

Pilonidal sinus: An experience with Bascom procedure

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Abstract

Objectives: The aim of the study was to evaluate the results of the Bascom's procedure of natal cleft lift / elevation & off midline primary closure (lateralization) in the patients suffering from primary pilonidal disease.

Material & Methods: It was a prospective observational study & has been carried out in Khyber Teaching Hospital Peshawar, Fauji Foundation Hospital Rawalpindi & Central Hospital Hafar Al Baten KSA from Jan, 2008 to Jan, 2017. Simple random sampling technique was used and after inclusion and exclusion criteria, all those patients with primary Pilonidal disease (PND) who gave consent for the Bascom procedure were included in the study.

The patients' details entered in the special Proforma. Post-operatively, note was made of the seroma, hematoma, infection, hospital stay, wound healing time & recurrence. The results analyzed at the completion of the study & compared with the literature.

Results: A total of 53 patients were included in the study in which male to female ratio was 52:1. Study population largely comprised of male patients of relatively younger age with no co-morbid. The mean hospital stay was 3.32 days \pm 1.61 SD and mean duration of wound healing was 12 days \pm 2.16 SD. Post-operative infection was the most common complication (7.6%) followed by seroma (5.7%). While the recurrence was noted only in 2 (3.99%) cases.

Conclusion: The results of the Bascom cleft lift, midline shift are satisfactory and the practice of leaving the wound open should now be abandoned in favor of the primary, off mid line closure.

Keywords: Pilonidal Sinus disease, Bascom procedure, primary closure of pilonidal sinus, post-operative complications, recurrence.

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Introduction:

Pilonidal sinus means a nest of hair.¹ It is an infectious disease arising from the hair follicles in the natal cleft. It may have an acute, chronic, symptomatic or asymptomatic course.² The exact etiology and pathogenesis of Pilonidal disease (PND) are not clear³ but it is generally believed to be an acquired problem.² Generally more prevalent among males between 16 and 25 years of age, affecting 26 per 100,000 population to make it one of the common problems and loss of productive working days in these young individuals.^{1,4,5} The males are more affected be-

cause of their hirsute nature. Whereas sedentary occupation, local trauma and irritation are also linked with the condition.⁶ Although, it is not a serious condition, but if not treated, it can become a chronic problem. The patients go through a vicious cycle of infections, abscesses & a spontaneous or surgical drainage with an ongoing discharging sinus, limiting the routine daily activities.⁷

Surgical management is considered the best option for these patients & various techniques proposed but with no agreement or acceptance to the best method of treatment as yet since

the problem of recurrence remains high.^{3,5,8,9} However, the management of pilonidal disease (PND) largely depends upon its presentation and it may be simple incision, limited or wide local excision with packing & dressings, simple primary closure or flap reconstruction to cover the defect after excision.⁵

Though, there is a low recurrence with leaving the wounds open and continuous dressings till granulation occurs, but it much prolongs the post-operative course increasing the overall cost & inconvenience as compared to the primary closure.¹⁰ Therefore, to close the wound primarily for expediting the healing process & avoiding recurrence, various techniques have been suggested, but with varying results. These are; midline closure, karydakias, Z plasty, Limberg, V-Y flap or myocutaneous flaps and Bascom cleft lift & midline shift eccentric closure etc.^{1,11} But all these methods do have their associated complications, infections and recurrence, with no single procedure generally considered as the ideal and gold standard. However, the Bascom natal cleft lift & off midline, eccentric closure is gaining favor for its best results with minimum rate of recurrence.¹²

We are presenting our experience of the Bascom cleft lift, midline shift procedure in the current study.

Objectives: The aim of the current study was to evaluate the results of the Bascom's procedure of natal cleft lift/elevation & off midline primary closure (lateralization) in the patients suffering from primary Pilonidal disease (PND).

Material & Methods:

It was a prospective observational study & has been carried out in Khyber Teaching Hospital Peshawar, Fauji Foundation Hospital Rawalpindi & Central Hospital Hafar Al-Baten KSA from January, 2008 until January, 2017.

Sampling technique: Simple random sampling.

Inclusion criteria: All those patients with primary PND who gave consent for the procedure.

Exclusion Criteria: Patients with recurrent PND, advanced systemic disease, malignancy, severely immune-compromised and those not willing for primary closure.

Data Collection: The patients' details entered in the special proforma. The results were analyzed at the completion of the study & compared with the literature.

Technique: Any discharge from the sinus or pus was sent for culture & sensitivity (C/S) & antibiotics instituted accordingly. The patients were put on empirical broad spectrum antibiotics cover & substituted later accordingly in case of abscess. However, the dry sinuses were administered with broad spectrum antibiotics according to availability & the patients' affordability. The operative area was shaved immediately prior to surgery & the sinuses were injected with methylene blue (MB) for marking the cavity to identify the extent of excision of the cyst & sinuses. After excision, the operative area was thoroughly lavaged with normal saline. The fat pad of the natal cleft was closed with vicryl & the skin was closed off midline with proline 2/0 subcuticular and a few complimentary interrupted mattress sutures. Suction drainage was used through a separate stab wound.

Post-operatively, note was made of the seroma, hematoma, infection, hospital stay, wound healing time & recurrence.

Results:

A total of 53 patients were included in the study in which male to female ratio was 52:1. The mean age was 26.17 ± 6.05 years SD with age range of 17 - 46 years. Study population largely comprised of male patients of relatively younger age with no co-morbid.

The mean hospital stay was 3.32 ± 1.61 days, SD and mean duration of wound healing was 12 ± 2.16 days SD. The post-operative infection rate in the current study was in 4 cases (7.9%), seroma in total of 3 cases (5.7%), while hematoma in 2 cases (3.8%). Whereas, the recurrence was noted in only 2 cases (3.8%) at the

Table-1: Complications

| Complications | Frequency | Percent % |
|---------------------|-----------|-----------|
| Nil | 41 | 77.4 |
| Seroma Only | 1 | 1.9 |
| Haematoma | 2 | 3.8 |
| Wound Infection | 3 | 5.7 |
| Hypertrophic Scar | 1 | 1.9 |
| Persistent Pain | 2 | 3.8 |
| Recurrence only | 1 | 1.9 |
| Seroma + Infection | 1 | 1.9 |
| Seroma + Recurrence | 1 | 1.9 |
| Total | 53 | 100.0 |

Table-2: The pre-operative status of Pilonidal Sinus

| Sinus | Frequency | Percent % |
|--------------------------------|-----------|-----------|
| Single sinus and dry | 31 | 58.5 |
| Multiple sinuses and dry | 7 | 13.2 |
| Single sinus+ serous discharge | 8 | 15.1 |
| Single Sinus + Pus discharge | 3 | 5.7 |
| Pilonidal Abscess | 4 | 7.5 |
| Total | 53 | 100.0 |

Table-3: Age range of the Patients

| Age Range | Frequency | Percent |
|--------------|-----------|---------|
| Less than 20 | 10 | 18.9 |
| 20 - 30 | 33 | 62.3 |
| 31 - 40 | 9 | 17.0 |
| 41 -50 | 1 | 1.9 |
| Total | 53 | 100.0 |

Table-4: Complications in various patients according to preoperative status of the Pilonidal Sinus

| Complications | Sinus | | | | | Total |
|---------------------|----------------|------------------|---------------------------|------------------------------|-----------------|------------|
| | Single and dry | Multiple and dry | Single + serous discharge | Single Sinus + Pus discharge | Sinus + Abscess | |
| Nil | 27(50.9%) | 5(9.4%) | 6(11.3%) | 1(1.9%) | 2(3.8%) | 41(77.4%) |
| Seroma | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(1.9%) | 1(1.9%) |
| Haematoma | 1(1.9%) | 1(1.9%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 2(3.8%) |
| Wound Infection | 1(1.9%) | 0(0.0%) | 1(1.9%) | 1(1.9%) | 0(0.0%) | 3(5.7%) |
| Hypertrophic Scar | 1(1.9%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(1.9%) |
| Persistent Pain | 0(0.0%) | 1(1.9%) | 1(1.9%) | 0(0.0%) | 0(0.0%) | 2(3.8%) |
| Recurrence | 1(1.9%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(1.9%) |
| Seroma + Infection | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(1.9%) | 1(1.9%) |
| Seroma + Recurrence | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(1.9%) | 0(0.0%) | 1(1.9%) |
| Total | 31(58.5%) | 7(13.2%) | 8(15.1%) | 3(5.7%) | 4(7.5%) | 53(100.0%) |

mean follow up of six months. We analyzed and stratified all of the complications & the results are as shown; complications in table-1. the pre-operative status & number of the sinuses-Table 2, age range of the patients-table-3, the post-

operative complications according to the pre-operative status of the Pilonidal sinus- table 4 and the post-operative complications in various age groups- table-5.

Discussion:

Despite that pilonidal disease can be treated by various methods, the recurrence rate remains high⁹ and the best management still remains debatable, & variable.¹³ But whatever technique is followed, the general principles and aim of its treatment usually require total excision of the sinus along with all the tracts & early satisfactory healing with the main aim of avoiding recurrence,¹⁴ which may either be early or late. The early recurrence is thought to be due to failure to excise all the sinuses while the later may be due to secondary infection as caused by the residual hair in the natal cleft or failure to keep the area shaved post-operatively.¹⁵

Therefore to outline & mark the whole sinus tracts in an attempt of complete excision, we used Methylene blue (MB) and the same technique is also recommended by Doll D et al,¹⁶ who studied the effects of this in expensive dye on the recurrence rate. And they observed that the use of this dye was very beneficial to outline the sinus tracts by halving the long term recurrence rate. While, others also suggest the use of ultrasound to be very effective in determining the extent of the sinus and tracts.¹⁷ However, Methylene Blue is more convenient, swift & cheaper as compared to ultrasound.

Among all the procedures, laying open of the wound with dressings and healing by secondary intention or excision with primary closure are the most commonly performed procedures.¹⁸ While the primary closure technique is usually recommended for its advantages of early healing and the patients' satisfaction but at the cost of an increased rate of recurrence.^{8,19} And of all the early post-operative complications associated with the primary or flap closure, seroma formation is a very commonly observed problem.²⁰ But seroma in our study was observed in only 3 (5.7%) cases and hematoma in 2 (3.8%) cases. And we used vacuum drainage in all of

Table-5: Complications according to age range

| Complications | Age range (in years) | | | | Total |
|---------------------|----------------------|-----------|----------|---------|------------|
| | Less than 20 | 20 - 30 | 31 - 40 | 41 - 50 | |
| Nil | 7(13.2%) | 28(52.8%) | 6(11.3%) | 0(0.0%) | 41(77.4%) |
| Seroma | 1(1.9%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(1.9%) |
| Haematoma | 0(0.0%) | 2(3.8%) | 0(0.0%) | 0(0.0%) | 2(3.8%) |
| Wound Infection | 1(1.9%) | 0(0.0%) | 1(1.9%) | 1(1.9%) | 3(5.7%) |
| Hypertrophic Scar | 0(0.0%) | 0(0.0%) | 1(1.9%) | 0(0.0%) | 1(1.9%) |
| Persistent Pain | 1(1.9%) | 1(1.9%) | 0(0.0%) | 0(0.0%) | 2(3.8%) |
| Recurrence | 0(0.0%) | 1(1.9%) | 0(0.0%) | 0(0.0%) | 1(1.9%) |
| Seroma + Infection | 0(0.0%) | 0(0.0%) | 1(1.9%) | 0(0.0%) | 1(1.9%) |
| Seroma + Recurrence | 0(0.0%) | 1(1.9%) | 0(0.0%) | 0(0.0%) | 1(1.9%) |
| Total | 10(18.9%) | 33(62.3%) | 9(17.0%) | 1(1.9%) | 53(100.0%) |

our patients, post-operatively because the fluid collection and accumulation is reduced after the routine use of post-operative drains.²¹ But these collections did not pose a great problem & the seromas were aspirated with no undesired consequences in all but one case, who got the recurrence. Whereas, the second case of recurrence in our series did not have any pre-operative discharge or early post-operative complications, altogether. So the recurrence cannot be attributed solely to the fluid accumulation. Similarly, the hematomas were drained by opening the wound a little and then re-sutured in place with no undesirable consequences. While Sondena K⁶ in their prospective study, found that the failure of primary healing was significantly associated with the early recurrence of disease. But our results do not support their view. And similarly, the pre-operative status of the sinuses in our patients, whether dry, discharging serous fluid, pus or an abscess also had no significant effect upon the post-operative short or long term outcome especially in terms of recurrence. Similarly, age of the patients also had no significant effect upon the results.

In one of the studies of primary closure,²² seroma was observed in 3.39% and hematoma in 1.69% as compared to ours, which were 5.7% & 3.8%, respectively. And their wound infection rate was (6.78%) as compared to ours, which was observed in four cases (7.6%). All seromas in our patients were aspirated & infections treated conservatively with antibiotics, with no unde-

sirable long term effects. While, comparing the post operative hospital stay in our cases, it was shorter (3.32 days) as compared to them, which was six days. And the recurrence in our study after a mean follow up of six months was only in two cases (3.77%) as compared to afore mentioned study, who observed it to be 3.39%. while the literature, showing it may be up to 40%.²³ In another study of modified Bascom cleft lift procedure, the most commonly observed problem was the post-operative wound collection, followed by partial wound dehiscence and superficial infection, though the functional recovery of their patients was averagely in 13 days. And they observed no recurrence in their follow up period of 14 months.²⁴ And it seems that the initial wound problems do not seem to have any long term effects upon their rate of recurrence, contrary to the observations made by others.⁶ Meanwhile, in an attempt to obliterate the dead space, fluid accumulation, hematoma or recurrence, fibrin sealant has been used but a systemic review found out that even the expensive fibrin sealant showed no significant benefit to reduce the post-operative wound problems.²⁵

We had one case of deep infection which was subsequently laid open partially with daily normal saline lavage & subsequently resutured after a few days with no undesirable long term outcome except that it prolonged the initial course of treatment for a few days. Whereas, Jones DJ²⁶ has the opinion that if infection supervenes and the wound is laid open, may take longer than if it had been treated by secondary intention at first. But our view is contrary to that, since with improved antibiotic cover & wound care, it can be closed again as soon as the infection is resolved. There was also one case (1.9%) of the hypertrophic scar as observed in our study as compared to 6.15% in a study with lateral advancement flap closure.²⁷ 2 cases (3.8%) of persistent pain/coccydynia were also observed in our series and treated conservatively with non steroidal anti-inflammatory drugs. But no other study was found after a thorough search of the available literature, to have reported this particular problem. So no conclusive inference could be drawn as to the exact cause of the persistent pain. However, it

was ultimately settled without any evidence of recurrence or long term problem.

Further more, in an attempt to find the outcome, Aydede H et al²⁸ compared 3 techniques of; marsupialization, primary closure and skin flaps, but did not find any major difference in terms of wound related problems and recurrence rates. However, the hospital stay in their patients with flap closure was much longer than the other two groups. In addition, they also observed that, the patients with primary & flap closure had much early return to work in 02 weeks, as compared to those with marsupialization. Whereas, in our patients, the average wound healing time was 12 days as comparable to afore mentioned study. Mean while The odoropoulos GE²⁹ et al studied Bascom cleft lift procedure in 72 patients with an average of 03 weeks to return to work and no recurrence in the mean follow up of ten months. And using Bascom's approach, Senapati A in more than 200 cases observed only 10% failure rate at one year follow up.³⁰ While in another prospective study, the results of Bascom cleft lift procedure and Limberg flap were compared with insignificant differences in terms of wound related problems & recurrence rate except that there was early healing in Limberg Flap procedure.³¹ But Onder A et al while comparing the results of two techniques, found the post-operative infection to be more common in the Limberg flap while the recurrence to be more common in the primary closure group. The infection rate in their study was 26% while the recurrence was observed in 13.2% in their follow up period was above two years.³² In addition, Rashidian N et al³³ also compared three techniques of laying open, primary closure & Rhomboid flap. They concluded that the later two procedures were much superior to the laying open in terms of cosmetic outcome & functional recovery.

While, a systemic review conducted by McCallum I et al⁸ found out that there was no clear benefit for surgical management by primary closure or open healing by secondary intention. However, they also observed that a clear benefit was in fact shown for off-midline closure rather than midline closure after Pilonidal sinus

surgery. And it was recommended by them that off-midline closure should be the standard management when primary closure was the desired surgical option. Whereas, a meta-analysis of the randomized controlled trials comparing various techniques, in an attempt to analyze the results and to find out the best possible strategy for a satisfactory outcome of Pilonidal disease, having 25 trials (2494 patients) was done and the authors made an evidence based conclusion & recommendation that the practice of the laying open after radical wide excision should be abandoned in favor of primary closure of the wound.³⁴

Lastly, it seems that there is a lot of diversity in the opinions and variations in the outcome of all the techniques. But whatever procedure is performed, the most important considerations are always, the minimal cost, short hospital stay, early recovery & little inconvenience to the patients along with minimum rate of recurrence.³⁵ And with this aim in mind, the Bascom cleft lift & midline shift technique with primary closure after excision of PNS, with minimum recurrence rate, seems to give excellent outcome.¹⁰

Limitations: There are certain limitations of our study. The sample size is not very big, there is no randomized control group & the follow up period is only six months. No attempt at a longer follow up was made, once the wounds were healed since the patients were counseled to report any problem if found later.

Conclusion:

We are satisfied with the Bascom Cleft lift, midline shift technique and so were our patients. But based upon our observation & review of the available literature, we therefore, conclude that, the results of Pilonidal surgery are highly variable for almost all the procedures. Therefore, we recommend that every surgeon must adopt a technique according to his own expertise and best tailored to the patients' individual needs. But the main aim should be minimum complications, expenditure and low recurrence rate, altogether. However, leaving the wound open must be abandoned in favor of primary closure of the

defect to minimize the patients' inconvenience, rapid post-operative healing & early return to normalcy.

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Role and contribution of authors:

Dr Ziauddin Afridi, conception and design, acquisition of data, literature review and initial write-up of the study.

Dr Munir Ahmad, analysis of data.

Dr. Mubashira Ahmad, collection of data.

Dr Abid Haleem, acquisition of data.

Dr Raiz Ahmad, acquisition of data.

Dr Ijaz Ahmad, supervision, critical revision, final approval of the version to be published

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