

Utility of the cleft lift procedure in refractory pilonidal disease

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Abstract

Background: Refractory pilonidal disease is a problem. We wished to show the utility of the cleft lift procedure in solving nonhealing.

Methods: We selected a subset of challenging cases for this study. The subset included all patients referred with persistent open wounds despite at least 2 prior pilonidal surgeries elsewhere.

Results: The 69 patients had undergone 223 surgeries (average, 3) and endured open wounds for a sum of 365 years (average, 5). All patients we contacted were healed after a single cleft lift surgery with 3 exceptions. Two patients required 2 lifts before healing and 1 patient required 3 lifts.

Conclusions: The cleft lift procedure gave excellent results in patients with refractory pilonidal disease.

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This report does not focus on primary pilonidal disease and its treatment [1]; instead, it focuses on pilonidal surgery that has failed to heal and on a surgery that has treated such failures successfully [2]. Included in the report are recent improvements in pilonidal surgery. Sixty-nine patients with unhealed wounds after 2 to 6 surgeries had failed were seen on referral. The solution has been a surgery called *cleft lift*. Analogous to a face lift, both surgeries are designed to reduce the depth of folds in the skin.

All pilonidal wound failures hide in the steamy dark part of a cleft [3]. The wound of failure is never visible as the patient stands or sits. The cause of the wound also hides in the dark. The tightness of the cleft is a clue to the cause, the tightness that becomes apparent as we pry the cleft open. The tightness generates morbid conditions that cause skin to break down.

Although a visible wound may appear on the surface of the buttocks when the patient stands or sits, any visible surface wound is a secondary wound, a drainage rupture, not a source wound [3]. The source wound, the red and purulent wound found when we forcefully spread the buttocks, creates secondary abscesses and tunnels. Wide excision of inflamed tissue too often brings a larger failure. In

contrast, cleft lift brings healing, as does simple cleaning and shaving in suitable cases, which refutes the notion that weak tissues must be removed. Cleft lift succeeds because it reshapes the cleft and reduces cleft tightness. It succeeds even when deep and inflamed tissue is left in place [2].

Materials and Methods

Patients

For this study we selected a subset of challenging cases from a larger series of consecutive pilonidal surgeries. The consecutive subset included all patients referred with wounds still open despite 2 or more prior pilonidal surgeries performed elsewhere (range, 2–6 surgeries). Before the cleft lift these 69 patients had received 223 pilonidal surgeries (average, 3 surgeries). Their wounds had been open and unhealed for a sum of 365 years (average, 5 y).

Surgical technique

We asked the patient to stand beside the bed before surgery. With a permanent felt-tipped pen we drew a line on each buttock where the surface skin disappeared into the chasm. We use an analogy to structures at the Grand Canyon and we call these lines the *rim trails*.

Fig. 1 shows the rim trails as heavy black lines. The skin on the left is to be removed, on the right it is undermined and shifted for the repair. If the defect is limited to the small oval, then the skin excision can end at the dashed line on the

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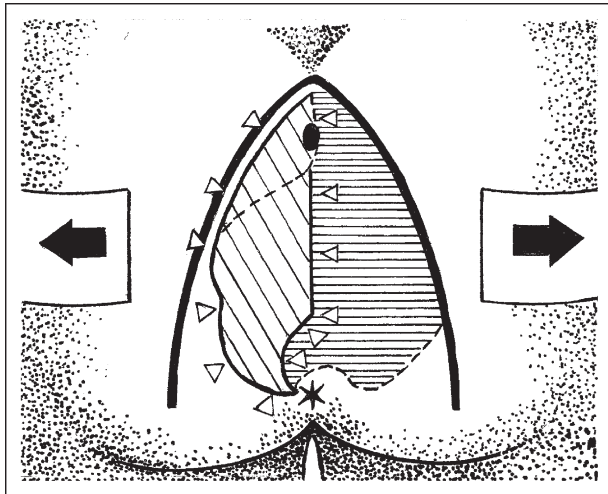


Fig. 1. Arrows indicate tapes pulling the cleft open before surgery. Heavy lines are rim trails (see text), the black oval represents a small unhealed defect, left diagonal lines show the skin removed if the defect is big, the horizontal lines show the skin undermined and used for big repairs, star is anus. The repair will pull the triangles together.

left. As we approach the rim trail we taper the excision to a point.

If the defect is so long that it extends near the anus then we turn the incision left as it passes the end of the defect. We then curve it back to the side of the anus. Because the skin about the anus is thin and fragile, we leave extra tissue under the midline skin there.

After we extend undermining to rim trails we remove tapes and push the buttocks together until the rim trails touch. We reassure ourselves that repair skin from the right will fit by pulling the floppy edge of the right skin to the left rim trail, establishing the line of cut. We noted that when the

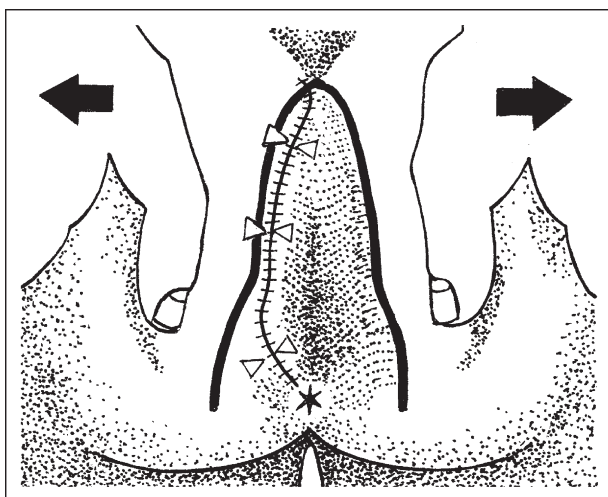


Fig. 2. The cleft lift after the repair. The surgeon's thumbs pull open the new and shallow cleft to inspect the suture line. Note the original rim trail lines have moved closer together. The suture line must approach the anus if treating lesions close to the anus. The fat walls are lightly sutured together in midline, centered beneath the new and shallow cleft. The skin suture line lies off center at the left rim trail and the triangles have met.

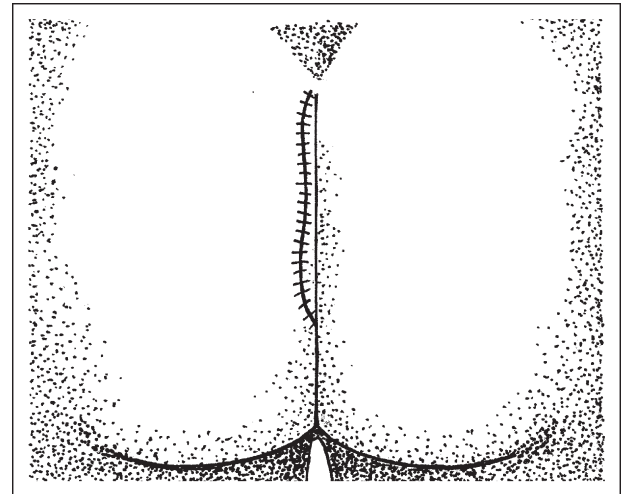


Fig. 3. The final result of the cleft lift. The suture line lies in the air without tension when the patient stands, sits, squats, runs, or lies in bed.

left discard flap is big, then the right flap, the flap for repair, also was big and adequate for coverage. Big flaps also mean that the cleft has been deep, and the deep cleft has created the hazard that called for relief.

After we complete the skin excision, the right fat lies against the left fat. We stabilize this contact with light interrupted sutures. Such sutures render the cleft shallow and shape a thick pad between the sacrum and repair skin. We scrub out abscess cavities with gauze. We slice scar and abscess walls to release tense contractures but leave scar fragments in place, attached to fat, to ensure blood supply. We do not widely excise.

To close the skin, we pushed the edges together at the left rim trail and stitched the underside of the right flap to the fat near the left rim. The triangles now met. We finished with a subcuticular suture of 3-0 absorbable material. Fig. 2 shows the repair completed, with the now shallow cleft pulled open by the surgeon's thumbs.

Patients were repaired under general endotracheal anesthesia, were encouraged to sit as early as the first night, and on the morning after surgery had their suction drain removed and were discharged. In the last 30 patients the antibiotics were restricted to cefazolin and metronidazole given intravenously, usually 1 hour before surgery.

Fig. 3 shows a postoperative view in which the cleft is relaxed and at rest. Buttock fat, hanging from the skeleton, lifts the incision into the air, far from the noxious factors in the cleft. Readers wanting more surgical details should consult our previous article [2].

Results

Current surgery

We were able to contact 52 of the 69 patients as shown in Table 1. All contacted patients reported that they were healed after the cleft lift and remained closed despite previous surgical failures. Two patients developed wound infections, both drained spontaneously and both healed within 3 weeks without further surgery, suggesting that the cleft lift is durable. All of the last 25 patients healed within 1 week.

Table 1
Refractory pilonidal disease: patients and follow-up

Patients	69
Prior procedures	223
Years of open wounds	365
Subsequent procedures required after cleft lift	6
Contacted	52
Outcome	
Healed	52/52
Required only a single cleft lift	46/52
Required 2 cleft lifts	5/52
Required 3 cleft lifts	1/52

Follow-up phone calls were successful in 74% of the patients. Follow-up evaluation averaged 30 months. The trend of results suggests that the cleft lift was far superior to prior treatments.

Not all patients healed in one step. Five patients had a cleft lift at our hands but required a second lift (9%), and 1 patient required 2 lifts (1.5%). Those initial failures of the cleft lift finally healed as we developed our failure-avoiding techniques and we moved the end of the suture line to either the rim trail or the side of the anus.

Comments

The patients included in this series had undergone various treatments: repeated wide excisions followed by months of diligent packing or followed by careful closure that broke down, repeated incision and drainage that failed to remove the pit, ingenious and often massive rotation flaps or a Z-plasty or a V-Y-plasty that moved in fresh tissue but left a tight cleft, multiple debridements, silver nitrate applications, attention from wound care centers: hyperbaric oxygen therapy, laser hair removals, and suction packs worn for months. Some patients treated with these methods undoubtedly heal. We saw only patients who had failed to heal.

As before, 3 common mistakes in these patients led to the prolonged failure to heal [3]. The most frequent mistake was wide excision in the midline followed by sutures or packs placed in a deep cleft. A second mistake was leaving overhanging scars that created deep pockets. Such pockets collect hair and debris and eventually break down. Third, in the steamy dark cleft, tiny holes lay hidden in midline hair. The holes were insignificant-looking primary openings. These insignificant-looking holes were not treated and they continued to generate new abscesses. Some holes may develop after surgery, especially if deep scar connects new midline skin to bone.

Cleft lift is suited particularly to the treatment of complicated postoperative problems. It also is useful for primary disease when there are multiple 1-mm pits and when pits or open primary wounds lie in a deep and tight cleft. For mild primary disease, the surgical suite and endotracheal anesthesia that we use for cleft lifts pose an unnecessary expense and risk [4]. A number of simpler approaches control early disease and they offer a great advantage [5]. They never create the massive wounds and years of misery that can follow the ill-advised, but commonly taught, wide excision. Included in approaches to consider are nonsurgical management [6], phenol injections [7], simple incision techniques,

fibrin glue [8], and the surgical approach that we favor: “pick pits” and “stay out of the ditch” [1].

We find the evidence compelling that the cleft is the cause. Large scars of prior surgery may criss-cross the buttocks, and all are healed. But only in the cleft do we find scars that fail to heal. Surgeons repeat wide excisions, presumably to remove congenitally weak midline tissue. The wounds still fail to heal, but only in the cleft. Surgeons bring in healthy tissue from distant sites, but only at the bottom of the cleft does healthy tissue break down. Multiple investigators leave all tissue in place, but change conditions and create a healed cleft. We take all this as proof that the cause of nonhealing is not weak tissue that must be removed but it is adverse conditions that must be relieved.

Many morbid factors foster nonhealing in the cleft. They include the growth of anaerobic bacteria in airless conditions, the correlation of quantity of anaerobic bacteria as found in pilonidals with retarded healing [9], the scales on hairs that impart motion to wandering hairs [10], the hair ends that punch holes in epidermis, the constant moisture that softens epidermis, the tightness of the cleft that traps in pus because the cleft generates high occlusion pressures of up to 125 mm Hg in seated patients, and conversely, the low pressures in subcutaneous fat that sucks debris into fat when the patient stands [11], and, finally, the keratin that accumulates in follicles [12].

Although in this series we describe removal of the skin flap from the left side, either side may be removed. The principles we applied to treatment of these wounds have been applied also to unhealed perineal wounds after proctectomy [13], with similar favorable results.

Cleft lift is a surgery that gives a definitive cure to patients who suffer from unhealed pilonidal wounds. It is safe and effective and reduces the depth of the cleft. Cleft lift surgeries heal even if a surgeon leaves all tissue that has been inflamed and scarred by prior disease deep in the wound.

Conclusions

The cleft lift lets deep fat fall together to create a cushion under a shallow midline. Healthy skin, mobilized from the right wall of the formerly deep cleft, forms the floor of the new cleft. The cleft lift can, with the help of a carefully marked rim trail and an oblique approach to the anus, be relied on to keep the suture line off the hazardous midline crease, to bring most of the suture line to the surface, and to heal the unhealable pilonidal.

Acknowledgment

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Discussion

Richard P. Billingham, M.D. (Seattle, WA): Drs. John and Thomas Bascom have long been highly regarded for their work on and successes with advanced pilonidal disease and the correction of unhealed pilonidal wounds. The present article expands on their work and series but still leaves some questions both about etiology and about teaching this technique to others, so the successful outcomes reported today can be achieved by others.

Regarding etiology, we really have no experimental animal or other model by which the development of these lesions can be studied and better understood. The senior author has, over more than 25 years of study, developed theories about this, but it has not been possible to test these ideas in an experimental population. Although I am unaware of any viable alternative explanations for these observed phenomena, I have the following questions.

Because pilonidal disease may occur in fat or thin patients, hirsute or hairless, male or female, and high pressure or low, what predisposes one individual and not another with apparently identical features to develop pilonidal disease? If there are any explanations, can we modify the factor or factors responsible as part of our therapy? How are we

to understand and manage those with pilonidal dimples, some even containing hair, in patients who have never had symptoms?

The technique described yields remarkable results in the hands of these authors. However, the technique has proven somewhat difficult to teach, and, when others have performed this procedure, it is often difficult for them to understand where to make the lines of excision, how to perform techniques such as “fragmenting the scar with intersecting horizontal and vertical cuts,” and particularly how to manage the end of the wound closest to the anus. Therefore, the challenge to the authors is to try to get even further into their thought processes and to identify the principles that, when better understood by others, will allow better application of this technique, with less uncertainty about the specifics of incision placement.

In the management of primary disease, when patients present with a midline wound, how do you recommend managing this so as to avoid the need for the “cleft lift” at a later date? Please say more about those lesions close to the anus and how and why you choose your incisions in that region. Can you expand on the ideas of releasing the scar without resecting it? Why do wounds not come apart when the patient sits down?

Regarding the series presented, how were patients selected for inclusion in this study? Who got excluded and why? Was there a difference in respondents versus nonrespondents? If so, what were the differences? Four patients of the 59 required revision. What factors were responsible for this, and what was learned from these situations?

I think this technique has been extremely successful and worthwhile of our adoption for complex wounds. I have had the privilege of working directly with Dr. John Bascom, and I personally use this technique for this condition. I never feel that my results are quite as good as I know he would achieve in these patients, and I look forward to better understanding how to do a better job.