

# Treatment of Pilonidal Sinus: Comparison of primary closure by Karydakis Technique and Wide Local Excision

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Treatment of pilonidal sinus is controversial. Outcome of wide excision and asymmetric closure of pilonidal sinus by Karydakis technique in uninfected pilonidal sinus was compared in this prospective randomized study, comprising of 40 patients, conducted in the Department of General Surgery, Sir Ganga Ram Hospital Lahore, Pakistan. Hospital stay and healing time was shorter,  $6.75 \pm 3.11$  versus  $9.75 \pm 4.16$  days, and days  $10.75 \pm 5.40$  versus  $47.30 \pm 14.11$  days respectively ( $p$ -value  $< 0.05$ ) and the patients resumed their job earlier,  $14 \pm 3.83$  days versus  $28.85 \pm 11.03$  days  $p$ -value  $< 0.05$ ). Karydakis technique was more cosmetic and associated with less infection and wound failure/recurrence, though statistically insignificant. Karydakis is a superior technique as compared to excision followed by healing by granulation in uninfected pilonidal sinus

**Key words:** pilonidal sinus, wide local excision, Karydakis technique.

Pilonidal sinus, *pilus* (hair), *nidus* (nest) and *sinus* (connection with skin)<sup>1</sup>, though common in western society<sup>2</sup>, is not infrequent in our society. We treat pilonidal sinus by wide excision and healing by granulation. It is associated with delayed healing, recurrence or persistent non-healing wound<sup>2</sup>, which results in high cost, work loss and inconvenience to the patients. In this economic-conscious era, there is a lot of pressure to develop and adopt cost-effective techniques which reduce hospital stay<sup>3,4</sup>. Karydakis technique (Fig. 1) of asymmetric primary wound closure following excision is said to be associated with less morbidity and is cost effective<sup>2,5,6</sup>. We conducted a prospective comparative study to know the effectiveness of the technique in our setup.

## Patients and methods

The study was conducted in the Department of Surgery, Sir Ganga Ram Hospital Lahore, Pakistan during the years 2001 to 2003 (2 years). The patients presenting with uninfected chronic pilonidal sinus in the natal cleft, were randomly divided in to two groups, Group-I and Group-II. The patients with active disease, defined as: the patients having acute inflammation, abscess, fever, leukocytosis, or raised erythrocyte sedimentation rate, and co-morbid conditions like diabetes mellitus, respiratory diseases etc., were excluded from the study. The Patients from far-flung areas with possible non-compliance for follow up were also excluded from study. Telephone or postal system was used to recall the patients. After informed consent, Group-I patients underwent operation by Karydakis technique<sup>5,6</sup> (Fig. 1). Wound was closed in layers over No 12 Radivac suction drain that was removed when the discharge almost stopped or at least 24 hours post-operatively. Skin was closed with 00 prolene interrupted sutures which were removed on 10<sup>th</sup> day in case of event free recovery. The group-II underwent excision of sinus, let the wound heal by granulation. The patients were discharged when the dressing soaked minimally and wound granulated.

Repeated saline dressing and Sitz baths were advised to the patients until the wound healed. General anesthesia was used for the procedures in both groups. The patients were operated by the same surgeon. The patients were followed for two years. Hospital-stay, healing time, return to work, post-operative pain, infection, wound failure/recurrence, cosmetic appearance and patients acceptability were the parameters used to measure the outcome. All the data were recorded on an appropriate proforma and were analyzed statistically applying appropriate tests. SPSS 10 for windows on IBM Pentium computers was used for statistical analysis.

## Results:

During this study period, 45 patients were admitted in this hospital. Forty patients, 37 males and 3 females, satisfied the inclusion criteria and were included in this study. (Table 1). Age ranged from 15 to 38 years. The results of the two groups have been summarized in table 2. Group-I had 20 patients, 18 males, and 2 females and the Group-II had 20 patients 19 male and 1 female. Hospital stay in the Group-I was shorter than Group-II,  $6.75 \pm 3.11$  days versus  $9.75 \pm 4.16$  ( $p$ -value 0.014). Healing time was much shorter in the Group-I than Group-II,  $10.75 \pm 5.40$  days versus  $47.30 \pm 14.11$  days ( $p$ -value 0.00) and the patients resumed their job earlier,  $14 \pm 3.83$  days versus  $28.85 \pm 11.03$  days ( $p$ -value of 0.00). Infection rate was high in Group-I, because of a small number, no statistical significance could be assigned. Wound dehiscence in 3 patients (15%) in group-I, but eventually, the wounds healed without secondary closure; thus, initial healing rate, 85% finally increased to 100%. Group II had obvious higher cost of hospital stay, repeated dressing, hospital visit, and work-hour loss than in Group-I. The pain while change of dressing and staining of cloths with the wound discharge in Group-II bothered the patients. During the follow-up period, 2 patients (10%) in Group-I, and 6 patients (30%) in Group-II, had recurrence/wound failure, though the difference was

statistically insignificant ( $p= 0.118$ ). Cosmetically wound was more acceptable in Group -I.

Table 1 Epidemiology of pilonidal sinus ( $n^*=40$ )

Predisposing factors	n=	%age
Hairy skin	28	70
Deep natal cleft	20	50
Office workers	12	30
Drivers	10	25
Shopkeepers	14	06

Table 2 Comparison of outcome in the two groups ( $n=20$ )

Predisposing factors	Group-I	Group-II	P-value
Age	25.65± 6.58	26± 4.29	0.115
Range	16-36	15-38	
Sex (M:F)	19:1	18:2	
Hospital stay (days)	6.75± 3.11	9.75± 4.29	0.014
Healing time (days)	10.60± 5.4	47.30±14.11	0.00
Return to work (days)	14±3.83	28.85±11.03	0.00
Wound dehiscence	3(15%)	0	0
Recurrence	2(6%)	6(18%)	0.118**
Infection	3(15%)	4(20%)	0.5**

Statistics: \*Independent sample t test, \*\* Fisher's exact test  
n= number of patients



Fig. 1 Asymmetric closure of pilonidal sinus by Karydakís technique

**Discussion**

Pilonidal sinus, disease of young male, more frequent in the western society<sup>2</sup> but, is not infrequent in this part of the world. The surgical modalities depend upon the presentation and stage of the disease, the controversy has not been resolved. We compared wide excision and Karydakís procedure (asymmetric closure), in this study. Group-I (Karydakís) and Group-II (wide excision) had significant difference in their outcome (Table 2). The post-operative hospital stay for excision and primary closure

varies from (surgery done on day case basis) 16 days<sup>7,8,9,10,11</sup>, depending upon discharge criterion and local practices. Nevertheless, hospital stay was less in the Group-I. Aydede et al (2001)<sup>9</sup> observed equal post-operative hospital stay for wide excision and healing by granulation and primary closure. The healing time for wide local excision was in consistent with most studies<sup>2,12-15</sup>. Our observation that heals wounds heal faster with primary closure than wide local excision followed by granulation with some studies<sup>2,13</sup>; nevertheless, is in contrast to other workers<sup>12,15</sup>. Resumption to work, though tended to be earlier in self-employed and in those whose medical leave was unpaid; however in consistent with other workers<sup>9</sup>, it was much earlier in Group-I.

Wound dehiscence is a problem of primary closure and may negate the advantage of early healing<sup>15</sup>. The wound dehiscence rate in this study is consistent with that reported in the literature, 0.7%-12%<sup>7,8,10,12,14,15</sup>. Tritapepe et al (2002)<sup>14</sup> using a different technique reported no dehiscence. However, in our study, dehiscence was followed by eventual healing like in others<sup>8,12</sup>.

For Karydakís technique, recurrence has been reported in 0- 6.6%<sup>4,7,8,10,15,16</sup>, our observation falls in this range. Furthermore, recurrence in our study, though higher in Group II, was insignificant statistically, and this is in consistent with others<sup>12,15</sup>.

Closed wounds are more prone to infections, but in this study, the infection rate in two Groups was equal, 15% and 20% respectively ( $p$ -value 0.5); for Karydakís technique it was consistent with others<sup>13</sup>.

**Conclusion:**

It can be concluded that for uninfected pilonidal sinus asymmetric closure with Karydakís technique is superior to open excision and healing by granulation technique in terms of patient acceptance earlier return to work

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