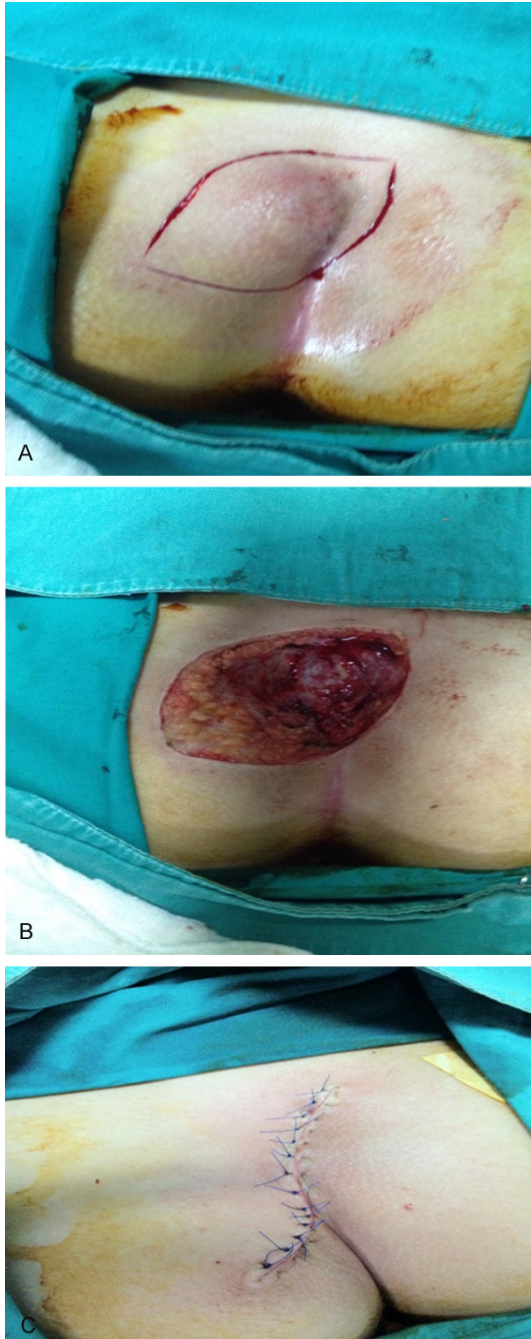
Figure 1. An oblique excision for acute pilonidal abscess, and its primary closure.

chronic pilonidal sinus were not included in the study. The patients were divided into two groups. Group A included those treated with incision and simple drainage, and Group B included those treated with oblique excision and primary closure. Local anaesthesia was used in both groups. The affected region was shaved and cleaned with povidone iodine solution.

Group A patients were placed in the prone position, and the affected area and surrounding tissue were infiltrated with sufficient doses of lidocaine HCl (20 mg/ml) and epinephrine (0.025 mg/ml). The fluctuating area of the abscess was incised parallel and vertically, and the discharge was drained. The remnant cavity was irrigated with hydrogen peroxide followed by physiological saline solution, and an open drainage system was placed. Postoperatively, the wound was irrigated with physiological saline and dressed twice daily for the first 3 days and then once daily until healed.

In Group B patients, wound dressing was performed once daily. An oblique excision was created to cover the abscess cavity and skin (**Figure 1**).

All patients in both groups were administered 1 g cefazolin preoperatively and postoperatively. Cefuroxime axetil was given orally for 7 days postoperatively. All patients were advised to shave the wound region and stay clean during the postoperative period. The healing time, time to return to active work, and rate of recurrence were determined and compared between the two groups using the chi-square and Student's t-tests.

Results

Of the 128 patients presenting with acute pilonidal abscesses, 109 (85.1%) were male and 19 (14.9%) were female. The average age was 27 years (14-39). Incision and simple drainage was applied to 69 patients, and oblique excision and primary closure was applied to 59. The patients were followed up by telephone. Seventeen patients who underwent incision and simple drainage and 14 of those who underwent excision and primary closure but who could not be contacted by telephone were excluded from the study. Those included in the study were invited to the hospital for anamnesis and reexamination. The average follow-up period was 24 months (range, 18-30 months). The healing times, times to return to active work, and rates of development of chronic pilonidal sinus are shown in **Table 1**.

The rate of development of chronic pilonidal sinus among those who underwent incision and drainage was significantly higher than that of patients who underwent oblique excision and

Table 1. The healing time to return to work, and recurrence rates between two groups are shown

Comparision parameters	Group A (n = 52) incision and drainage	Group B (n = 45) oblique excision and primary closure	p-value
Recurrence n (%)	41 (78.8%)	3 (6.6%)	< 0.001
Healing time, days (average)	13-32 (18)	15-27 (22)	< 0.001
Time to return to active work days	17-30 (25)	18-39 (27)	< 0.001

primary closure (chi-square test, P < 0.001). The healing time and time to return to active work were significantly longer among those who underwent oblique excision and primary closure (Student's t-test, P < 0.001).

Discussion

Pilonidal sinus occurs most frequently in the sacrococcygeal region. Acquired aetiological theories have replaced congenital theories regarding the development of the disease [3, 9, 14, 17, 23, 36, 37]. The generally accepted theory is that a foreign body reaction to a penetrant hair in the skin of the sacrococcygeal region initiates the disease [10, 11, 18, 30, 31]. Karydakis [19] reported that three factors are needed for hair penetration.

The first involves the presence, number, shape, and sharpness of the hair, which are important parameters in the initiation of the disease. The second factor is the presence of force that initiates the penetration of hair. The depth and narrowness of the natal sulcus and friction between the two glutea initiates hair penetration. The third factor is the weak nature of the skin that allows penetration [18, 21, 22, 39, 40].

Pilonidal disease presents as an acute pilonidal abscess or chronic sinus with discharge. Chronic pilonidal sinus treatment is surgical. Various surgical approaches have been described because of the high risk of development of chronic pilonidal sinus [1, 3, 5, 8, 20, 34, 35, 38].

The classic treatment of acute pilonidal abscess is incision and simple drainage. However, the rate of development of chronic pilonidal sinus following this procedure is high (16.0-92.5%). Goodall [16] reported a 92.5%

rate of developing chronic pilonidal sinus subsequent to incision and drainage. Jensen and Harking [28] performed incision and simple drainage under local anaesthesia, and 58% of patients had healed completely in 10 weeks. Many patients who were not completely healed had numerous sinus apertures and tracts. The authors reported that 21% of those who were completely healed developed chronic pilonidal sinuses within 60 months. McLaren [26] reported the need for surgical intervention in 40% of patients who had been treated with incision and simple drainage for pilonidal abscesses. Matter et al. [14] reported a 16% recurrence rate of the disease subsequent to incision and drainage of acute pilonidal abscesses and a 12% rate of development of chronic pilonidal sinuses. Incision and drainage required an average 3 days hospital stay (range, 0-12 days), and the average healing time was 30 (range, 15-70) days. However, excision and closure required an average 4 days hospital stay (range, 2-8 days), and the average healing time was 30 (range, 15-70) days. The authors found no statistically significant difference between the two procedures. In our study, the healing time was 18 (13-32) days in patients who underwent incision and drainage, and 25 (17-30) days in those who underwent excision and primary closure. The healing time was significantly shorter in patients who underwent incision and drainage. The operations were performed under local anaesthesia in an outpatient setting; the subjects were not admitted as inpatients.

Various procedures have been applied to reduce the risk of chronic pilonidal sinus subsequent to incision and simple drainage for acute pilonidal abscesses. Hanley [27] reported successful treatment outcomes after abscess drainage and sinus excision. Millar and Lord [28] reported a 97% success rate after excision and mechanical cleansing under local anaesthesia for acute pilonidal abscesses and chronic pilonidal sinuses. Edwards [29] reported 11% and 57% rates of development of chronic pilonidal sinus in patients who did and did not continue to undergo regular medical treatment after this procedure, respectively. Overall assessment showed an average healing time of 39

(15-365) days, and among recurrent cases, the author reported a healing time of 54 days [32]. Shpitz et al. [30] reported successful outcomes when they drained pilonidal abscesses and then excised the cavities and sinus tracts using electrocoagulation. Courtney and Mevlin [32] treated acute pilonidal abscess by incision, curettage, local application of 2% fusidic acid gel, and primary packing; they reported a 13% rate of development of chronic pilonidal sinus. Simms and Curran [33] compared incision and simple drainage with incision, curettage, and primary suturing of pyogenic soft tissue abscesses. The authors reported a 35% rate of unsuccessful healing of sutured wounds. Bascom [37] concluded that not the hair, but the hair follicle is the basic aetiological factor involved in the development of pilonidal sinus. Bascom proposed that simple drainage of the abscess followed by excision of the epithelised pilonidal sinus aperture with a small incision could decrease the rate of early development of chronic pilonidal sinuses to 15%. Silva [17] argued that incision and curettage could be implemented for acute pilonidal abscesses as well as pilonidal sinuses and reported a chronic pilonidal sinus development rate of 1.25% associated with this procedure. Isbister and Prasad [24] advocated that distinguishing acute pilonidal abscess from chronic pilonidal sinus on the basis of the treatment approach was unnecessary. The authors argued that a left-open approach could be successfully implemented to both cases. In their series of 323 patients, 177 of whom had acute pilonidal abscesses, they applied the left-open procedure and reported a 12% rate of development of chronic pilonidal sinuses.

The aim of oblique excision is to alter the natal cleft sulcus, thereby decreasing the recurrence rate and preventing disease in a single procedure. Incision and drainage are relatively simple. However, the rate of development of chronic pilonidal sinus has been found to be higher than that associated with oblique excision and primary packing ($P < 0.001$). However, oblique excision and primary packing takes a relatively longer time to perform ($P < 0.001$). In recurrent cases, there is a need for surgical intervention as well as wasted manpower and economic resources. Yet there remains no consensus regarding which surgical procedure is superior.

The first intervention to be applied in treating acute pilonidal abscess is of utmost importance. Procedures associated with a lower risk of developing chronic pilonidal sinus should have priority. The results of our study favour the preference of oblique excision and primary packing over incision and drainage.

Acknowledgements

Disclosure of conflict of interest

None.

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