Hidradenitis suppurativa of the groin treated by radical excision and defect closure by medial thigh lift: Aesthetic surgery meets reconstructive surgery

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Summary Introduction: Hidradenitis suppurativa of the groin is a chronic, relapsing inflammatory disease of the skin and subcutaneous tissues. Radical surgical excision is the treatment of choice. Often split-skin grafting or wound healing by secondary intention are used for defect closure, sometimes with disfiguring results. We describe our experience with radical excision of localised inguinal hidradentis suppurativa and immediate defect closure with a medial thigh lift.

Patients and methods: Our hospital database was searched for all patients presenting to our institution for surgical treatment of hidradenitis suppurativa between 2001 and 2006. Only patients with hidradenitis confined to the groin were included. Exclusion criteria were simple abscess incisions, recurrence after previous grafting or flap surgery and extension of the disease outside the groin and presence of clinical signs of infection at the time of surgery. We documented patient demographics, sizes of defects, complications, time of follow-up, recurrences and patient satisfaction.

Results: A total of 8 patients with localised inguinal hidradenitis suppurativa were identified and 15 thigh lifts were performed. Defect size assessed on pathologic examination of the excised specimens averaged 15.9 cm × 4.3 cm × 1.3 cm (length × width × depth). All wounds but one
Hidradenitis suppurativa (Verneuil disease, acne inversa) is a chronic, relapsing, inflammatory disease of the skin and subcutaneous tissues. Often the inguinal area is affected.

Conservative approaches alone are not effective as a long-term treatment. They are, however, a good adjunct to the surgical treatment. Insufficient debridement is the major factor for high recurrence rates. 1-3 Healing of wounds by secondary intention results in poor aesthetic outcome, and change of dressings is tedious for patients. For this reason, immediate coverage of the defect should be standard practice, provided that there is no infection at the time of surgery. Split-thickness skin grafting as well as demanding flap procedures have been described. 3,4

Skin grafting is simple, but the aesthetic result is unsatisfactory and shrinking of the grafted skin can lead to defection of the labia, which can be a constant source of pruritus. In our opinion, split-skin grafting should be avoided when possible on the flexion side of joints.

Previously described flap procedures6,7 for the coverage of soft-tissue defects following the resection of hidradenitis suppurativa are technically demanding and associated with disfiguring scars and donor site morbidity. Di Sala reports on a patient who underwent excision of inguinal hidradenitis suppurativa and split-skin grafting of the resulting defects. For aesthetic reasons, the patient requested correction of the deformity and the use of a medial thigh lift for coverage is described. Here we describe our experience with the medial thigh lift as described by Lockwood. 8

Operative technique

Under general anaesthesia, the patient is placed in the supine position with an angle of 90° between the thigh and the legs. Stockinettes are placed on the feet so the legs can be moved. The excision of the affected region (cutis and subcutis) (Figure 1a) was done radically down to the muscle fascia. The resulting defect (Figure 1b) was closed by a medial thigh lift as described by Lockwood. 8

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The inferior skin flap was suspended from Colles’ fascia of the perineum subcutaneous tissues. Often the inguinal area is affected.

Results

Between January 2001 and December 2006, 22 consecutive patients were treated at our institution for hidradenitis suppurativa of various regions of the body. Twelve patients suffered from axillary hidradenitis, one patient presented with a recurrence of inguinal hidradenitis after excision and split skin grafting in another hospital and desired revision surgery. We performed bilateral excision of the grafted areas and further debridement and coverage with a bilateral medial thigh lift. Another patient presented with extensive hidradenitis of the inguina, buttocks, perianal and lower
abdominal areas. He had poor nutritional status and was preseptic; therefore, a staged procedure involving radical debridement, wound conditioning with moist dressings, improvement of nutritional status and delayed coverage with split skin grafting was performed. There were no patients with localised stages of hidradenitis allowing primary closure of defects.

Eight of the 22 patients (7 females, 1 male; mean age 35 years, range 18–49 years) met the inclusion criteria. Three patients were smokers, two patients had a BMI over 30 kg/m² and one suffered from diabetes mellitus. Seven patients suffered from bilateral hidradenitis of the groin and one patient from unilateral. Two patients showed additional axillary hidradenitis. Average duration of the disease prior to surgery was 4.6 years (range 2–8 years). In all cases, multiple incisions of abscesses had been performed prior to the current admission and all of the patients had tried conservative forms of treatment prior to surgery.

A total of 15 thigh lifts were performed. The procedures were performed by multiple surgeons, since our institution is an academic teaching and training hospital. The postoperative courses were uneventful, with no occurrence of major complications such as flap necrosis, sepsicaemia, or thromboembolic events. In one case there was a minor wound dehiscence, which healed by conservative treatment. One patient had a postoperative unilateral lymphedema in the right leg following bilateral excision, which resolved after 3 months by conservative treatment with lymphatic drainage and compression. The mean postoperative hospital stay was 3.3 days (range 2–5 days). Mean follow up was 28 months (range 7–60 months). We did not observe any recurrences within the follow-up period.

The average defect size assessed by the macroscopic measurement on pathologic examination of the excised specimens was 15.9 cm × 4.3 cm × 1.3 cm (length × width × depth; ranges: length 10–30 cm; width 2.5–6.5 cm; depth 0.5–2 cm).

The patients were pleased with their postoperative result functionally (rating: mean 3.5; range 2–4) and aesthetically (mean 3.4; range 4). All of them would undergo the same procedure if they had the choice again. Likewise, we also consider the postoperative results to be functionally as well as aesthetically pleasing (Figure 1c). However, we have noted a widening of the inguinal scar in two patients to a width of about 1 cm. Patient’s characteristics and postoperative complications are summarised in Table 1.

**Discussion**

There are conservative as well as surgical strategies for treatment. Among the conservative options, various forms of local therapy (disinfectants, antibiotics, glucocorticoids,
<table>
<thead>
<tr>
<th>Pat. no.</th>
<th>Sex</th>
<th>Age at time of operation/years</th>
<th>Inguinal side</th>
<th>Follow-up/months</th>
<th>Complications</th>
<th>Defect size/cm (length × width × depth) (pathology specimens) right/left</th>
<th>Co-morbidities</th>
<th>Additional areas of hidradenitis suppurativa</th>
<th>Patients’ aesthetic rating (1 = poor, 2 = satisfactory, 3 = good, 4 = excellent)</th>
<th>Patients’ functional rating (1 = poor, 2 = satisfactory, 3 = good, 4 = excellent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>18</td>
<td>Bilateral</td>
<td>60</td>
<td>None</td>
<td>R 13 × 3 × 0.8 L 12.5 × 3.4 × 0.8</td>
<td>–</td>
<td>–</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>49</td>
<td>Left</td>
<td>52</td>
<td>None</td>
<td>L 17.5 × 6.5 × 2</td>
<td>tobacco abuse</td>
<td>–</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>F</td>
<td>32</td>
<td>Bilateral</td>
<td>12</td>
<td>None</td>
<td>R 30 × 9 × 2 L 24 × 6 × 1</td>
<td>BMI 33.4 kg/m2</td>
<td>–</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>32</td>
<td>Bilateral</td>
<td>14</td>
<td>Minor wound dehiscence</td>
<td>R 10 × 4 × 0.7 L 10.5 × 3.5 × 0.5</td>
<td>Diabetes, tobacco abuse</td>
<td>Axilla</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>49</td>
<td>Bilateral</td>
<td>19</td>
<td>Unilateral temporary lymphedema</td>
<td>R 14.5 × 2.5 × 1.5 L 17 × 3 × 2.0</td>
<td>–</td>
<td>–</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>30</td>
<td>Bilateral</td>
<td>17</td>
<td>None</td>
<td>R 11.5 × 3.5 × 1.5 L 19 × 4.5 × 1.5</td>
<td>tobacco abuse</td>
<td>Axilla</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>F</td>
<td>38</td>
<td>Bilateral</td>
<td>46</td>
<td>None</td>
<td>R 19 × 3.5 × 0.7 L 18.5 × 5.5 × 1.6</td>
<td>BMI 32.3 kg/m2</td>
<td>–</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>F</td>
<td>31</td>
<td>Bilateral</td>
<td>7</td>
<td>None</td>
<td>R 10.5 × 3.1 × 1.3 L 12.5 × 3.5 × 1.3</td>
<td>–</td>
<td>–</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
retinoids, irradiation) as well as the systemic application of estrogens and androgens have been described. As all conservative therapies often fail to prevent recurrence, surgery is the treatment of choice. Often local incision and drainage of the abscesses is performed. However, this yields only temporary relief and does result in long-term cure. In addition, the risk of scar formation and contractures is increased. Other procedures like limited excision and primary closure as well as laying open of sinus ducts have high recurrences rates as well.

In our experience, simple excision and primary wound closure for moderate size defects in the groin is often associated with a relatively high incidence of labial deformities. Only radical surgical excision can securely prevent recurrence. After radical excision, wound healing by secondary intention as well as use of split skin grafts have been described to be effective. However, the defects remaining after wound healing can be disfiguring. Skin flaps have been described as an excellent method of coverage after radical excision of hidradenitis suppurativa of the axilla. These were Limberg flaps, transpositional flaps, V-Y advancement flaps, or perforator flaps from the thoracal wall and were able to achieve superior aesthetic as well as functional results.

Patients with hidradenitis suppurativa of the groin frequently have involvement of the labia, buttocks, and mons pubis. These patients often need tailor-made flaps for defect closure after radical excision. Tanka et al. described covering the inguinal defect with a pedicled rectus abdominis musculocutaneous flap. However, the flap appeared bulky and needed secondary contouring. Greenbaum et al. described a modified abdominoplasty as a functional reconstruction for recurrent hidradenitis suppurativa of the lower abdomen and groin. These operations are technically demanding and should be performed only in selected cases. In addition, most flap surgeries result in additional scarring at the donor site and are associated with donor site morbidity. Still, for very severe and extended cases of hidradenitis suppurativa, e.g., in the genito-urinary region tailor-made flaps may be necessary.

The goal of the medial thigh lift as described by Lockwood is an improved slimmer contour of the thigh through tissue resection and lifting of the medial thigh. As a side effect of this aesthetic procedure, the tissue excess of the thigh can be used easily for the coverage of defined and localised groin defects. The sizes of the defects that can be covered by the procedure are likely to be considerably larger than those measured in our study on pathologic examination since the specimens can shrink up to 40% after excision and after formaldehyde fixation. A number of authors have described technical variations of Lockwood’s original technique. All variations have the use of anchoring sutures to Collae’s fascia in common. Some authors use absorbable suture material others advocate nonabsorbable sutures, arguing to experience less scar widening. In our experience from aesthetic thigh lifts nonabsorbable material can be palpable through the skin and can be source of irritation for patients; therefore, we use absorbable sutures (PDS 2/0), as initially described by Lockwood. The original thigh lift technique by Lewis did not gain wide acceptance due to, among other things, postoperative deformities of the vulva. Lockwood describes as well a risk of labial deformities with his technique of the medial thigh lift. In our experience, these deformities are avoidable by the use of the aforementioned fascial anchoring techniques.

Although these technical variations are similar, it seems important to us to be familiar with differences in the design of excision because, in contrast to aesthetic thigh lifts, the defect size and shape in inguinal hidradenitis are given, depending on the extent of disease. Therefore, it is important to know variations of suture placement, wound closure and flap geometry.

While staged procedures for excision and coverage are advocated by some to decrease the rate of infections, others consider the rates wound infections as well as the recurrence rates to be independent of the method used for reconstruction. In none of our cases infection was a problem, but if in doubt about the cleanliness of a wound after radical excision of hidradenitis we consider a staged operative procedure with a couple of days of wound conditioning and a delayed thigh lift to be justified to prevent surgical site infection. This also was the rationale in the initially described report by Di Saia, who performed excision of previously grafted inguinal defects and coverage by a bilateral thigh lift.

One of our patients suffered from a temporary postoperative lymphedema. Thus, it seems important to us to emphasise the need of identifying and preserving the femoral triangle intraoperatively in order to reduce complications arising from too deep dissection and consecutive disruption of lymphatic vessels, a fact that has also been acknowledged by others.

Overall, our patients were pleased with the functional and aesthetic outcomes of their procedures. We are well aware that a questionnaire like the one used has major limitations, still it can give a first impression about a procedure that has not been in routine use for that particular indication. All patients would undergo the same procedure again, if they had the choice again. This is an indication of a high degree of satisfaction with the postoperative result. In addition, no patient gave a poor rating.

In summary, we think that the medial thigh lift is a safe and reliable technique with well-hidden and mostly inconspicuous scars, outstanding aesthetic results and excellent patient acceptance. Immediate wound closure and early functional recovery following medial thigh lift procedures allow a reduction of downtime periods.

Therefore, we think that the medial thigh lift should be considered for immediate defect closure after radical excision of localised inguinal hidradenitis suppurativa for its excellent aesthetic results and the low rate of complications. However, if there is significant perifocal infection present after debridement of hidradenitis, a staged procedure with debridement, wound conditioning and delayed coverage may be warranted.

References
