Experience With Surgical Treatment of Hidradenitis Suppurativa

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Abstract

The authors report their experience with 23 sites of hidradenitis suppurativa, including cases with musculocutaneous flap repair, and discuss the surgical methods applied. Twenty-three sites in 19 patients with chronic inflammatory skin lesions were reviewed. The lesions were divided into two groups: The limited group was comprised of mild lesions, which appear isolated and have limited abscesses without sinus tract formations. The severe group was comprised of severe lesions, which included diffuse, multiple abscesses with severe sinus tract formation and fibrosis. Nine sites were limited and 14 sites were severe. After resecting the lesion, the defect was covered with a split-thickness skin graft (four sites were limited, nine sites severe), a musculocutaneous flap (five sites severe), primary closure (four sites limited), and a local skin flap (one site limited). In six sites in 6 severe-group patients, local recurrence occurred. The local recurrence rate differed significantly between the limited and the severe groups. The reason for this may be because the lesions in the limited group could be resected completely, whereas the lesions in the severe group were diffuse and total resection was sometimes difficult for various reasons. The method of surgical repair did not affect the local recurrence rate. In recurrent cases, four sites treated with skin grafting required further surgical treatment, and two sites treated with musculocutaneous flaps were controlled with oral antibiotics. In conclusion, sufficient resection of the lesion is the most important issue in treating follicular occlusion triad disease. In lesions that can be resected completely, the surgical procedure to cover the lesions should be selected to suit the size and site of the defect. However, in cases that cannot be resected completely, a musculocutaneous flap is recommended instead of a skin graft for enhanced postoperative management.

Plastic surgeons are often confronted with inveterate skin lesions with recurrent inflammation and suppuration—conditions that reduce the level of comfort for patients in daily life as a result of the difficulties of wound management. These abnormal conditions are recognized mainly as hidradenitis suppurativa. The initial symptom is follicular hyperkeratosis, causing the retention of follicular product, followed by severe inflammatory reaction and bacterial infection. Mild lesions resemble furuncles and oral antibiotics are usually effective in managing the lesions. However, as lesions extend deeper into the subcutaneous tissue, interconnecting sinus tracts develop, resulting in irregular abscesses and hypertrophic scars. In such a developed phase, antibiotics are usually ineffective and surgical treatment is required. Many kinds of surgical methods for the treatment of hidradenitis suppurativa have been described previously. Wide local excision with skin grafting, skin flap transfer, and primary closure have been common. However, with the popularization of surgical methods using fasciocutaneous or musculocutaneous flaps in the field of plastic surgery, these flaps have been applied positively for the treatment of hidradenitis suppurativa. In 1970s and 1980s we used skin grafting mainly for the treatment of hidradenitis suppurativa. During the last 10 years we often used the musculocutaneous flap. Reviews of surgical treatment of hidradenitis suppurativa have appeared in the English literature, but there have been no reports evaluating the more recent treatments such as fasciocutaneous and musculocutaneous flap transfer. We report our experience with 23 sites of hidradenitis suppurativa, including cases treated with musculocutaneous flaps, and discuss the surgical methods used.

Materials and Methods

Patients

Discussion

Patients
This study reviewed 23 sites in 19 patients with chronic inflammatory skin lesions treated surgically in our hospital from 1977 through 1999, with a follow-up of at least 20 months. All patients were men who ranged in age from 30 to 58 years (mean age, 40.7 years). Three patients had complications: 1 patient had hypertension, 1 patient had hyperlipidemia, and 1 patient had both hypertension and hyperlipidemia. Duration of illness ranged from 2 to 34 years (mean duration, 13.1 years). The lesions included the buttock (N = 16 sites), axilla (N = 3), inguinal region (N = 3), and neck (N = 1). The size of the lesions ranged from 1.5 × 4 cm to 25 × 40 cm. All patients had suppurative lesions that had already been treated with oral antibiotics, incision, drainage, and irrigation in other hospitals, but without satisfactory effect.

**Table 1**

Table 1. Patient Summary - = no recurrence; + = recurrence; PC = primary closure; OA = administration of oral antibiotics.

**Statistical Analysis**

Statistical analysis was performed using Fisher's exact test or the Mann-Whitney's U test (Stadt View J, Version 4.5; Abacus Concepts, Berkeley, CA) when differences were found. Probability values of less than 0.05 were considered to be significant.

**Results**

**Lesion Type**

The lesions were divided into two groups: The limited group comprised the mild lesions, which appear isolated and have limited abscesses without sinus tract formations. The severe group was comprised of the severe lesions, which included diffuse, multiple abscesses with severe sinus tract formation and fibrosis. Nine sites were in the limited group and 14 sites were in the severe group. There was no obvious etiology, and no difference in family history, anamnesis, and lesion site. There was also no significant difference in duration of the illness between the limited group (mean duration, 9.1 years) and the severe group (mean duration, 15.7 years).

**Fig 1**

(A, B) Typical clinical appearance of the lesion in the limited group (A) and the severe group (B).

**Surgical Methods**

After resecting the lesion, including the surrounding red skin, the defect was covered using either a split-thickness skin graft (four sites in the limited group, nine sites in the severe group) or a musculocutaneous flap (five sites in the severe group), primary closure (four sites in the limited group), and a local skin flap (one site in the limited group). Musculocutaneous flaps used in our series consisted of two free latissimus dorsi musculocutaneous flaps, two pedicled latissimus dorsi musculocutaneous flaps, and one rectus abdominis musculocutaneous flap.

**Postoperative Course**

The postoperative follow-up period ranged from 20 to 60 months. There was no significant difference in the follow-up period between the limited group (mean, 34.7 months) and the severe group (mean, 38.3 months). In 17 sites in 13 patients, the lesions did not recur during postoperative follow-up. There was no local recurrence in the limited group, but there was local recurrence in six sites (four in the buttock, one in the neck, one in the inguinal region) of 6 severe-group patients. In comparison with the low recurrence rate between the limited group and the severe group, the rate of recurrence in the severe group was significantly higher (p = 0.048; Table 2). In the severe group there was no significant difference in the follow-up period between the cases covered with split skin graft (mean, 36.0 months) and those covered with a musculocutaneous flap (mean, 39.6 months). There was also no significant difference in the local
recurrence rate. Of the six sites in the severe group that demonstrated local recurrence, four sites treated with skin graft required further surgical treatment such as resection and primary suture, and two sites covered with a musculocutaneous flap healed with the aid of oral antibiotics and did not require further operation.

Table 2. Comparison of Local Recurrence
The local recurrence rate was significantly higher in patients in the severe group than in the limited group (Fisher's exact test, \( p = 0.048 \)). The local recurrence rate was not significantly different between the patients who underwent split skin graft and those who underwent a musculocutaneous flap in the severe group.

**Patient Reports**

**Patient 19**

A 36-year-old man with a 10-year history of a suppurative lesion on the buttock presented to our hospital in April 1999 (Fig 2). The lesion gradually deteriorated, resulting in severe fistula formation with suppuration. The lesion was resected, including the surrounding reddish skin because of the concern that it would potentially develop a suppurative lesion in the near future. The defect was covered with a meshed skin graft and the graft took completely. There has been no local recurrence to date, 20 months after the operation.

**Fig 2**

Fig 2. Patient 19 (severe group). (A) Preoperative view of the lesion on the buttock. (B) View of the defect after resection including the surrounding reddish skin. (C) The defect was covered with a meshed skin graft. Twelve-month postoperative view of the grafted region.

**Patient 12**

A 47-year-old man with a 14-year history of continuous suppurative lesions of the neck presented to our hospital in July 1995 (Fig 3). The entire posterior cervical region demonstrated severe inflammation with suppuration, and sinus tract and irregular scar formation. There were also some furuncles in the scalp. The lesion was resected and the defect was covered using a free latissimus dorsi musculocutaneous flap. The furuncles in the scalp were not resected to prevent postoperative alopecia. After the operation, local recurrence occurred at the scalp margin of the flap; however, the recurrent lesions and inflammation (including the furuncles in the scalp) were treated successfully with oral antibiotics alone, without resulting in alopecia. Sixty months after the operation there have been no major recurrences, and further operation has not been required. The transposed flap was slightly bulky but did not restrict range of motion in the neck. The patient is satisfied with the result aesthetically and functionally.

**Fig 3**

Fig 3. Patient 12 (severe group). (A) Preoperative appearance of the lesion on the neck. (B) The defect after resection. (C) The defect was covered with a free latissimus dorsi musculocutaneous flap. View of the neck 60 months postoperatively.

**Patient 18**

A 35-year-old man with a 15-year history of a suppurative lesion in the right inguinal region presented to our hospital in March 1998 (Fig 4). Severe sinus tract formation was observed in the entire inguinal region. In addition, reddish skin with small abscesses extended to the scrotum and thigh. The main lesion in the inguinal region was resected and a pedicled rectus abdominis musculocutaneous flap was transferred to the defect. A month after the operation, local recurrence occurred at the flap margin. The recurrence was treated successfully with oral antibiotics alone, and the surrounding abscesses disappeared gradually. Twenty-four months after the operation, no further recurrences have occurred and the patient is satisfied with the result.
Fig 4. Patient 18 (severe group). (A) Preoperative appearance of the lesion in the right inguinal region. (B) The defect after resection. (C) The defect was covered with a pedicled rectus abdominis musculocutaneous flap. A view of the inguinal region 24 months postoperatively.

Discussion

In the current study, lesions were divided into two groups according to their clinical appearance. The lesions in the limited group are milder than those in the severe group. It may be possible that the lesions included in the limited group gradually progress to the lesions included in severe group. However, mild lesions do not always grow to severe lesions, as seen by our patients in the limited group with a long duration of illness. There are no reports that discuss the relation between lesion severity and progression. In the current study, no significant difference in duration of illness between the limited group and the severe group was observed. No obvious difference in factors encouraging infection was demonstrated. There may be an unknown difference in etiology between the two groups.

With regard to the management of hidradenitis suppurativa, our primary aim is complete cure without local recurrence. To achieve this, the most important thing is to resect the lesion completely. In the lesions in the limited group, complete resection was comparatively easy because the lesions were usually small, limited, and had a clear margin with surrounding skin. In contrast, lesions in the severe group consisted of inflamed skin with small abscesses that occurred widely around the main lesion. Furthermore, most of the patients were hairy, and the skin surrounding the lesion could potentially develop suppressive lesions in the future. Sometimes this contentious skin could not be resected completely together with the primary lesion (for example, when the lesion involved an important component of the body such as the scalp/hair), and this resulted in local recurrence. This is one of the reasons that the local recurrence rate differed significantly between the limited group and the severe group.

In the literature, the musculocutaneous flap has been reported to be a valid option for managing infected lesions because of its abundant blood supply. We adopted musculocutaneous flap transfer as an alternative surgical method for those patients concerned with their aesthetic and functional results. In some patients, it may be that the resected area was smaller in those treated with a musculocutaneous flap compared with those treated with a skin graft. For this reason, we expected that the lesions of the severe group covered with a musculocutaneous flap were more likely to recur than those covered with a skin graft. However, as shown in Table 2, local recurrence in the severe group indicated no significant difference between skin graft and musculocutaneous flap. Two of the recurrent lesions around the musculocutaneous flap were controlled successfully with oral antibiotics alone, and no further operation was required. Furthermore, small lesions around the flap gradually became inactive. In contrast, recurrent lesions in the patients treated with a skin graft developed from the small abscesses around the grafted skin, and deteriorated to the extent that subsequent operation was required. We can confirm that the musculocutaneous flap, with its abundant blood supply, is highly useful in managing such suppressive lesions. With regard to the treatment of hidradenitis suppurativa, skin grafting has several advantages that have encouraged its common use. The operative technique is simple, and it is possible to cover a large defect after resection. The severe lesion in Patient 1 was large, but it could be resected with the surrounding reddish skin without encountering functional or aesthetic problems. Skin grafting is well indicated for such cases. On the other hand, musculocutaneous flap transfer involves a comparatively complex operative technique, and the area to be covered must be limited. However, we think that the musculocutaneous flap is more useful than skin grafting in patients in whom total resection is difficult because of extremely diffuse lesions and in patients who are concerned about aesthetics and function.

In conclusion, sufficient resection of the lesion is the most important issue in treating hidradenitis suppurativa. In lesions that can be resected sufficiently, the covering procedure, such as primary closure, skin graft, and musculocutaneous flap, should be selected to suit the size and site of the defect. However, in cases that may not be resected completely, the musculocutaneous flap is recommended as the covering material instead of a skin graft for enhanced postoperative management of the recurring wound, and because of its contribution to aesthetic and functional improvement.
References


Citing Articles

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