Combined wide excision and mastopexy/reduction mammoplasty for inframammary hidradenitis: a novel and effective approach

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SUMMARY. Hidradenitis suppurativa is a rare chronic skin condition involving the apocrine glandular zones, which are found predominantly in the axilla and inguinoperineal regions, but have been described at other sites, including the inframammary fold. Treatment requires complex surgical intervention with wide excision of involved tissue. Inframammary hidradenitis tends to affect young women and can prove resistant even to this radical form of surgery, which often results in marked scarring and breast deformity. We therefore decided to adopt a novel approach by incorporating the wide excision of inframammary skin currently necessary in a reduction mastopexy procedure. This enables primary closure with ptosis correction and should improve cosmesis. The reduction in the depth of the inframammary fold also makes hygiene easier in the long term. During a 6-year period, five patients (mean age 27 years) have been treated by this method. All patients had long-standing hidradenitis (mean 12 years), and had been treated with several courses of antibiotics. A modified Wise pattern reduction incision was used with a minimum amount of breast tissue being removed. In each case histology was consistent with hidradenitis. All wounds healed well and to date there have been no inframammary recurrences. The success of this operation in curing inframammary hidradenitis has had a dramatic affect on the lives of these young women and underlines the need for this rare condition to be treated in a specialist centre.

INTRODUCTION

Hidradenitis suppurativa is a chronic relapsing inflammatory process involving apocrine sweat glands and adjacent connective tissue. Velpeau was first to describe the disease in 1839, when he reported an inflammatory disorder involving the skin of the axilla, mammary and perianal regions. The condition encompasses a wide spectrum of severity. Some cases may involve one site and remain mild or even undergo spontaneous remission. Other cases progress to involve complete apocrine areas and often affect multiple sites.

Patients present with acute abscesses, but the condition often progresses to a chronic state with persistent pain, sepsis with purulent discharge, sinus tract and fistula formation and can eventually result in dermal scarring. If diagnosed and treated early, hidradenitis suppurativa can be controlled initially by medical measures, but as the disease becomes chronic it is difficult to achieve full resolution.

Inframammary hidradenitis is a disease usually affecting young, obese women, who have large pendulous breasts and is resistant to radical excision. Previous reports have shown a 50% recurrence rate after wide local excision and healing by secondary intention. We have adopted a different approach and have adapted a standard reduction mastopexy skin excision incorporating the diseased inframammary skin.

The aim of this study is to report our early experience of treating women with inframammary hidradenitis using this technique.

MATERIALS AND METHODS

This was a retrospective analysis of patients treated with inframammary hidradenitis between April 1994...
and March 2000 by a single breast surgeon. Patients were identified from the theatre register and the consultants’ logbook. Clinical records were evaluated for duration of symptoms, previous management and outcome following surgery. One patient with inframammary hidradenitis who was treated by wide local excision and primary closure was excluded.

**SURGICAL TECHNIQUE**

In common with all mastopexy and reduction mammaplasty procedures, patients were counselled as to the nature of scarring, risk of nipple loss and altered nipple sensation. Patients were seen by the breast care nurse who showed photographs of pre- and postoperative appearances (Fig. 1a & c), together with good and bad results. Patients were given a telephone number of a volunteer whom they could contact for further discussion. On admission the standard preoperative (and postoperative) photographs were taken by medical illustration, and the Cardiff Breast Unit breast reduction check list (Fig. 2) was completed.

Patients were marked sitting upright and standing. A modified Wise pattern template was used to mark out the extent of the excision with particular attention to the final position of the nipple areola complex. All were given prophylactic antibiotics. Unless the patient had requested a reduction, only the minimal amount of breast tissue required to achieve satisfactory closure was removed. Inferior pedicles were not utilized as they invariably pass through the area of inflammation. We have found a superiomedial pedicle to be the most useful. Wounds were closed over suction drains and the skin was closed using a subcuticular suture to achieve the classical inverted ‘T’ scar (Fig. 1b).

**RESULTS**

During this 6-year period, five patients underwent operation, four patients had bilateral procedures and one had a unilateral excision and mastopexy. The mean age at the time of operation was 27 years (range, 24–42). Table 1 shows patient demographics of all those treated by this method. All patients had long-standing hidradenitis (mean 12 years), and had been treated with several courses of antibiotics. Two patients had unsuccessful trails of Cimetidine and Roaccutane respectively. Four patients had previous excision of hidradenitis at various sites. Patient 5 had undergone a previous local excision prior to her mastopexy.

The mean hospital stay was 7 days (range, 5–11). In all five cases the histology was consistent with hidradenitis (Fig. 3). There were no major postoperative complications; two patients however had minimal sloughing at point of tension in the scar. No further surgery was necessary, and both healed by secondary intention. The mean time to healing was 2 weeks (range, 1–4). During follow up after surgery there have been no inframammary recurrences. One patient has had disease in the contralateral inframammary fold, and one has inguinoperineal recurrence. Two patients have
subsequently been seen and assessed at the rapid access breast clinic, one for mastalgia and the other for fat necrosis. All patients had a good outcome following surgery, and all appeared pleased with the postoperative appearance of their wounds.

DISCUSSION

Apocrine sweat glands are found predominantly in the axilla and inguinopelvic regions. These are the areas most commonly affected by hidradenitis, although other
Apocrine glandular zones may occasionally become affected, including the breast, periumbilical region, scalp, face, external auditory meatus, nape of neck and shoulders. In relation to the breast, apocrine glands have been described in the areola and in the chest wall, particularly in the inter- and infra-mammary folds, and hidradenitis tends to occur in young, obese patients, especially in those who are smokers. The disease in these patients may occur in small clusters, which are sometimes difficult to differentiate from cystic acne, and both conditions may coexist. The distribution of true hidradenitis is usually inframammary, suggesting that skin moistness and maceration play an important role. The worst lesions have been reported under the strap of the bra and on skin surfaces that are in contact and rub together.

Hidradenitis suppurativa is seen as a complex disease, which is difficult to treat. Initial management comprises skin cleansing with ordinary soaps, local antiseptics and antibiotics (usually antistaphylococcal for axillary and inframammary involvement and broad-spectrum agents for inguinoperineal disease). Synthetic retinoids have been employed, but experience is limited and results variable. Control of hidradenitis has been reported in women using an antiandrogen (cyproterone acetate). Although the acute, intermittent lesions of early hidradenitis often respond to antibiotics, it is unlikely that such treatment alters the clinical course of the disease. Patients with chronic hidradenitis may derive symptomatic benefit from long-term antibiotics, but relapse is inevitable when treatment is withdrawn.

The pathological features of hidradenitis are of follicular plugging with perifolliculitis with acute and chronic dermal inflammation which may involve apocrine glands. There is often abscess formation accompanied by fibrosis in the dermis. As the disease progresses there may be sinus track or epidermal cyst formation. In some cases there may be foreign body granuloma formation in relation to keratin debris or hair shaft material. None of these features is specific and the diagnosis is primarily clinical. The pathogenesis of hidradenitis is unknown but the occlusion of pilosebaceous units in opposing skin surfaces in the axilla, groin, inframammary fold and other sites is thought to be an important early event. In the axilla apocrine glands which drain into the pilosebaceous unit are often actively inflamed whereas apocrine glands which drain directly onto the epidermal surface are not inflamed or destroyed. This observation lends support the concept that follicular plugging leads to occlusion of apocrine drainage and preferential inflammation around apocrine glands and pilosebaceous units.

Controversies exist over the optimal surgical approach. Factors influencing the decision include site, extent and nature (acute or chronic) of the disease at the time of presentation. Incision and drainage of individual lesions may give temporary control. Where skin involvement is limited local excision and primary closure may be feasible. However when the disease has become chronic and extensive, most authors agree that radical excision of the apocrine glandular zone with a 2 cm margin is necessary.

### Table 1 Patient demographics

<table>
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<tr>
<th>Age</th>
<th>Duration of HS (year)</th>
<th>Previous operation</th>
<th>Duration of Inframammary HS (months)</th>
<th>Follow up (months)</th>
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HS = Hidradenitis suppurativa.

![Fig. 3](image_url) Histological section of skin in hidradenitis showing chronic inflammation involving superficial and deep dermis and epithelialized cyst/sinus lined by squamous epithelium. There are numerous multinucleated giant cells in the inflammatory infiltrate adjacent to the sinus.
In contrast to surgical excision of hidradenitis at other sites, treatment for inframammary disease has proved unsatisfactory. Local areas have been treated conservatively by Limited excision, whereas larger areas require more radical surgery. In Harrison’s series of six patients, a 50% local recurrence rate was reported; this was widespread and approximated to the extent of the original disease. The rarity of the condition has meant that few centres have sufficient experience to develop new techniques. We have adopted a policy of treating these patients by a combination of wide excision and mastopexy or reduction mammoplasty. This allows radical skin excision with adequate clearance. These are established cosmetic surgical techniques that have also been applied to the management of large lower pole breast cancers. Some potential difficulties that may be encountered with this type of procedure include infection, unilateral and also extensive disease. Broad spectrum prophylactic antibiotics are recommended. Breast asymmetry can be a problem in those with unilateral involvement. This may necessitate a contralateral symmetrization procedure. In patients with wide spread disease, large areas of skin may need to be removed and hence modification of the mastopexy pattern may be necessary. Also under such circumstances excision of underlying breast tissue is essential to achieve a tension free closure.

It is difficult for us to compare our results with those of other authors, because to our knowledge this technique has not been previously reported to treat inframammary hidradenitis. However those other areas treated by radical excision and healing by secondary intention appear to have a longer hospital stay and a longer time to healing. We realise that our follow up is of short duration, but nevertheless our early results are promising, with patient satisfaction rated as good or better in all cases. Whilst all patients are pleased with the aesthetic result, we must stress that this procedure is not performed principally for cosmetic purposes, but in order to obtain good symptomatic benefit. As these patients generally suffer from chronic symptoms, in one of our cases as long as 15 years (Table 1), relief of symptoms is their primary concern.

This technique of reduction mammoplasty/mastopexy enables wide excision of the skin in the inframammary fold which is the area most commonly involved by hidradenitis, thus facilitating primary closure. At the same time it corrects ptosis and improves cosmesis. Patients with extensive hidradenitis or disease at rare sites (such as in the inframammary folds) should be treated by surgeons with experience of the condition, in order that surgical options can be fully evaluated.

References