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TIDAP Perforator Flap vs Skin Grafting for Axillary Tissue Defects Following Verneuil's Disease Excision: A Case Series of 8 Patients

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Abstract | **Case Series**

***Introduction*:** Hidradenitis suppurativa (HS), also known as Verneuil's disease, is a chronic, suppurative, inflammatory, and scarring disorder of the pilosebaceous follicles, primarily affecting apocrine gland-rich regions such as the axillae. In advanced stages, treatment relies on wide surgical excision of the affected area. Post-excisional reconstruction remains challenging, with options including split-thickness skin grafting (STSG) and perforator flaps, particularly the thoracodorsal artery perforator (TIDAP) flap, which offers functional and aesthetic advantages. ***Materials and Methods*:** This retrospective study was conducted over a 3-year period and included 8 patients (5 men and 3 women) with severe axillary hidradenitis suppurativa. All patients underwent wide surgical excision, followed either by reconstruction with a split-thickness skin graft (n=4) or a TIDAP perforator flap (n=4). Intraoperative data, healing time, postoperative complications, and patient satisfaction were compared between the two groups. ***Results*:** Patients reconstructed with the TIDAP flap experienced significantly faster recovery, single-stage healing, lower rates of infectious complications, and reduced postoperative care needs. In contrast, the skin graft group required longer immobilization, experienced slower directed healing, and had more frequent complications, including dehiscence and superinfection. Functional and aesthetic satisfaction was also higher in the TIDAP group. ***Conclusion*:** Reconstruction of axillary defects following Verneuil's disease excision can be achieved using several techniques. While split-thickness skin grafting remains a simple option, it carries increased risks of complications and prolonged healing time. Although technically demanding, the TIDAP perforator flap offers a reliable, rapid, and durable alternative, providing better postoperative comfort and functional recovery.

Keywords: Verneuil's Disease – Hidradenitis Suppurativa – Axillary Region – TIDAP Perforator Flap – Split-Thickness Skin Graft – Surgical Reconstruction – Plastic Surgery.

INTRODUCTION

Hidradenitis suppurativa (HS), also known as Verneuil's disease, is a chronic, inflammatory, suppurative, and scarring dermatosis of the pilosebaceous follicles. First described by Velpeau in 1833 and later characterized by Aristide Verneuil in 1854, the disease preferentially affects apocrine gland-rich areas, such as the axillary, inguinal, perineal, and submammary regions [1, 2]. Clinically, it manifests as painful inflammatory nodules progressing to abscesses, suppuration, fistulas, and, in advanced stages, the formation of subcutaneous sinus tracts and fibrotic scars [3, 4].

Often debilitating in daily life, the disease significantly impacts patients' quality of life and requires multidisciplinary management, including lifestyle and hygiene optimization, prolonged antibiotic therapy, and in advanced cases, radical surgical excision [5]. When excision encompasses the entire inflammatory plaque, it results in substantial tissue loss, particularly in the axillary folds, making reconstruction a surgical challenge.

Several strategies have been proposed for post-excisional cutaneous reconstruction. Directed healing is a classic option but involves a prolonged healing period (>2 months), chronic pain, and a high risk of postoperative contractures [6]. Split-thickness skin grafting (STSG) is widely used due to its simplicity, but it does not always shorten healing time, requires strict immobilization, and carries a non-negligible risk of infection and graft failure [7]. To address these limitations, cutaneous or fasciocutaneous flaps, particularly perforator flaps such as the thoracodorsal

artery perforator (TIDAP) flap, have been introduced. These provide single-stage coverage with improved functional and aesthetic outcomes and better patient tolerance [8].

In this context, choosing the most appropriate reconstruction technique remains a therapeutic challenge, both technically and functionally. The objective of this study was to compare, through a case series of 8 patients, the outcomes of split-thickness skin grafts versus TIDAP perforator flaps in the reconstruction of axillary tissue defects following radical excision of advanced Verneuil's disease.

Materials and Methods

I. Study Type and Patient Population

This retrospective, observational, single-center study was conducted in the Department of Plastic and Reconstructive Surgery at the Ibn Sina University Hospital in Rabat, Morocco, from January 2022 to December 2024. Eight patients (3 women and 5 men) with advanced axillary hidradenitis suppurativa were included. All patients had a confirmed diagnosis of HS, classified as Hurley stage III (Figure 1) [3], and presented with extensive lesions, including inflammatory nodules, fistulas, sinus tracts, and fibrotic scar zones, requiring radical surgical excision.

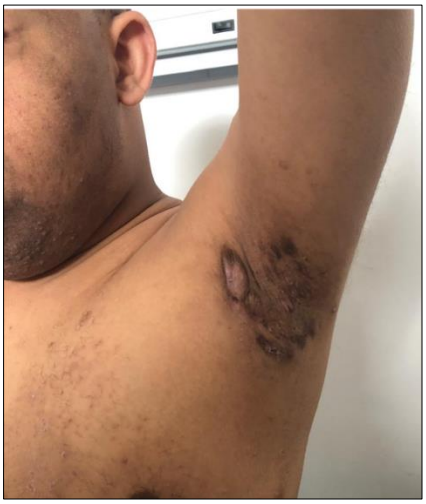

Figure 1: Hurley Stage III

II. Inclusion and Exclusion Criteria

The inclusion criteria were as follows:

- Clinically confirmed diagnosis of stage III axillary hidradenitis suppurativa.
- Complete and usable medical records.
- Postoperative follow-up of at least 6 months.

The Exclusion Criteria Were:

- Incomplete or non-exploitable medical records.
- Loss to follow-up before 6 months.
- Patients who had undergone reconstruction using a different type of coverage.

III. Surgical Management

All patients underwent a wide excision of the inflammatory plaque, with en bloc resection of both superficial and deep affected tissues, including fistulous areas and subcutaneous tunnels. The coverage of the resulting substance loss was achieved using two distinct techniques:

- **Split-thickness skin graft (n = 4):** Performed in a single operative session following complete excision. A compressive dressing was applied, and strict immobilization was maintained for 5 to 7 days.
- **Thoracodorsal artery perforator (TIDAP) flap (n = 4):** Harvested based on classical anatomical landmarks, using a musculocutaneous perforator of the thoracodorsal pedicle, allowing single-stage cutaneous coverage (Figures 2–7) [8].

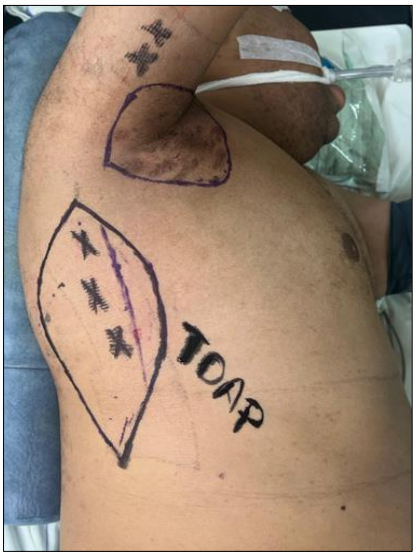

Figure 2: Identification of TIDAP perforators

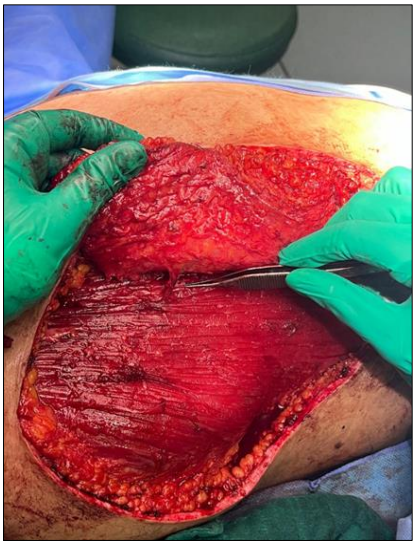

Figure 3: Selected perforating artery used for the TIDAP flap.

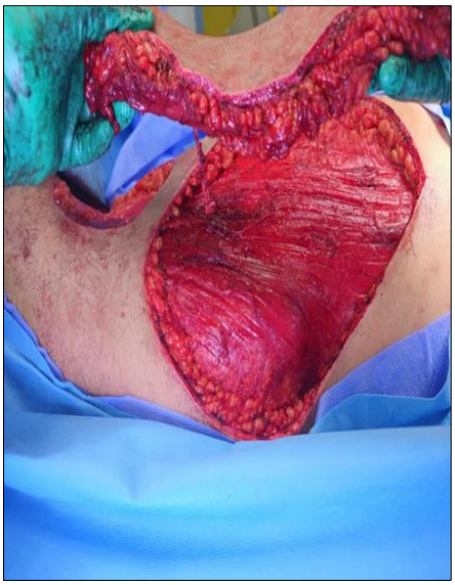

Figure 4: Elevation of the TIDAP flap based on its perforator.

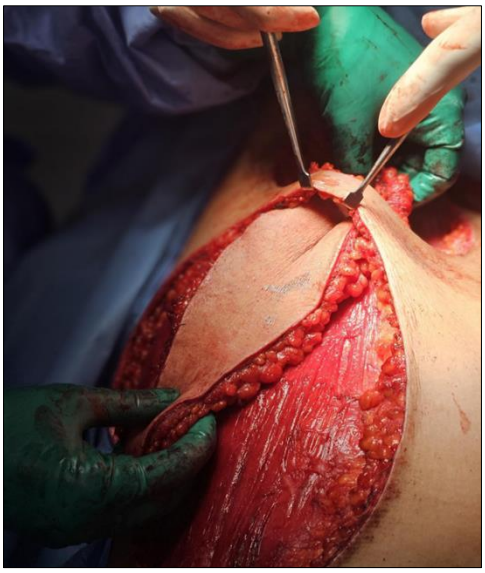

Figure 5: Tunneling of the flap

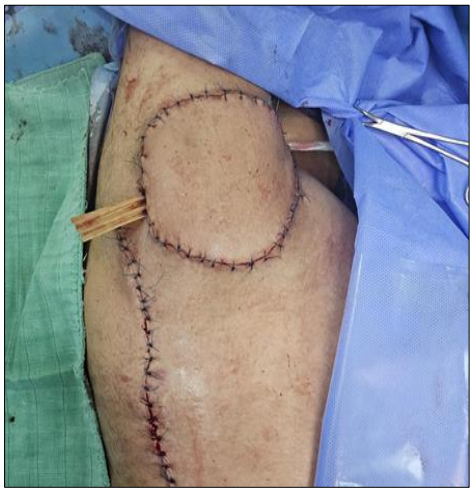

Figure 6: Flap fixation in the axillary defect

Figure 7: Postoperative appearance at day 15.

IV. Data Collection

The data were collected from hospital records using a standardized data collection form. The variables analyzed included:

- Epidemiological data (age, sex, medical history, body mass index),
- Clinical data (site of involvement, duration of disease progression, Hurley stage),
- Operative details (duration of surgery, type of reconstruction),
- Postoperative course (time to complete healing, complications, length of hospital stay, number of postoperative care sessions),
- Level of functional and aesthetic satisfaction, assessed at 6 months using a simplified questionnaire.

V. Data Analysis

A descriptive comparison was performed between the two groups (split-thickness skin graft vs TIDAP flap) in terms of postoperative outcomes, complications, and functional comfort. The results were compared to recent literature data [4-8].

RESULTS

This study included 8 patients with severe axillary hidradenitis suppurativa, with a mean age of 36.5 years (range: 22–49 years). The disease was bilateral in 5 patients and unilateral in 3. In bilateral cases, excision and reconstruction were performed during the same surgical procedure.

a. Hospital Stay and Healing Time

The mean hospital stay was significantly shorter in the TIDAP flap group (10 days) compared to the split-thickness skin graft group (15 days). The average time to complete healing was 5 weeks in the TIDAP group and 10 weeks in the graft group. These findings are consistent with existing literature reporting faster recovery and

reduced postoperative convalescence following flap reconstruction [5-8].

b. Postoperative Complications

In the TIDAP group (n=4):

- One patient presented with a partial wound dehiscence, which healed through directed healing.
- Another patient experienced a complete necrosis of the flap, requiring secondary surgical revision.
- No recurrence was observed in this group.

In the split-thickness skin graft group (n=4):

- Two patients experienced partial graft failure, one of whom developed a complete graft lysis, necessitating prolonged directed healing (Figure 8).
- One patient developed a functionally impairing axillary scar contracture (Figure 9).

Figure 8: Partial failure of the skin graft

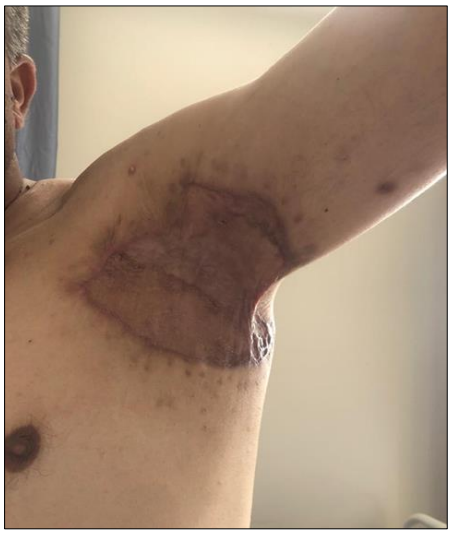

Figure 9: Axillary contracture following split-thickness skin grafting.

c. Quality of Outcomes

From both aesthetic and functional perspectives, outcomes were overall superior in the TIDAP flap group, with preserved axillary mobility, better scar quality, and fewer reports of chronic pain. These findings are consistent with several published series highlighting improved tissue integration, reduced risk of contractures, and faster functional recovery with perforator flaps [4-8].

In contrast, the donor site of the TIDAP flap did not result in any functional complaints or residual pain. On the other hand, the donor site for skin grafts (thigh) was associated with postoperative pain in 3 patients and unaesthetic scarring in 2 patients.

d. Patient Satisfaction

Overall satisfaction, assessed at 6 months using a simple rating scale from 0 to 10, was on average:

- 8.5/10 in the TIDAP flap group,
- 6/10 in the skin graft group.

These results support the value of the TIDAP flap as a reliable and functionally effective reconstructive option for axillary defects following excision of advanced Verneuil's disease. They also align with published literature underscoring the superior performance of perforator flaps in terms of healing, complications, and patient satisfaction [5-8].

DISCUSSION

Hidradenitis suppurativa (HS), or Verneuil's disease, is a chronic inflammatory disorder of the apocrine sweat glands, characterized by suppuration and fistula formation that deeply impacts patients' quality of life [2, 3]. In advanced stages (Hurley stage III), wide surgical excision remains the only recognized curative treatment, provided it encompasses all affected tissues, including apocrine glands and fistulous tracts [9]. However, the optimal management of the resulting tissue defects remains debated.

Various options have been proposed in the literature, including directed healing, split-thickness skin grafting, or the use of cutaneous or perforator flaps [10, 11]. While some authors, such as Morgan *et al*., [10], and Banerjee [13], have advocated for directed healing to avoid complications related to grafting, this approach is lengthy, painful, and carries a significant risk of contracture, especially in functional areas such as the axillae. Other authors recommend skin grafting, which may allow for faster wound closure but requires strict immobilization for approximately 10 days. This constraint is often poorly tolerated by patients and impairs shoulder mobility, while also complicating bilateral simultaneous reconstruction [7-13].

In our study, patients treated with split-thickness skin grafts experienced a notable rate of

complications (partial or total graft failure, contractures, donor-site pain) and a recurrence rate of 33%, corroborating the data of Banerjee and Wormald [13,12]. The latter, in a comparative study involving 27 patients, clearly demonstrated the superiority of TDAP perforator flaps over grafts in terms of postoperative recovery, complication rates, long-term quality of life, and recurrence prevention.

Conversely, reconstruction using the thoracodorsal artery perforator (TIDAP) flap proved to be more reliable in our series. Although pedicle dissection is technically demanding and the operative time is longer, TIDAP allows for single-stage reconstruction, preserved axillary mobility, and superior aesthetic outcomes due to the morphologic similarity between donor and recipient site skin [8-12]. Donor site morbidity remained low in our series, especially since the harvested areas were glabrous and healthy, minimizing any risk of transposing diseased pilosebaceous units.

Our study also demonstrated a significant reduction in hospital stay and recovery time in the TIDAP group. Postoperative follow-up was shorter, and no cases of recurrence were observed. Patient satisfaction scores at 6 months were clearly higher in the flap group, reflecting a real improvement in quality of life.

These findings are consistent with existing literature and further support the current trend favoring perforator flaps for reconstruction of axillary tissue loss in advanced HS. Although technically more demanding, they provide superior outcomes overall—functionally, aesthetically, and psychologically.

Conclusion

Advanced-stage axillary hidradenitis suppurativa is a chronic, painful, and highly disabling condition, both functionally and psychosocially. In this context, patients are generally willing to undergo radical surgical treatment, sometimes extensive, in the hope of a lasting improvement in their quality of life. Wide surgical excision remains the treatment of choice in severe forms, provided it is followed by an appropriate method of reconstruction.

The results of our series, although based on a small sample size, clearly support the use of the thoracodorsal artery perforator (TIDAP) flap for the reconstruction of axillary tissue defects following wide excision, compared to split-thickness skin grafting. TIDAP enables single-stage reconstruction, with reduced morbidity, better preservation of function, and greater patient satisfaction—both aesthetically and psychologically—as confirmed by several studies in the literature [8-12].

This strategy not only shortens the recovery period, but also minimizes complications, the need for secondary interventions, and overall treatment costs. It is particularly well suited to young, active patients who are significantly affected by the disease.

Nevertheless, larger-scale, ideally randomized studies are still needed to confirm these findings and establish clear recommendations for the optimal surgical technique in the management of extensive Verneuil's disease.

Based on our experience and the current literature, we recommend the TIDAP perforator flap as the reconstructive technique of choice for axillary repair following radical excision in severe hidradenitis suppurativa.

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