

# Best Surgical Treatment of Pilonidal Sinus Natal Cleft?

Zafar Iqbal, Huma Irshad, Iftikhar Ahmed

## ABSTRACT

**Objective:** To assess the outcome of various surgical techniques applied for treatment of pilonidal sinus natal cleft. **Study Design:** Retrospective study. **Place of Study:** Zayed Military Hospital, Abu Dhabi, U.A.E. **Period:** Jan-2013 to Dec-2016. **Methodology:** Total cases operated 234, male 217 female 17, Surgical procedures performed, excision with primary closure, excision with marsupialization, excision with laying open and excision and closure with flaps. Age 14 to 49 years, median age 21 years, average BMI 33kg/m<sup>2</sup>. **Results:** Average healing time 14 days, 43 days 56 days and 14 days from group one to four. Wound infection 3.4 %, bleeding 5.9 %. Recurrence rate of 12.3%. Marsupialization showed zero percent wound infection, bleeding of 4.6% and recurrence of 11.6 %. **Conclusion:** Excision and marsupialization is easy to perform, appears to have less complications, relatively shorter healing time and almost similar recurrence. In addition higher BMI showed higher recurrence rate.

**Keywords:** Pilonidal Sinus, Natal Cleft, PNS.

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## INTRODUCTION

Pilonidal sinus (PNS) is a benign disease seen commonly in young males<sup>29,30</sup> and negatively alters the quality of life. Worldwide prevalence of PNS is 26 cases /100000 population.<sup>1,3</sup> It is common disease in UAE. It was described for the first time by Herbert Mayo<sup>8</sup> in 1833. Most common sites are natal cleft, however it is occasionally seen in umbilical region and rarely inter digital area of hands in barbers. Umbilical PNS is usually treated conservatively.<sup>19</sup> Inter digital PNS is treated by excision with primary closure.<sup>18</sup>

Natal cleft PNS usually presents with discomfort and chronic discharging sinuses and sometimes as acute abscess. In a small percentage can be incidental finding and asymptomatic. The differential diagnosis includes sebaceous cyst, lipoma and rarely congenital developmental cysts. Ultrasonography, computerized tomography and pelvic MRI are useful diagnostic tools in this type of situation. In very low opening of PNS, perianal fistula should be considered also in D/D. MR imaging features of perianal and deep-seated sepsis, characteristic of fistula in-ano, are also found in patients with pilonidal sinus, but the absence of intersphincteric sepsis or enteric opening allows reliable MR imaging distinction between the two.<sup>34</sup>

It is an acquired<sup>16</sup> benign disease of obscure etiology. Both environmental and genetic components have been postulated to play a role in etiology of disease.<sup>23</sup> Prolonged sitting, sweating and sucking in of hairs creating sinus in obese people is usual pathogenesis. It is associated with obesity 37% sedentary occupation 44% and local irritation and trauma 34%.<sup>5</sup>

Definitive treatment for symptomatic disease is surgery. Several surgical techniques are practiced, which include excision and primary closure<sup>2</sup>, excision and marsupialization, excision and

laying open and excision and closure with various flaps. Favorable outcome is regarded as less post-operative complications, less morbidity, and low recurrence.<sup>15</sup> Acute abscess is treated with incision and drainage which resolves acute phase with, 16-92% requiring treatment for chronic PNS later.<sup>11</sup>

## METHODOLOGY

**Study Design:** Retrospective study

**Place of Study:** Zayed Military Hospital, Abu Dhabi, U.A.E

**Duration of Study:** 1st of January 2013 to 31st of Dec 2016.

**Method:** A total of 234 cases were operated electively. Male 217 (92.7%), female 17 (7.3%). Age ranged from 14 to 49 years, with median of 21 years. Average BMI was 33 kg/m<sup>2</sup>.

**Inclusion criteria.** All cases who were symptomatic (natal cleft discomfort, sinus with discharge of serosanguinous, purulent fluid) were included. Cases with abscess were not included and were treated by incision drainage at first. Asymptomatic cases also not included.

**Techniques:** All procedures were either performed or supervised by senior surgeons. A single shot of prophylactic antibiotic was given in group one and four. All patients received DVT prophylaxis. General anesthesia with intubation was applied in 224 cases. In 10 selected cases who accepted, procedure was performed under local anesthesia. Patient placed in prone position. Patient's buttocks were separated by pulling apart with sticky plaster tape. Skin incision was marked. After prep and drape, methylene blue was injected in the pits to define the extent of tracts and sinus and whole of sinus was excised. Subsequently group 1, primary closure with two layers after applying closed drain system, Group 2, marsupialization with polyglycolic acid 2/0 and packing with

saline soaked gauze, in group 3, wound was laid open and packed with saline soaked gauze, in group 4, wound closure with flap was done. All cases were advised to remove hairs from natal cleft weekly.

## RESULTS

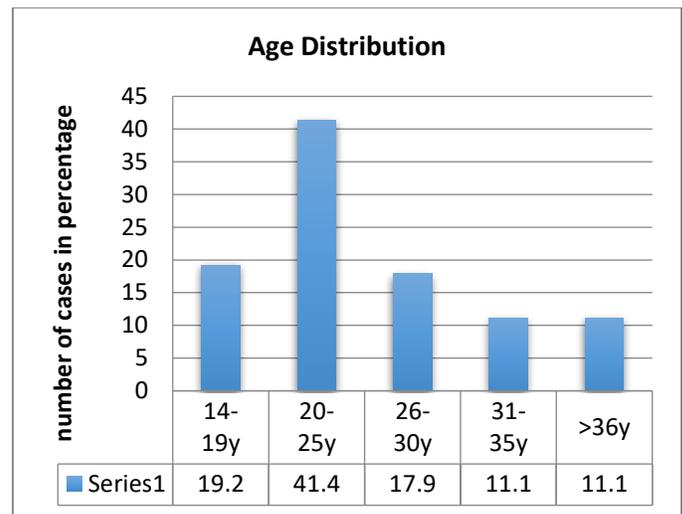
Surgical techniques applied were Group one 44 patients, group two 43 patients, group three 128 cases, group four 19 cases. Procedure selection was operating surgeon's decision after discussing with patient. Hospital stay group 1, 2 and 4 ranged between 3-5 days, group 3, 4-7days. Common complications, bleeding, 4.7 %, (group1 and 2, two cases each, group 3, 9 cases group 4 one case). Wound infection 3.4% (group 1, 6 cases, and group 4, 2 cases). Healing time in group 1, 14 days (range 10-21 days), group 2, 43 days, (35-56 days) group 3, 56 days (40-75 days) group 4, 14 days (11-18) day. Overall recurrence rate with follow up of 1 to 5 years was 12.3 %. Group 1, six cases (13.6%), group 2, five cases (11.6%), group 3 sixteen cases, (12.5%), group 4, two cases, (10.5%). Average BMR 33kg/m<sup>2</sup>. Other co morbidities associated were insulin dependent Diabetes mellitus 6 case.

**Table 1: Group wise results and complications**

	Group 1 Excision and Primary closure	Group 2 Excision and Marsupialization	Group 3 Excision and laid open	Group 4 Excision and closure with flap
Number of Patients	44 (18.8%)	43 (18.3%)	128 (54.7%)	19 (8.11%)
Prophylactic antibiotic	Yes	No	No	Yes
Operating time	36 (30-40) minutes	28 (23-34) minutes	26 (20-32) minutes	48 (35-60) minutes
Bleeding	2 (4.5%)	2 (4.6%)	9 (7%)	1(5.2%)
Wound infection	6 (13.6%)	0	0	2 (10.5%)
Hospital stay	4 (3-5) days	4 (3-5)	5 (4-7) days	4 (3-5) days
Healing time	14, (10-21) days	43, (35-56) days	56, (40-75) days	14, (11-18) days
Recurrence	6, (13.6 %)	5 (11.6 %)	16 (12.5 %)	2 (10.5 %)

**Table -2. Relationship of Recurrence of PNS with BMI.**

BMI	Up to 25 kg/m <sup>2</sup>	26-30 kg/m <sup>2</sup>	31-35 Kg/m <sup>2</sup>	More than 36 Kg/m <sup>2</sup>
Number	28	56	85	65
Recurrence	2 (7.1 %)	6, (10.7%)	9, (10.6 %)	8, (12.3 %)



**Figure 1: Age distribution**

## DISCUSSION

The management of PNS natal cleft is a demanding job which includes surgical procedure, long term wound care and addressing possible risk factors to reduce recurrence. Ideal procedure should be easy to perform, carry less morbidity and low recurrence rate. In our study as mentioned above four methods of PNS treatment were applied. All had their pros and cons.

Common post-operative complications encountered are bleeding and infection. The incidence is variable for various techniques, various studies have quoted range from 2.5% and 3.75%<sup>4,5</sup> respectively for bleeding and wound infection. A Turkish study however shows infection rate of 10.2%.<sup>31</sup> In our study overall incidence of bleeding was 5.9 %, (4.4%, 4.6%, 7% and 5.2% respectively from group 1 to 4). Out of open techniques, marsupialization had lesser bleeding than laying open (4.6% versus 7%) and similar to other techniques. Overall wound infection in our study is 4.7%, 6 cases in group 1 and 2 cases in group 4. No wound infection reported in marsupialization group.

Our wound healing time was 14, 43, 56 and 14 days from group one to four respectively. This is slightly longer than other studies showing healing time of primary closure 11.7 days, marsupialization 27.3 days, with laying open 46.4 days, various flap 13.5 days.<sup>7, 28</sup> We attribute this longer healing time to type of work as our patients consisted mostly of active soldiers who are involved in excessive physical activity. Moreover, our average BMI was 33kg/m<sup>2</sup> which is another factor in wound healing. Our hospital stays group 1, 3-4days, group 2, 3-4 days, group 3, 4-5 days, group 4, 3-4 days is also slightly longer than other studies,<sup>26</sup> this was for better wound care as patients had to go to camps where facilities were not as good and far away from hospital.

Low recurrence rate of PNS is an important parameter of successful treatment. In addition to high BMI<sup>30</sup>, smoking (nicotine),<sup>23</sup> sedentary life style<sup>25</sup> family history<sup>32,33</sup> and poor hygiene are important contributors of recurrence. Recurrence rate is variable from 0%<sup>1,9,11</sup> to 40 %<sup>10</sup> from various studies and

techniques. Fibrin sealant technique which is promoted as least invasive carries 20 % recurrence, despite highly selected group.<sup>3</sup> Various flaps repair techniques claim recurrence rate from zero percent to 1.6,8 to 4.8 % .<sup>9</sup> However, these studies consist of relatively small group of patients with short follow up. Marsupialization and laying open showed a recurrence ranging from 6.3% to 14.4 %<sup>7</sup>. Long follow up is needed to clearly define true recurrence as only 60% of recurrence occurs in first five years. This was comprehensively elaborated in a German study with large pool of patients with 15 years follow up.<sup>23</sup> Our overall recurrence was 12.3%, with breakdown from group 1 to 4, 13.6%, 11.6 %, 12.5%, 10.5% respectively with 1 to 5 years follow up.

There has been speculation that excessive hairy ness is one of the main culprits and something has to be done to get rid of hairs. We have been advising patients to shave the area weekly. Laser depilation has been studied but the results suggested more evidence is needed to clearly define the role of hair removal on recurrence.<sup>25</sup>

We submitted all specimens for histopathology. No malignancy was reported. Our patients were from relatively younger age group and presented early in the course of disease. In more than 70 cases worldwide malignancy has been reported in literature especially older age and long duration of symptoms. The histological type of cancer arising from pilonidal sinus is Squamous cell carcinoma in 90 % cases.<sup>21</sup> Hence, we also recommend that all excised specimens should be submitted to histopathology as recommended in other studies as well .<sup>24</sup>

There is an association with obesity of high PNS incidence.<sup>6</sup> The average BMI of patients in our study was 33 Kg/m<sup>2</sup>. Saudi study from same region shows average BMI 29.7 kg/m<sup>2</sup>.<sup>21</sup> A Turkish study has shown that 47.2% of their patients were obese.<sup>30</sup> It was also noted that recurrence is slightly higher in obese cases irrespective of technique applied. Table -2 below shows the relationship of BMI and recurrence in our study.

Methylene blue was injected to outline the extent of sinus tract and cyst, and excision was carried out including all blue tinged area. This application of dye was found to reduce the recurrence by 14% from 30% in patients who did not receive methylene blue versus 16% who did.<sup>23</sup>

Procedure is usually done under general anesthesia with intubation in prone position. However, in 10 patients who were willing to accept procedure under local anesthesia excision was successfully carried out. Local anesthesia has the advantage of less burden for airway care and less post-operative pain.<sup>17</sup> Patient needs counseling and in cooperative cases it is an advantage.

## CONCLUSION

Asymptomatic cases should be observed and advised to maintain good hygiene. Symptomatic cases need surgical intervention. Patient motivation in post-operative care is very important, those who do good wound care and keep good general hygiene have a better outcome. Out of various techniques each has its advantage and disadvantages. Primary

closure has less morbidity at the cost of higher wound infection and recurrence. Flap techniques technically more demanding with longer operative time and higher wound infection with slightly low recurrence. Laying open has similar recurrence with more morbidity and long healing time. Marsupialization is technically easy, combines advantage of keeping wound open, with less post-operative complications, relatively shorter morbidity<sup>5</sup> and similar recurrence. Hence, we recommend excision with marsupialization as first choice procedure for symptomatic PNS disease. However, it appears that the perfect technique is yet to come.

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