Management of recurring pilonidal sinus with bilateral subcutaneous overlapped fatty flap compared with rhomboid flap

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Abstract

Background: Pilonidal sinuses have many different methods of management to clinicians in the world. Its diverse clinical appearances requires differing types of intervention, with an optimal technique to manage patient severity and risk of recurrence.

Aim: To attain ideal healing and prevent recurrence after overlapped fatty flap as new technique in pilonidal sinus disease with rhomboid flap.

Patients and methods: all prospective patients admitted to this study were operated in Zagazig University Hospitals, surgical department between February 2020 and July 2022. In total, 50 patients had recurrent pilonidal sinus. We had two groups who underwent either overlapping flap (group A: 25 patients) or rhomboid flap (group B: 25 patients). Operation duration, degree of postoperative pain, hospital time duration, postoperative complications, and recurrence were all evaluated.

Results: Equal duration of operations (60min.) In both groups. According to pain perception was reduced in group A ($p=0.003$). The recurrence rate was also lower in patients who underwent bilateral overlapped flap ($p=0.005$).

Conclusion: wellbeing of overlapped fatty flap than rhomboid flab in recurrent pilonidal sinus.

Keywords: recurrent pilonidal sinus, overlapping flap, rhomboid flap.

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Introduction

The spectrum of pilonidal disease has a variety of clinical presentations from asymptomatic cysts (containing hair) and sinuses to large abscesses of the sacrococcygeal area (1). Pilonidal disease (PD) is relatively common in young healthy hirsute males. We mean pilonidal sinus that occurs in natal cleft causing problem in work. Multiple hair in the sinuses characterize the disease (4-7).

Pilonidal sinus is common problem facing the surgeon because of the risk of recurrence and need careful observation (11-13). We depend in our new technique on Bascom theory to decrease the groove between the glutei so, decrease the power force of suction make the focus infected area more deep by overlapping two subcutaneous fatty layers above it.

According to the acquired Bascom theory local the hair suction occurs due to round glutei and deep groove between them to force the hairs to penetrate the skin and dislodge forming abscess cavity (7). Karydakis asserts that loose hairs from the scalp form the foreign body and abscess [8-12].

The surgical technique preferred must be simple, not associated with complications but associated with short hospital time and rapid healing without recurrence but with rhomboid flap, the recurrence is higher than overlapped fatty flap [7-11]. Many revisions have reported high recurrence with rhomboid flap because the length of natal cleft is not removed and the groove in between is still deep. This leads to abscess recurrence and liquefied sinuses occur [1-4]. Also, letting of another track or any debris assessed by poor hygiene or scratch predisposes for recurrence [9-11]. Patients with pilonidal disease are not debilitated but their lives are compromised by discharge and pain recurrence [8, 9]. We therefore studied the differences between rhomboid flap and double overlapped fatty flap in healing and recurrence rate.

Patients and Methods

This study was done at Zagazig University Hospital, from February 2020 to July 2022. We studied 50 patients of recurrent pilonidal sinus with either overlapping flap (group A: 25 patients) or (group B: 25 patients). With a rhomboid flap.

It was a prospective, analytical, comparative study.

Inclusion criteria:

1. recurrence after operative techniques
2. surgery oriented and patients orients and consented

The exclusion criteria: patients had with no data or not recurrent

An informed consent was taken as recurrence time and rate, operation ,lasting time, postoperative pain sensation, hospital stay time or duration, and any postoperative complications, were detected.

Preoperative care

All patients routinely underwent chest X-Ray, and complete lab profile, an ECG if above 40 years old, and ECHO for patients over 50 years of age.

Operative Procedure

Usually, patients underwent general anesthesia. patients were in prone position with hips strapped away. The skin was prepared by clipper on the operating table. Patients in group A we depend on the operation of overlapped flap subcutaneous fatty flap depend on the theory of depth of the groove suction between gluteal region and also the depth of the focus region (Bascom theory) when we can decrease the groove, we can decrease the suction power of the hair also increasing the two layers above the focus region, we can prevent or decrease the rate of recurrence of pilonidal sinus.

An elliptical skin incision involving septic focus with all diseased tissues was made. After that dissection of subcutaneous fatty layers on both sides to a depth of 5mm leaving good skin thickness (to keep skin

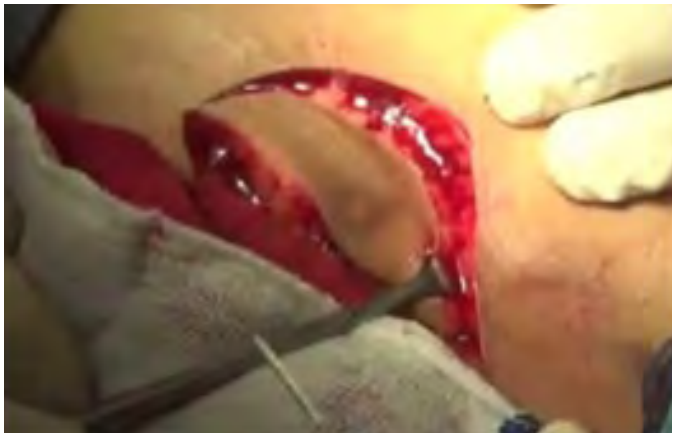


Figure 1. Technique of dissection of both layers lateral and medial overlapping fatty flab in group A.

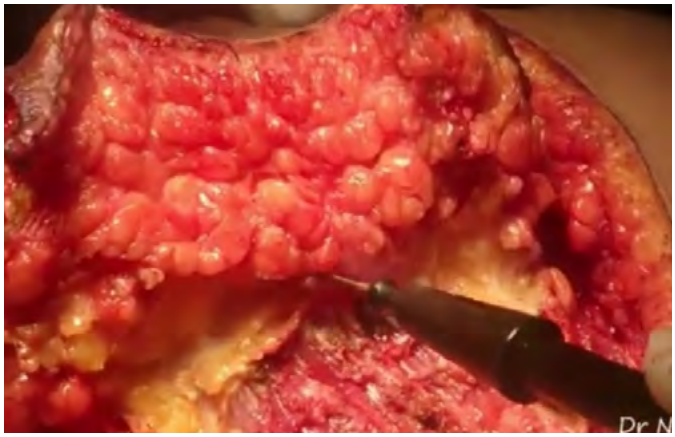


Figure 2. Elliptical skin incision: dissecting the fatty flap.

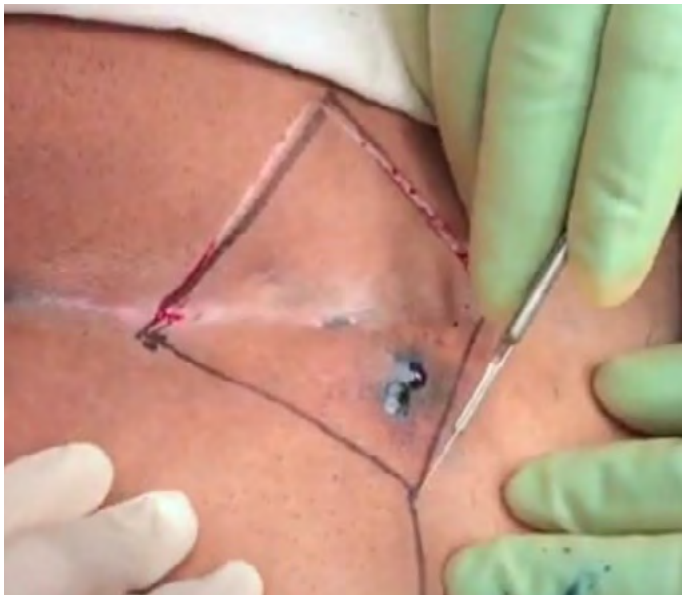
blood supply) and above the muscle sheath, fix one fatty flap under another flap to muscle sheath and the above flap fixed to maximum point depth without any force of traction above another fatty layer to produce double layers of fatty flap above the focus area of infection and decrease groove deepness.

Good hemostasis and washing of the cavity was obtained by saline solution leaving a suction drain. Postoperatively, the dressing daily dressing by normal saline mixed with povidine iodine. The drain was removed after discharge dropped to less than 20 ml /day. Removal of sutures occurred near to 20 days later, with follow-up at 2 weeks, one month and for 3 months, then 18 months.

In group B patients: the same previous preparation but general anesthesia usually started. Skin preparation. Draw rhomboid like the figure away from the edge of the wound. The excision must be taking all focus area, surrounding skin deep to muscles fascia. Closure the wound with edge to edge care not undermine the skin leaving suction drain. postoperative the same group B: the dressing daily dressing by normal saline mixed povidine iodine Drain was removed after discharge dropped to 20 ml per day. Sutures also removed near to 20 days, and follow-up. at 2 weeks, one month and for 3 months then 18 months Patients were advised to maintain good hygiene removal of the hair around usually every 2 weeks, shortening the scalp hair.

Statistical analysis

Data were analyzed using Excel and SPSS, version 16 under mean ± SD for quantitative data. The Student t-test for quantitative data comparring (mean ± SD) . P values less than 0.05 were considered significant. Operative time = from starting of incision to the last suture. Pain score was defined using verbal rating scale (VRS). That will differ according pain self threshold .



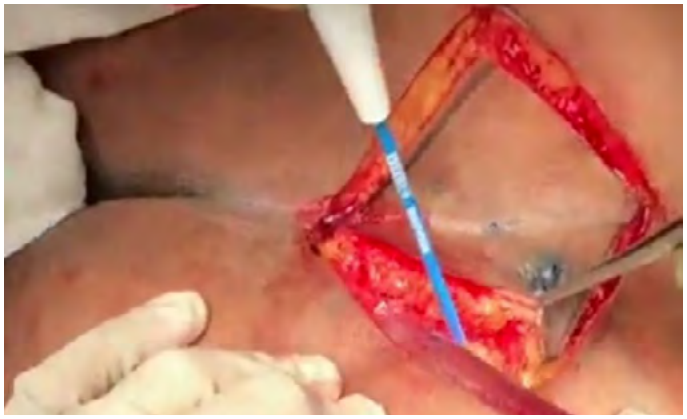


Figure 3. Techniques of rhomboid flap in group B.
Top: drawing the rhomboid flap.
Bottom: Star incision of rhomboid containing infected skin

Results

Table 1 Results.

	Group A	Group B
Patient no.	25	25
Mean age (± SD) /year	25.84 ±6.13	26.04±4.02
Operative time/ min. (mean ± SD)	57±6	56±6
Time of complete healing/day (mean ± SD)	20.08±31.59	22.08±32.99
Inflected wound	3 (6%)	7 (14%)
Recurrence	1(2%)	4 (8%)
Hospital stay	1 day	5 days
Seroma or hematoma	2 cases (4%)	2 cases (4%)

Group A: 25 patients, 15 males and 10 females. Median age was 27.84±6.13 years (range 18-40). In group B, 25 patients, females were 9 and 16 were males with a median age of 29.04±4.02 years (range 19-37). The healing time (mean time) of wound after overlapping flap was (20.13±8.99) days (range 15-60 days). This was near to time of healing of patients of rhomboid flap (mean 22.08±32.99) days, and range (20-65 days). The operative time (mean time) was near in both groups patients 60min. the severity of pain on VRS score was significantly reduced in group A. (p = 0.003) .

Complications in group A in 2 patients (wound infection was 3 cases) and but in group B were 7 patients, p =0.196). The follow up period was 18 months (average 12-24 months). During this period, in group B reported four patients recurrence, whereas in group A only one patient recurrence. Also hospital stay time in group A 1 day But in group B 5 days to follow flap safety and necrosis after 5 days.

Discussion

The ideal technique for pilonidal sinus to prevent recurrence was hard to determine as many techniques have advantages and disadvantages [10-13].

The aim of our work was to prevent recurrences and infection with less healing time, also without pain and short hospital time [3, 4]. rhomboid flap depends on removal of primary focal lesion and flap displacement (full thickness) carrying the risk of flap necrosis then infection and recurrence, with long hospital duration and pain. Also not physiological anatomy so, not cosmetic, not taking of all midline as is controlled by edges length.

Bascom in 1980 stated that pilonidal abscess do not begin in superficial surface of the skin but the infected area is usually deep in the concave groove between gluteal muscles [3-5].

Therefore, the choice of ideal technique is still controversial as many techniques were done but we see the ideal technique had less recurrence, less infection, short hospital time of stay, and little short time pain, subcutaneous overlapping fatty flap (group A) that gives shallow grooving between the glutei subsequent decreasing the suction force with low recurrence one patient 2% and infection 3 patients 6% also it is cosmetic and short hospital time one day case, short time of pain without seroma or hematoma [5].

We recommend to insertion of a suction drain then remove it if, 20 cc per day drained, usually after 15days but in another study published by Erdem et al, suction drains were not inserted [12-14]. Infection rates were 1.5 -7% in other studies before. In our study, it was 3 patients 6 % but with a rhomboid flap, 7 patients 14%. In P-value 0.012 is significant.

In our study the total time of hospitalization in group A (1 day) as compared to those rhomboid (5days);

Our patients had short hospitalization time so there was no risk of flap necrosis or loss, with little pain as the wound is physiologically in midline (no skin displaced like rhomboid) in contrast to patients in group B. But equal operation time (60 min) in both.

Urhan et al, Bozkurt & Tezel had concluded a hospital time was 4.11 days in rhomboid [3-5]. In contrast to our study. Totally our patients group A had complete wounds healing by 20days. But in group B 22 days to be healed near time of healing.

The recurrence rate was observed in group A one patient 2% come after two year by discharge and small abscess that drained by local anesthesia in out clinic.

In group B4 patients 8% , but same in group A with Katsoulis et al, reported by Mentes et al (3.1%) & Akin et al (2.91%)[1,8].

Conclusion

Well-being of overlapped subcutaneous fatty flab excision is near similar to rhomboid flab except in cosmoses, hospital admission duration, length of pain, rate of recurrence and possible flab necrosis but equal healing time and operation time.

References

1. Khanna A, Rombeau JL. Pilonidal Disease. ***Clinics in Colon and Rectal Surgery*** 2011;**24(1)**:46–53.
2. Bascom J. Pilonidal disease: origin from follicles of hairs and results of follicle removal as treatment. ***Surgery*** 1980;**87(5)**:567–72.
3. Chintapatla S, Safarani N, Kumar S, Haboubi N. Sacrococcygeal pilonidal sinus: historical review, pathological insight and surgical options. ***Techniques in Coloproctology*** (2003);**7(1)**:3–8.
4. de Parades V, Bouchard D, Janier M, Berger A. Pilonidal sinus disease. ***Journal of Visceral Surgery*** (2013);**150(4)**:237–47.
5. Giarratano G, Toscana C, Shalaby M, et al. Endoscopic pilonidal sinus treatment: long-term results of a prospective series. ***Journal of the Society of Laparoendoscopic Surgeons*** (2017);**21(3)**:1–6.
6. Kim HS, Noh SU, Han YW, Kim KM, Kang H, Kim HO, et al. Therapeutic effects of topical application of ozone on acute cutaneous wound healing. ***Journal of Korean Medical Science*** (2009);**24(3)**:368–74
7. Karydakis GE. Easy and successful treatment of pilonidal sinus after explanation of its causative process. ***Australia and New Zealand Journal of Surgery*** 1992;**62(5)**:385–389.
8. Katsoulis IE, Hibberts F, Carapeti EA. Outcome of treatment of primary and recurrent pilonidal sinuses with the Limberg flap. Surgeon 2006;4(1):7-10.
9. Rao AR, Sharma M, Thyveetil M, Karim OM. "Penis: an unusual site for pilonidal sinus". ***International Urology and Nephrology*** 2006;**38**:607–8.
13. Soll C, Hahnloser D, Dindo D, et al. A novel approach for treatment of sacrococcygeal pilonidal sinus: less is more. ***International Journal of Colorectal Disease*** 2008;**23(2)**:177–80.
14. Shafigh Y, Beheshti A, Charkhchian M, Rad FS. "Successful treatment of pilonidal disease by intense pulsed light device". ***Advances in Clinical and Experimental Medicine*** 2014;**23(2)**:277–82.