

Surgical treatment for inguinal Hidradenitis suppurativa and management of the defect

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Abstract: Chronic inflammation of the apocrine sweat glands is known as suppurative hidradenitis, without definite causes. It usually take place in the axillae and groins, while the disease may be affect some regions in the body. A few cases can be controlled by episodic antibiotic treatment through flare ups. A number of cases need repeated opening and drainage of abscesses. In some advanced cases it is necessary to perform radical excision of the affected region as a best treatment. Due to the large size of incision during evacuation of the abscesses it is not easily to closed primarily, and in most of cases (up to 70%) need secondary incisions, in the same time, the removal of dead tissues and pus must be not minimized to allow the healing at the normal rates. Reconstruction of the defect using regional flaps usually offers the best surgical results especially if compared with split thickness grafting or primary closure. Eight patients with various soft tissue defects in the inguinal region after radical excision of moderate to sever hidradenitis suppurativa were reconstructed with pedicled anterolateral thigh flap and the outcome was evaluated.

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1. Introduction:

The definition of hidradenitis suppurativa (HS) is an inflammation for long period that affecting apocrine glands specially the infundibular terminal follicles followed by development of several abscesses and fistula [1, 2].

The causative agents of HS disease and the pathogenesis is unknown but may be due to the abnormalities in the androgen dependant organs/tissues [3]. Bacterial infection has a secondary role in the pathogenesis. Other known risk factors are smoking and obesity [4].

Clinical features include nodules, abscesses, sinus tracts, and painful hypertrophic scars in the affected regions [5]. Consequently, the abscesses may extend into deeper plans forming intercommunicating sinus tracts that may end into irregular hypertrophic scars [6].

In general, many therapeutic modalities have been tried for the management of HS including the application of topical antiseptics, local and/or systemic antibiotics, injections of corticosteroids directly in the lesion, treatment with anti-androgenic compounds and systemic retinoids and but results were unsatisfactory especially in Hurley grade II and III. [7,8]. Yet, for the majority of cases of progressed hidradenitis suppurativa, it is recommended to apply radical surgery as the effective tool for treatment [9]. In such cases, an early approach at first stages of HS, with enough area of excisions is essential to minimize or stop the problems and the reappearance of the disease and to develop the life quality [10].

Some investigators preferring the secondary intention for healing while, most of them preferring split skin grafting as a common method. One of the disadvantages of skin grafts is that infrequently not taken entirely from the regions of the axilla and the groin. Therefore, the healing is usually take a long time, and generally leaves ugly and unstable scar. [11]

In this study, we focused on the surgical restoration for the abnormalities or anomalies due to increase in the area of surgical excision in the inguinal region using pedicled anterolateral thigh fasciocutaneous flap. as regards scaring and type of closure and patient satisfaction.

2. Patient and Methods:

This retrospective analysis reviewed 8 patients with chronic inflammatory moderate to severe hidradenitis suppurativa (Hurley grade II and III) treated in our hospital from 2014 to 2017.

Five patients (62,5%) were males and three patients (37.5%) were females. The age at the time of presentation ranged from 27years to 47years (mean 34). 2 patients (25%) had Body Mass Index (BMI) of more than 25 and 2 patients (25%) had BMI of more than 30. Three patients (37.5%) represented BMI of more than 35 and only one patient (12.5%) represented BMI of more than 40. The analysis also showed that 6 patients (75%) were smokers (5 males and 1 female).

The patients had chronic inflammatory hidradenitis suppurativa (Hurley grade II and III) (fig.1). Wide radical excisions were carried out for

with wide safety margin (i.e. 1-2cm) and deep margin till reaching the fascia.

The size of defects resulted after excision ranged from 96cm² (12 x 8cm) to 140cm² (14 x 10cm). (mean 123cm², 13.5*9 respectively) At the time of surgery, all patients have received a single dose intravenous antibiotic depending on a previous swab results.



Figure 1 Preoperative photo showing grade III hidradenitis suppurativa in left groin region.

One-stage operations: wide surgical excision and reconstruction of defect was performed for all patients. Pedicled anterolateral thigh fasciocutaneous flap was used in all cases.

We followed the surgical technique proposed by Wang X, et al.2006, taking into consideration the precautions suggested by Raymond W.M. et al, 2007

as follows, Harvest of the pedicled anterolateral thigh flap begins with identification of the skin vessels and the flap design based on the location of these vessels. The medial flap incision is made and a subfascial dissection proceeds with identification of the descending branch of the LCFA. The pedicled flap is proximally based with a pivot point located just distal to the origin of the LCFA off the profunda femoris artery, about 2 cm below the inguinal ligament. The length of the vascular pedicle should be about 120% of the distance between the pivot point of the vascular pedicle to the proximal edge of the wound to be resurfaced. This will avoid kinking of the vascular pedicle when the flap is transposed. If a longer pedicle is necessary, additional length can be gained by dissection proximally to the level of the profunda femoris artery and vein. [12] [13].

Early post-operative evaluation included the viability of the flap and the detection of hematoma, dehiscence and wound infection.

Photos were taken at 10 days, 4 months and 6 months later. Then the long term follow up includes assessment of the flap as regards texture and colour match of the flap to the surroundings.

A scoring system (originally used for cervical scar assessment) was used to assess groin scar tissue; these included the complexion and texture, as well as limitation of skin movement. For quantification of the complexion and texture, an ordinal 4-stage (0–3) scale was created. Limitation of skin movement was categorized on a 3-stage (0–2) scale. [14], table (1).

Table (1) scoring system for assessment of complexion, texture and skin movement.

	0	1	2	3
Complexion (0–3)	Good scar, no change of complexion	Slight hyperemia in some places	Complete hyperemia of the scar, pink colored	Broadened reddish scar, with telangiectases
Texture (0–3)	Scar not visible at first glance, within skin tension lines	Scar apparently beyond skin tension lines	Slight depression up to 1 mm below skin surface, hypertrophy in some places	Constricting scar, edge formation, nodes or defects, pronounced hypertrophy
Skin movement (0–2)	Scar and surrounding skin are mobile, normal hip joint function	Scars adherent in some places, impaired hip joint function	Completely adherent to subcutaneous tissue, no mobility, hip joint function absent	

The long term evaluation also included the functional outcomes, donor site morbidity as regards scarring and type of closure and patient satisfaction.

3. Results

In the present work, the reconstruction is carried out in one surgical operation. As shown in fig. (2). the length of pedicle was 18 cm in average, the flap has a broad arc of rotation and simply arrives the inguinal

region without the need of split thickness grafts for either donor or recipient areas.

The Pedicled anterolateral thigh fasciocutaneous flap has no major complications. The results revealed that the whole the flaps were continued without appearance of ischaemia or venous supply insufficiency and complete healing of whole lesions except one case (12.5%) where minimal infection occurred at the medial edge of the recipient area (Fig.3) giving an indication that this well vascularized flap is

trustworthy to cover a potentially infected recipient area. Under umbrella of broad spectrum antibiotics and we



Fig 2
sequ



2 weeks postoperatively showing viable flap with minimal wound infection

Table (2) clinical characteristics of the patient

Case number	Age/sex	Hurley's Staging	Defect size/cm	Complications
1	27 m	II	13 x 8 cm	Nil
2	43 m	III	14 x 9 cm	Nil
3	35 f	III	14 x 8 cm	Nil
4	23 m	II	12 x 8 cm	Nil
5	47 m	III	14 x 10 cm	Minor infection
6	31 f	II	14 x 9 cm	Nil
7	33 f	II	12 x 10 cm	Nil
8	39 m	III	13 x 10 cm	Nil

4. Discussion

Currently, there is no consensus regarding the optimal surgical plan for treatment of HS. A recent systematic review and meta-analysis reported that there is inadequate evidence to show the privileges of flaps over skin grafts although they are superior to primary closure [15].

Different kinds of locally manufactured flaps has been used for resurfacing the axilla after hidradenitis suppurativa excision; however fewer reconstructive scenarios have been described for the groin.

The pedicled gracilis flap is still a good alternative for immediate reconstruction of a complex

groin wound following radical excision for hidradenitis suppurativa [16].

Also there are few papers describing the role of islanded perforator flaps for reconstruction of hidradenitis suppurativa defects [17].

Tensor fascia lata (TFL) flaps would be bulky and can leave a dog-ear laterally. Using a vertical rectus abdominus flap represent important operation to the abdominal wall, resulting in postoperative weak in the abdominal wall and increases the danger of postoperative abdominal bulging and ventral wall hernia formation [18].

Song *et al.* [19], who first described the anterolateral thigh (ALT) flap, where, the flap based on septocutaneous vessels running in between the vastuslateralis and rectus femoris muscles.

Different types of flaps are used nowadays, perforated ALT flap is an example and rapidly accepted a confidence as an important tool and used widely in the restoration of wounds [20]. In addition, Wei *et al.* [21] was helpful in distributing this flap and become more popular for application and considered the flap as one of the best soft tissue flap.

A case report published by Rees *et al.* [22] who illustrated the role of anterolateral thigh (ALT) flap in restoration of wounds post radical excision of groin and vulval hidradenitis suppurativa [22].

Pedicled ALT took the upper hand for many causes:

1. The resection and restoration are limited to the ipsilateral thigh, and postoperative pain is restricted to one part of the body. This facilitates physiotherapy, which considered a prominent advantage than the vertical rectus abdominus flap.

2. The large cutaneous area of the ALT flap can occupy from the level of the greater trochanter to the superior border of the patella.

3. The ALT pedicle permits a large arc of movement and can be applied as a coat for abdominal disorders as high as the umbilicus especially when tunneled under the rectus femoris muscle.

4. It avoids formation of scar tissues in the active muscle.

5. Donor place difficulties are usually smallest, especially if primary healing of the donor site is feasible.

6. The ALT flap is of adequate size, it gives pliable thin skin suitable for recoating the groin, and can be less in thickness in case of excessive fatty layer subcutaneously [23].

The effectiveness of this technique has been supported by our patients short and long term results. Postoperatively, the flap appeared healthy with no signs of partial or complete necrosis.

The patients were able to mobilize early, with a full range of motion, which allowed for speed

recovery. Overall, patients were satisfied with the aesthetic and functional results. There was no evidence of recurrence at six month follow-up.

5. Conclusion

The pedicled ALT flap is found to be a valuable scientific addition to the restoring scenarios for the restoration in complicated lesions like hidradenitis suppurativa in the groin region.

This flap may be superior to coverage with split thickness graft regarding the longevity, reliability, stability, recurrence rate and cosmetic results.

The pedicled ALT flap is comparatively simple to produce one time the method of perforator flap dissection has been educated. It has a constant blood supply with some exceptions. It has a long pedicle with wide arc of rotation allowing it to reach proximally up to the lower abdomen.

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