

## Primary closure of Pilonidal sinus: our experience

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### Abstract:

**Objectives:** To evaluate the outcome of excision of sinus tract in the management of chronic Pilonidal sinus (PS) followed by primary midline closure as a simple and quick remedy.

**Design and setting:** A prospective descriptive study carried out on patients with chronic PS presenting in the surgical unit of Qatar hospital from January 2005- June 2008.

**Patients:** Seventy nine patients of PS, with age ranging from 13 yrs to 38 years, were included in the study.

**Methodology:** We filled a proforma, which included patient's age, profession, weight and height, symptoms and signs, duration of symptoms, previous treatments, operation time and cost, hospital stay, return to normal activity, complications, pathologic and microbiologic examinations, and recurrences. All base line investigations were performed and recorded. The excision of PS followed by primary midline closure with cavity obliterating sutures without drainage was done in all cases.

**Results:** 62(78.48%) patients developed no complications while 9(11.39%) had minor wound infection, 3(3.79%) had major wound infections, 3(3.79%) had wound dehiscence and only 2(2.53%) developed recurrence. Mean hospital stay was 2.43 days.

**Return to work** was observed in 14 days. (Range 10-18 days).

**Conclusion:** Simple primary closure of pilonidal sinus has good results with rapid healing, short hospital stay and early return to work and is the recommended method for most of the patients with PS disease.

**Key words:** Pilonidal sinus (PS), Primary closure.

### Introduction:

Pilonidal sinus arises in the hair follicles in the buttock cleft at the bottom of the backbone, predominantly in young patients<sup>1, 2</sup>. Pilonidal sinus disease, according to Hodges,<sup>3</sup> is an epithelial tract at the natal cleft just behind the anus, generally containing hairs, hence named Pilonidal sinus (Pilus=hair, Nidus=nest)<sup>4</sup>. The disease was very common in jeep drivers during the World War so it is also called Jeep disease<sup>5</sup>. The rare type of disease is also reported in inter digital clefts, axilla and umbilicus. The sinus tract is generally lined with the granulation tissue.<sup>6</sup> The disease is typical in the 3rd decade of life occurring between 20 -30 years of age. The

incidence in males is three times more than in females and in some literature it is reported to be even ten times more prevalent in males,<sup>7, 31</sup> probably due to their more hirsute nature. PS, an acquired condition related to the presence of tough semi curved hair in the natal cleft,<sup>8,9</sup> has many predisposing risk factors, which include large buttocks with deep natal cleft, sedentary job, family history, excessive body hair, folliculitis, lack of proper local hygiene, obesity, local irritation or trauma<sup>10,11</sup>.

There are various modalities of operative treatment, ranging from conservative to complex, available with conflicting results. Pilonidal sinus

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Figure 1: Bunch of hair stuff protruding from sinus opening



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6



Figure 7: After one year

excision with or without primary closure can be performed in many different ways. Complete sinus excision, which involves removal of the pilonidal sinus while sparing normal tissue, can be approached through a midline or lateral incision. For sinus removal through a midline approach, the wound can be primarily closed, marsupialized, or left open and allowed to heal by secondary intention. Several studies have demonstrated faster median healing rates<sup>13-18</sup> and more rapid return to work with primary closure,<sup>19, 20</sup> but they have also shown higher recurrence rates with this intervention as compared with healing by secondary intention.<sup>18, 21-23</sup>

#### Patients and method:

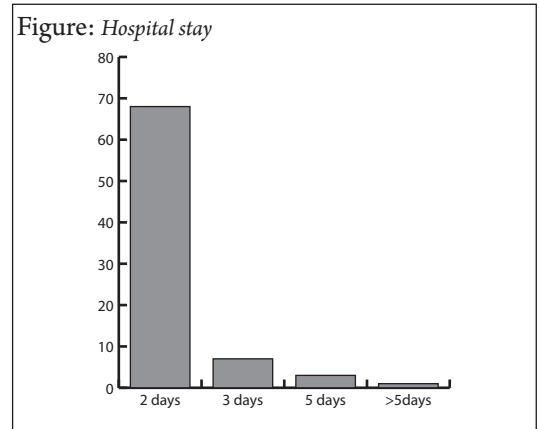
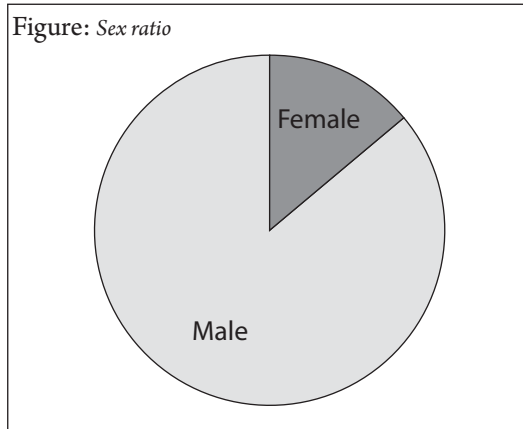
The study was conducted in surgical unit of Qatar hospital from July 2004- June 2008 and all patients of chronic PS, both male and female, were included. Only those patients who presented with acute abscess were excluded from the study. After admission from outpatient department all relevant investigations were performed and data compiled on specified proforma.

#### Surgical procedure

Patients were advised to shave the area and take a shower a night before the surgery. Prophylactic cover was given with 3rd generation cephalosporin before shifting the patient to the O.R. All patients were operated under general anes-

thesia in jack knife position with pillows under the shoulders and pelvis in order to provide room for free movement of abdomen for respiration during the surgery. The buttocks of the patient were kept apart with the help of sticking plaster. Only three patients, who were not fit for GA, were operated in spinal anesthesia in lateral position. The excision of the tract was done by giving elliptical incision vertically around the openings with a clear margin of about 1 cm all around the tract up to the depth of pre-sacral fascia (Fig 2). The wound was then packed with ribbon gauze soaked in hot normal saline water for five minutes to achieve haemostasis; a few bigger bleeder vessels were then controlled with diathermy (Fig 3). The closure of wound was then done after removing the sticking plaster applied earlier. First cavity obliterating tension sutures were applied with polypropylene No: 1 (Prolene) and left open to be tied over gauze later after skin closure (Fig 4). The walls of the wound were then approximated with few stitches of polyglactin 2/0 (Vicryl) and the skin was closed with sub cuticular stitches with 3/0 polypropylene suture (Fig 5), dry gauze placed over the wound; then tension sutures were tied over it (Fig 6). The sticking plaster was then applied with special care for the sealing of wound towards the caudal end.

Post operatively patients were given 3rd genera-



tion cephalosporin 1gm I/V BD and metronidazole 500 mg I/V 8 hourly along with NSAID injections. A few cases required sedatives in the first 24 hours.

Most of the patients were discharged from hospital on the 2nd or 3rd post- op day. Tension sutures were removed on the 5th post-op day and the wound was examined for any sign of infection. New dressing was applied. Skin sutures were removed on 10th post-op day.

**Results:**

Total of 79 patients were included in the study out of whom 61(77.2%) were male and 18(22.8%) were female. The mean age of the group was 29.54 years. 68(86.07%) patients presented with chronic PS with no history of any surgical intervention while remaining 11(13.92%) patients had some kind of major or minor surgical procedure before followed by recurrence. 54(68.35%) patients had single external opening while remaining 25(31.65%) had two or more external openings. All patients with recurrent PS had multiple openings.

Post operatively, recovery was smooth and uneventful in 62(78.48%) patients while 9(11.39%) developed minor wound infection, 3(3.79%) developed major wound infection, total wound dehiscence occurred in 3(3.79%) and 2(2.53%) developed recurrence within 1 year. The mean hospital stay was 2.4 days.

**Discussion:**

Most of the patients in our study belonged to the very low socio-economic class, who could not afford to go to the private sector for surgi-

Table: Complications

Normal Healing	62(78.48%)
Minor wound infections	9(11.39%)
Major wound Infections	3(3.79%)
Wound dehiscence	3(3.79%)
Recurrence	2(2.5%)

cal treatment; therefore most of our patients (86.07%) had no history of any sort of surgical treatment before presenting in our OPD. Male preponderance and age range of patients are almost same as in various other studies.<sup>24-29</sup> except in one study where Memon et al<sup>38</sup> showed a female preponderance in their study (21 females out of 30). The poor representation of female patients has also been noticed in our study and in this part of world<sup>28,34</sup>. This may be due to reluctance among the females to seek medical advice for personal problems from male doctors due to socio-economic and religious constraints. This may be the cause of the relatively low incidence of PS in female population.

There is a wide consensus among the medical community that sacro coccygeal sinus disease is an acquired condition<sup>29,32,33,39</sup>. A number of procedures have been advocated for the treatment of chronic PS. They range from an extreme conservative, non-surgical approach to extensive surgical procedures with full thickness flaps techniques<sup>35-37</sup>. The ideal treatment of PS remains a topic of debate and controversy. Primary closure of pilonidal sinus tract following complete excision has been described by many authors with some kind of variation to closure method<sup>39,40</sup>. The ideal surgery should be simple,

with a short hospital stay, a low recurrence rate, associated with minimum pain and wound problems. It should also be cost effective<sup>41</sup>. None of the surgical procedures for PS proved to be ideal with respect to the results of wound infection, wound dehiscence, or recurrence. Marcel Binnebo et al in their study observed, interstitial collagens, because of their long half-lives and biomechanical strength, are most likely the critical components for tissue remodeling<sup>12,42</sup>. A balanced collagen metabolism is supposed to be a key factor responsible for satisfactory wound healing after surgery. In one study, the collagen type I/III ratio was significantly lowered in patients in whom the healing by primary intention later failed, and who developed a delayed wound healing compared with those with an uncomplicated healing by primary intention. The detection of a lowered collagen I/III ratio at the index operation may indicate that in a subgroup of patients a disturbed collagen metabolism may cause a delayed wound healing.<sup>12</sup>

Aim of the treatment in PS disease is to heal the sinus, as early as possible either by open healing method or by primary closure, and to avoid the risk of recurrence. The main problem in open healing is the long time period required, which is responsible for delayed return of patient to normal life and loss of working hours. Keeping in mind all the possibilities and the need of the community, simple primary closure was done in 79 patients. Patients were randomly selected from out patient department and subjected to excision of pilonidal sinus tract with primary closure. The surgeries were performed by a set of three senior surgeons. All wounds were closed in a similar pattern and none of the wounds was drained. Minor wound infection and redness were noted in 9 patients while 3 patients had major wound infection, which led to wound dehiscence and was left to heal by secondary intention. The patients were followed in OPD at the interval of 3, 6 and 12 months respectively. They were advised to improve their personal hygiene and remove hairs periodically around the wound and also on the back. Out of 79 patients recurrence was noted in 2 patients, who were both incidentally uncontrolled diabetics and one was suffering from COPD. Out of 79 patients, 9 were

heavy smokers and subsequently 3 developed wound dehiscence and 2 had recurrence.

It is supposed that smoking influences collagen biosyntheses and that smoking leads to an imbalance of connective tissue matrix components. Wong et al.<sup>43</sup> investigated the chicken embryonic fibroblasts and concluded that smoking may delay wound repair because of the inability of fibroblasts to migrate into the wound area, thus inhibiting the formation of the healing tissue. Yin et al.<sup>44</sup> showed that in human fibroblasts, treated with tobacco smoke extract, type I and type III collagens were significantly decreased. Furthermore, wound failure may be correlated with further specific patient-related risk factors, e.g., obesity. Obesity is a risk factor for unsatisfactory wound healing, and in particular is responsible for altered collagen composition<sup>12,45</sup>.

Return to work had significant bearing to the outcome of the surgery as majority of patients were from low socio income group and it was their paramount need to return to work as soon as possible. Majority of them returned to their jobs in 14 days (range 10-18 days) except 3 patients who had either wound complication or post operative discomfort. Although midline primary closure had been practiced successfully in the rest of world but very few literature available of our local studies. Shams et al<sup>31</sup> in his study has shown very similar results of midline primary closure

#### **Conclusion:**

It is concluded that excision of sinus tract followed by primary closure of pilonidal sinus is a safe, cost effective and time saving procedure, particularly in poor socio economic group, and can be taught easily to the junior surgeons. The natal cleft is flattened and the incision scar is minimized by performing the excision and primary closure with sub cuticular stitches, and thus the essential cause of pilonidal sinus is eliminated. The procedure is simple, the complications and recurrences are relatively low; and it is an excellent procedure for the surgical treatment of pilonidal sinus disease.

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