Pilonidal sinus; minimal excision and primary closure under local anesthesia.

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Abstract:

Introduction: The management of chronic pilonidal disease is variable and controversial. Many procedures have been described but none of them is considered ideal. Many surgeons treat pilonidal sinus by wide excision down to the sacral fascia, leaving a lay open or a primary sutured midline wound. Other surgeons, while still committed to the same wide excisions, use more sophisticated techniques such as various types of skin flaps.

Objective: How to excise PNS minimally under local anesthesia and the evaluation of subsequent effects on wound closure and healing process.

Patient and methods: This prospective study was carried out in 30 consecutive patients with primary non recurrent sacro-coccygeal PNS. All patients treated surgically with minimal excision and primary closure under local anesthesia. Patients were followed up for 6 to 36 months postoperatively. Parameters include wound seroma, infection or disruption. Also, pain, mobilization, time off-work and recurrence.

Results: The mean operative time is 38 minutes (range 25 – 47 min). The hospital stay ranged from 2 to 4 hours. Healing time was (14-20 days). Three cases (10%) presented with wound seroma. One patient (3.3%) presented by wound infection without disruption. One patient (3.3%) presented by significant wound infection and wound disruption; this patient presented by recurrence after 6 months and this condition is treated by wide excision and rhomboid flap reconstruction.

Conclusion: Minimal excision and primary closure for uncomplicated cases of pilonidal sinus under local anesthesia is a safe, easy operative procedure. It is found better in terms of less operative time, short hospital stay, less
postoperative time off work, less healing time, low complication rates with low chances of recurrence.

Keywords: pilonidal sinus, minimal excision, local anesthesia, complication rates.

Introduction:

Pilonidal sinus is a common pathology in general surgery practice. It accounts for almost 15% of anal suppuration. Males are affected more frequently than females by the ratio of 3:1. In USA the incidence of pilonidal sinus (PNS) disease is 0.07% and higher among males aged between 15 and 30 years.\(^1\)

Pilonidal sinus is a chronic inflammatory condition that often causes long term disability in young adults.\(^2\)

The term “Pilonidal Sinus” refers to a tract or cyst under the skin contains loose hair. The most common are in the sacro-coccygeal “tail bone” area and the umbilicus.\(^3\)

The development of pilonidal sinus was described by Karydakis to be attributed to three main factors; the invader i.e. loose hair, the force which causes the insertion and the vulnerability of skin to the insertion of hair at the depth of natal cleft. These three factors aided by risk factors such as obesity, moisture, hairy back, prolonged sitting and negative suction of these loose hair through a small breach in the skin leading to inflammation and later infection.\(^2\)

Several treatment modalities have been tried for PNS including shaving, incision and drainage, phenol application, cryosurgery, excision with packing, excision with marsupialization, excision with primary closure and excision with flap closure.\(^4\)

The controversy in surgery for PNS remains about what to do for wound closure after excision. Many surgeons treat pilonidal sinus by wide excision down to the sacral fascia, leaving a lay open or a primary sutured midline wound. Other surgeons, while still committed to the same wide excisions,
use more sophisticated techniques such as various types of skin flaps designed to keep the incision away from the midline or flatten the natal cleft. Such extensive operations often require hospitalization, general or regional anesthesia, and variable use of stitches, drains, and antibiotics. However in this study we are dealing with how to excise PNS minimally and subsequent effect on wound closure and healing process.

The ideal operation should be simple, not need prolonged hospital stay, low recurrence rate, minimal pain, minimal wound care and decrease patients’ time off-work. (4)

**Patients and Methods:**

This prospective study was carried out in 30 consecutive patients with primary non recurrent sacro-cocygeal PNS from June 2012 to May 2015 to allow a minimum follow-up period of at least 6 month for the last case operated upon.

Age, sex, presentation, number of sinus pits, midline or lateral pits, treatment, complications, inpatient stay and post-operative outcome were recorded.

Mean age at presentation was 23.7 years (18-37 years). 18 males and 12 females.

All patients were having midline pits, only 3 patients were having additional lateral sinus opening due to branched tract.

All patients treated surgically with minimal excision and primary closure.

<table>
<thead>
<tr>
<th>Age</th>
<th>23.7 (18-37 y)</th>
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<tr>
<td>Sex</td>
<td>18 ♂ 12 ♀</td>
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*Table (1):* demographic data of patients.

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>%</th>
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<tbody>
<tr>
<td>Pain</td>
<td>23</td>
<td>76.6%</td>
</tr>
<tr>
<td>Discharge</td>
<td>12</td>
<td>40%</td>
</tr>
<tr>
<td>Previous abcess</td>
<td>2</td>
<td>6.6%</td>
</tr>
</tbody>
</table>

*Table (2):* clinical data of patients.
**Technique:**

All patients had preoperative antibiotic injection (sulbactam + metronidazole). Patient positioned in prone position. Hair clipping was done on table. Field preparation was done by antiseptic and sterile towels.

About 20-30 cm mixture solution; (prepared from 15 ml xylocaine 2% + 35 ml normal saline + 0.25 gm adrenaline); used for local subcutaneous infiltration around the pilonidal sinus tract.

Buttocks are pulled apart by traction plaster on both sides to expose the natal cleft.

We did not inject methylene blue for sinus delineation. We were just dependent on color contrast between dark pilonidal cyst, due to contained hair, and the surrounding bloodless field by the effect of adrenaline.

A small elliptical incision is created passing through the following points: upper point 2cm above the uppermost sinus pit, lower point 0.5 cm below the lowermost sinus pit, right and left points 0.5 cm lateral to midline. Cases with lateral openings “branched tract”; V-cut was done to enclose this lateral pit.

The incision is deepened to about 1-1.5cm in the subcutaneous tissue according to the obesity of the patient then dissection is carried out medially. At this step the exact wall of sinus tract can be identified and we can continue dissection just outside the fibrotic wall and complete excision is done with overlying sinus pits.

If the track of PNS is accidentally opened during the dissection, it could be easily recognized by protrusion of granulation tissue. This is corrected by backward step in recognizing dissection plane and re-excision of all pathological tissues.

After excision is completed, wound irrigation with normal saline, ensure hemostasis and then release traction plaster. The wound edges will come comfortably without any tension.
Wound is closed in 2 layers; deep dermal and skin. No drains inserted. Wound is dressed for 48 hours then exposed. We overcome the problem of anaerobic environment by early exposure of wound. With heavy buttocks we used the strategy of reversed plaster to pull buttocks away from cleft wound.

Patient is discharged 2-4 hours after operation and scheduled for follow up visits after 2 days, 7 days, 14 days, 1 month, 3 months and 6 months.

Instructions on discharge include avoidance of prolonged sitting and riding bicycles for 6 weeks. Also, to improve local hygiene and regular removal of hairs by shaving, clipping or depilatory creams.

Follow up parameters include wound seroma, infection or disruption. Also, pain, mobilization, time off-work and recurrence.

*Fig (1): patient position.*  
*Fig (2): Local anesthetic infiltration.*
Fig (3): Incision for minimal excision.

Fig (4): Dissection plane is very clear.

Fig (5): Resultant cavity after excision.

Fig (6): Wound after release of traction plaster.

Fig (7): The completely excised sinus.

Fig (8): PNS with lateral opening
Results:

Minimal excision of pilonidal sinus was performed on 30 patients; 18 males and 12 females. Mean age was 23.7 years (range 18 -37 years) (Table 1).

As regard clinical presentation of our patients (Table 2), 23 patients (76.6%) presented with natal cleft pain, 12 patients (40%) complained of intermittent discharge and only 2 patients (6.6%) gave history of previous pilonidal abscess with surgical drainage.

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<table>
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<tbody>
<tr>
<td>Operative time</td>
<td>38 min (25-47)</td>
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<tr>
<td>Hospital stay</td>
<td>2-4 hours</td>
</tr>
<tr>
<td>Healing time</td>
<td>15 days(14-20 days)</td>
</tr>
<tr>
<td>Wound seroma</td>
<td>3 cases (10%)</td>
</tr>
<tr>
<td>Infection</td>
<td>2 case (6.6%)</td>
</tr>
<tr>
<td>Disruption</td>
<td>1 case (3.3%)</td>
</tr>
<tr>
<td>Recurrence</td>
<td>1case (3.3%)</td>
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Table (3): Post-operative data.

The mean operative time is 38 minutes (range 25 – 47 min). The hospital stay ranged from 2 to 4 hours. Healing time was (14-20 days). Three cases (10%) presented with wound seroma which was treated by repeated aspiration by wide pore needle. Two patient (6.6%) presented by wound infection without disruption which was treated by repeated dressing. One patient (3.3%) presented by significant wound infection and wound
disruption. Wound is left open to heal by secondary intention and this patient presented by recurrent PNS after 6 months and this condition is treated by wide excision and rhomboid flap reconstruction (*Table 3*).

**Discussion:**

In 1833, Herbert Mayo described a hair-containing sinus (5), but it was not until 1880 that Hodge (6) suggested the term “pilonidal” (Latin: *pilus* = hair and *nidus* = nest). By definition, a pilonidal sinus is a sinus that contains hairs, mainly in the sacrococcygeal area and is due to favoring conditions like: The existence of a deep natal cleft and the presence of hair within the cleft, sweating, maceration, bacterial contamination, and penetration of hairs (4). In addition, certain effect exerted by the movement of the buttocks encourages loose dead hair to gain entry to the sinus (7). This pilonidal sinus disease was also branded as “jeep disease” during the Second World War because of the high incidence among jeep drivers (8).

Management of PNS varies widely from non-radical treatment; like gluteal shaving and incision and drainage to radical treatment in the form of wide local excision only or followed by different methods of reconstruction.

Although many surgical and nonsurgical treatment methods have been described, the ideal treatment method has not yet been established for pilonidal disease. (9)

Despite the controversy about the best surgical technique for the treatment of pilonidal sinus, an ideal operation should minimize financial cost, allow patients to return earlier to work, be simple to perform, not require a prolonged hospital stay, inflict minimal pain, and have a low disease recurrence rate. (10)

The controversy in PNS management remains about what to do with the wound after wide local excision. Wide local excision creates a big defect which if closed primarily it will be under tension. This tension in the wound will cause ischemia, pain and will be complicated by infection and later wound disruption. Previous work considered the groove of a natal cleft is one of the predisposing factors for development of PNS and paid every
effort to obliterate it or make off-midline incision. The principles of flap reconstruction after wide local excision are used for elimination of tissue tension and obliteration of natal cleft groove but still can be considered as a complex operation which should be preserved for complex cases.

After wide local excision, the surgeon just created a big defect without additional benefit then run to search for how to close it. Primary closure will put tissues under tension and flap reconstruction will obliterate natal cleft which is a normal anatomy.

In this study we tried to look at PNS operations from a different point of view. We tried to make it simple and office operation. We focus on how to excise PNS minimally.

The technique for minimal excision of pilonidal sinus is based on two main principles for PNS treatment; the elimination of tissue tension and the complete excision of diseased tissue.

Other advantages for this technique are preservation of healthy tissues and considered as a simple procedure can be done under local anesthesia. This simplicity makes it an office procedure with minimal morbidity. Moreover; this procedure does not interfere with healing time or increase complication rates as wound seroma, infection and disruption.

In this study we have 10% wound seroma, 6.6% wound infection and disruption. Only one patient (3.3%) presented by recurrent PNS after 6 months and this condition is treated by wide excision and rhomboid flap reconstruction.

Recurrence has been consistently reported low (1-4%)\textsuperscript{(11,12,13)} with Karydakis technique even with prolonged follow-up as compared to other treatment modalities especially simple drainage (25%)\textsuperscript{(14)}, open excision (0.5-5%)\textsuperscript{(15,16)}, simple midline closure (3.5-4.2%)\textsuperscript{(15,17)} and Bascom's cleft excision (10%)\textsuperscript{(18,19)}

Here, we introduce a simple, fast technique for minimal excision; which still can be considered as radical treatment for PNS as we excise all pathological tissues and preserving healthy tissues.
In conclusion, minimal excision and primary closure for uncomplicated cases of pilonidal sinus under local anesthesia is a safe, easy operative procedure. It is found better in terms of less operative time, short hospital stay, less postoperative time off work, less healing time, low complication rates with low chances of recurrence. Complicated and recurrent sinuses require wider excision and flap reconstruction.

**References:**


8- Mentes, O., Bagci, M., Bilgin, T., Coskun, I., Ozgul, O. and Ozdemir, M. (2006): Management of pilonidal sinus disease with oblique excision and


