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Axillary Hidradenitis Suppurativa: A Comparison between Two Perforator Flap Reconstructive Approaches after Radical Surgical Management

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Background: Axillary hidradenitis suppurativa (HS) can result in significant functional impairment in both personal and professional lives. Stage 3 HS requires radical surgical treatment. Flap reconstruction allows for faster healing and better functional and aesthetic outcomes. We compared the results of thoracodorsal artery perforator (TDAP) and propeller inner arm artery perforator (IAAP) flap reconstructions after radical surgical treatment of axillary HS.

Methods: We conducted a retrospective study that included 13 consecutive patients who underwent stage 3 axillary HS treatment between August 2015 and January 2023. Seven patients underwent reconstruction by islanded TDAP flaps, whereas six patients underwent reconstruction by propeller IAAP flaps, with one patient undergoing bilateral reconstruction. The data collected from the patient records included age, gender, smoking status, body mass index, comorbidities, operative time, defect size, flap size, hospital stay, and complications.

Results: Although not statistically significant ($P = 0.1923$), a higher rate of flap complications is reported here with propeller IAAP flaps (42.86 %), whereas islanded TDAP flaps had no flap complications (0%). We found a statistically significant difference in operative time ($P = 0.0006$), defect size ($P = 0.0064$), and flap size ($P = 0.0012$) between the two groups. All patients exhibited satisfactory functional and aesthetic outcomes. Fourteen flaps were performed in total; only one case exhibited recurrence (7.14%).

Conclusion: After radical surgical management, both islanded TDAP and propeller IAAP flap reconstructions offer excellent outcomes for stage 3 axillary HS. We strongly encourage our peers to consider performing perforator flaps over secondary healing for these patients with a major functional impairment. *(Plast Reconstr Surg Glob Open 2023; 11:e5301; doi: 10.1097/GOX.0000000000005301; Published online 6 October 2023.)*

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INTRODUCTION

Hidradenitis suppurativa (HS) is a chronic inflammatory skin condition that affects the follicular portion of the folliculopilosebacous unit.[1] The exact pathogenesis of this disease has yet to be fully understood. Although early theories implicated apocrine glands, recent evidence suggests that the follicular portion of the folliculopilosebacous unit, after follicular occlusion, is the primary factor involved.[2–5]

Numerous factors have been associated with the development or exacerbation of HS, including smoking, genetics, hormones, obesity, and increased mechanical strain, such as friction and pressure.[5–12] HS predominantly affects intertriginous skin regions such as the axilla, inguinal, perineal, and perianal regions, and mammary and inframammary areas.[13,14] Clinically, the disease manifests as recurrent painful inflammatory nodules and

Disclosure statements are at the end of this article, following the correspondence information.

abscesses, followed by the formation of skin tunnels and severe scarring, significantly impacting the patient's quality of life.[15,16]

The Hurley clinical staging system was developed to categorize the disease based on its clinical severity, consisting of three stages. Stage 1 involves the formation of abscesses, which can be isolated or multiple, without skin tunneling or scarring. Stage 2 is characterized by recurrent abscess formation with skin tunneling and scarring, isolated or multiple. Stage 3 refers to the diffuse, recurrent formation of multiple abscesses with severe interconnected skin tunneling, scarring, and deformity that affects nearly the entire affected area.[17]

The management approach for HS depends on disease severity, impact on quality of life, control of risk factors (primarily smoking status), and the patient's condition. For less severe stages, antibiotic treatments can provide partial control.[18–22] Biotherapies such as infliximab, adalimumab, and etanercept have demonstrated effectiveness. Still, their high cost and serious side effects limit their use for moderate to severe inoperable cases due to the risk of relapse and recurrence after treatment cessation.[23–32] For severe recurrent forms, radical surgery is the standard treatment, involving extensive resection of all affected cutaneous tissue and appendages. This results in a significant wound defect, which can be managed through secondary healing, skin graft, or flap reconstruction. Flap reconstruction, in particular, has gained recognition as an appealing, effective, and minimally morbid alternative.[33] Among the options for pedicled fasciocutaneous flaps, various alternatives exist, including the thoracodorsal artery perforator (TDAP), circumflex scapular artery perforator, serratus anterior thoracic artery, lateral thoracic artery perforator, lateral intercostal artery perforator, inner arm artery perforator (IAAP), and posterior arm artery perforator flaps.[34–40] In severe cases with extensive defects, some authors have reported the utilization of free flaps, such as the deep inferior epigastric artery perforator flap.[41] However, the outcomes of these various techniques are not yet well-established, and no technique has emerged as the optimal solution. To address this question, we conducted a retrospective study comparing the outcomes of islanded TDAP flap and propeller IAAP flap reconstructions after radical surgical treatment of axillary HS (Figs. 1 and 2).

MATERIAL AND METHODS

Study Design

We report our experience with 13 consecutive patients who underwent treatment for axillary HS between August 2015 and January 2023 in our department of plastic and reconstructive surgery. All patients were addressed by the dermatology department after prolonged medical treatment failure. Multidisciplinary discussions preceded all procedures to establish a global management plan. The senior author (N.B.) performed wide local excision and immediate ipsilateral flap reconstruction for all patients. All patients signed an informed consent before surgery.

Takeaways

Question: We explored whether thoracodorsal artery perforator (TDAP) or inner arm artery perforator (IAAP) flap provides better outcomes in reconstructing the axillary fold after radical treatment of stage 3 hidradenitis suppurativa (HS).

Findings: This retrospective study compared seven islanded TDAP and seven propeller IAAP flaps and showed a higher rate of flap complications in the IAAP group despite smaller flap sizes.

Meaning: Both flap approaches are excellent options for axillary reconstruction after radical HS surgery and should be preferred to secondary healing, and TDAP flaps could provide better results.

Data from the patient records included information on age, gender, smoking status, body mass index (BMI), comorbidities, operative time, defect size, flap size, hospital stay, and complications.

Ethics Approval Statement

The study adhered to all relevant tenets of the Declaration of Helsinki (1964) and the French bioethics laws that came into effect on July 7, 2011.

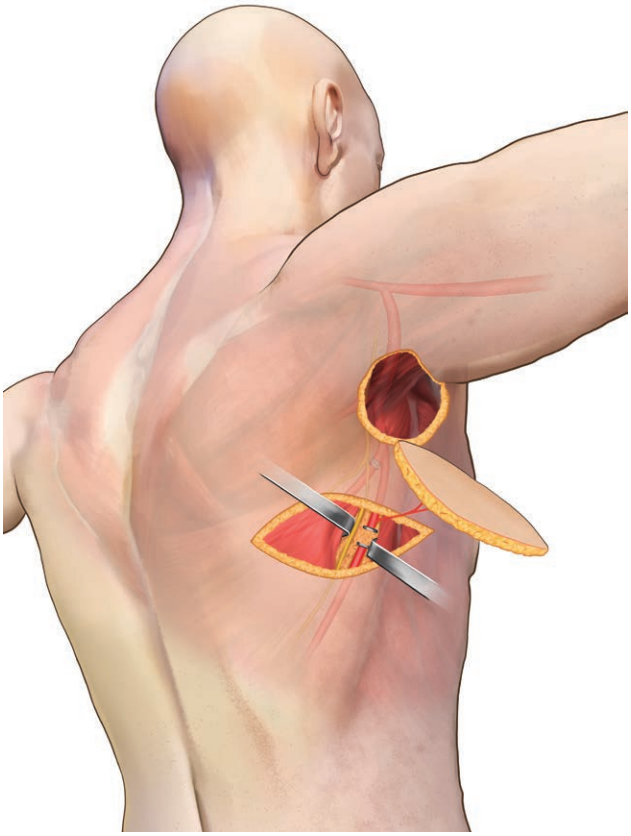

Fig. 1. Illustration of an islanded TDAP flap dissected in full thickness and ready to be placed in the axillary fold.

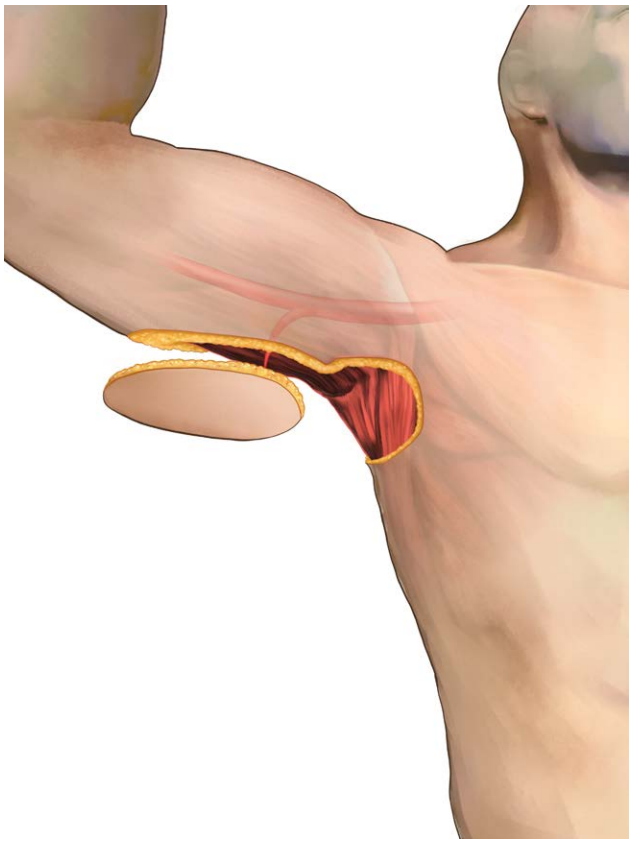

Fig. 2. Illustration of a propeller IAAP flap used for axillary fold reconstruction.

Surgical Technique

The procedure was performed under general anesthesia in supine position with the arm abducted at 90 degrees for the IAAP flap and lateral decubitus position for the TDAP flap. To facilitate the procedure, the entire upper limb was draped in a sterile manner to allow full mobilization.

The initial surgical step involved performing a wide local excision of HS. To ensure complete removal of the disease, careful clinical examination established the excision margins based on clinical inspection and palpation. Additionally, a diluted blue dye (Bleu patenté V 2.5%, Guerbet, Villepinte, France) was locally injected into fistulas peroperatively. This marker helped accurately determine the extent of HS excision subcutaneously. After that, the reconstruction of the defect was performed by a perforator flap. Perforator vessels were identified with an 8-MHz acoustic handheld Doppler (Hadeco ES 100 VX).[42–44] Preoperative design was based on the location of these perforators and adapted intraoperatively. We used an elliptical skin flap allowing primary closure of the donor site, oriented in the direction of the perforasome.

A.Islanded TDAP Flap Harvesting

A preoperative examination and marking were carried out on the standing patient. To identify the appropriate anatomical landmarks, the lateral border of the latissimus dorsi muscle and the inferior angle of the scapula were outlined following arm adduction against resistance. A handheld ultrasound-Doppler device was used to locate and mark the perforators, typically found approximately 8 cm inferior to the posterior axillary fold and 2 cm medially to the lateral border of the latissimus dorsi muscle. Perforator positions were confirmed using the same handheld ultrasound-Doppler device after the surgical HS excision, before starting the flap dissection.

For the TDAP flap, designed as an islanded flap, the skin paddle was created with the perforators centrally located and adjusted based on the defect size (Fig. 3A). The orientation of the skin paddle could be horizontal or oblique, depending on the precise location of the vessels found during dissection. A 5 to 7-cm incision at the lateral aspect of the skin paddle allowed for careful subcutaneous dissection to confirm the presence of the previously marked vessels. Once identified, the perforators were isolated, and the skin paddle was harvested (Fig. 3B, C); intramuscular dissection and skeletonization of the perforators were performed (Fig. 3C) until reaching the thoracodorsal artery. The thoracodorsal nerve was separated from the vessels and cautiously preserved. Vascular clips were applied to the descending and transverse branches of the thoracodorsal artery to facilitate safe flap mobilization. TDAP flaps were raised on one or two perforator vessels and transposed as an island flap into the axillary region, passing through a cleft within the latissimus dorsi muscle. Drains were placed at the donor and recipient sites, and padding stitches could match the axillary fold's contours. The flap was sutured using 3-0 nonabsorbable sutures in a single layer of Skoog stitches. The donor site was closed with absorbable sutures in three planes (Fig. 3D).

B.Propeller IAAP Flap Harvesting

A preoperative examination and marking were also conducted with the patient standing (Fig. 4A). A line was drawn from the midaxillary point to the medial epicondyle to guide the flap design. The handheld ultrasound-Doppler device identified and marked perforators within the proximal medial third of the arm. These perforators typically originate from the brachial artery, although they can rarely arise from the superior ulnar collateral artery.[38,45]

After excision of the HS, confirmation of perforator positions was performed. The IAAP flap was designed as a propeller perforator flap with an eccentric skin paddle positioned to the vessels. A 5-cm incision on the inferior edge of the skin paddle allowed for careful subcutaneous dissection and visual confirmation of the perforator presence. Once the vessels were identified and isolated, the propeller flap was harvested from distal to proximal in the subfascial plane (Fig. 4B, C).

The flap was then rotated at a 90-degree angle clockwise or counterclockwise. Wound closure was performed after drain placement, similarly to the TDAP technique (Fig. 4D).

For the two techniques, intraoperative indocyanine green fluorescence angiography using the Novadaq PINPOINT system (Stryker, Kalamazoo, Mich.) was used to ensure sufficient blood perfusion of the flap at the end of the operation.

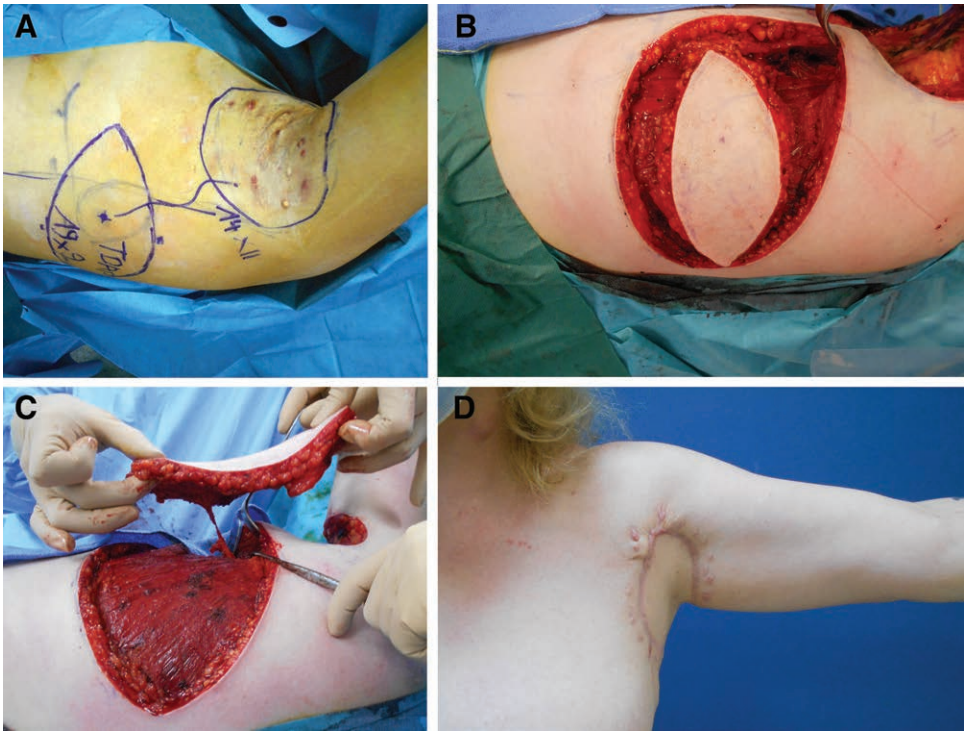

Fig. 3. Stage 3 axillary HS in a 32-year-old woman. A, Preoperative markings of the wide axillary excision and the TDAP flap with a perforator located centrally to the skin paddle. B, The TDAP flap is harvested at full thickness, and the intramuscular dissection is minor. C, The flap is harvested on a single perforator after intraoperative indocyanine green angiography confirmation of the flow. D, No complication occurred, and the patient was fully healed with a good functional outcome at the 6-month follow-up visit.

Postoperative Care

All patients wore a custom splint to maintain the shoulder in 90-degree abduction, except for one patient who received bilateral reconstruction. The splint was designed with a window to allow continuous monitoring and minimize compression risks associated with the flap. Patients received subcutaneous low-molecular-weight heparin for 15 days after surgery. In the postoperative course, patients were monitored hourly on the first 2 days, then three times a day until the end of the first week. This thorough monitoring allowed for early detection and potential revision procedures. The skin flap was checked on the following elements: color, heat, and skin flexibility. Drains were removed when collecting less than 20 mL per 24 h. All patients underwent a clinical assessment on postoperative day 14 to identify potential minor complications and ensure proper healing. If no complications were detected during this follow-up visit, the splint was removed, and patients were instructed to start physiotherapy.

Data Collection

Data from the patient records included information on age, gender, smoking status, BMI, comorbidities, operative time, defect size, flap size, hospital stay, and complications.

Statistical Analysis

All data were recorded in Microsoft Excel version 16.66 for MacOS (Microsoft Corp., Redmond, Wash.) and subsequently transferred to PRISM version 9.5.1 (GraphPad Software, San Diego, Calif.) for statistical analysis. A descriptive analysis of all data was first carried out, and a comparison of TDAP and IAAP flap groups was made using the Mann-Whitney test for quantitative variables and Fisher exact test for qualitative variables.

RESULTS

Thirteen patients with stage 3 axillary HS and 14 flaps (seven TDAP and seven IAAP) were reported. One patient had bilateral reconstruction with IAAP flaps. The mean follow-up was 45.92 ± 36.16 months (range 4–90 months). Characteristics of all patients and flaps are included in Table 1. There were nine women and four men, with a mean BMI of 30.2 ± 5.8. The mean age was 33.6 ± 9.5 years, and 53.85% of patients were smokers. The mean size of the defect was 156 ± 85.5 cm^2, the mean length of the skin paddle was 117 ± 48 cm^2, the mean operative time was 160 ± 48 minutes, and the mean hospital stay was 8 ± 4 days.

Total complication rate was 42.86% (21.43% for TDAP and 21.43% for IAAP flap groups). In total, 21.43% of flaps experienced at least one complication (0% for TDAP and 42.86% in IAAP flap groups). At 1-year postoperative, the recurrence rate was 7.14%.

The average operative time for the TDAP group (Table 2) was 201 ± 22 minutes. The mean defect size was 211 ± 92 cm^2, and the mean flap size was 155 ± 38 cm^2. The hospital stay averaged 6 ± 1 days. In this group,

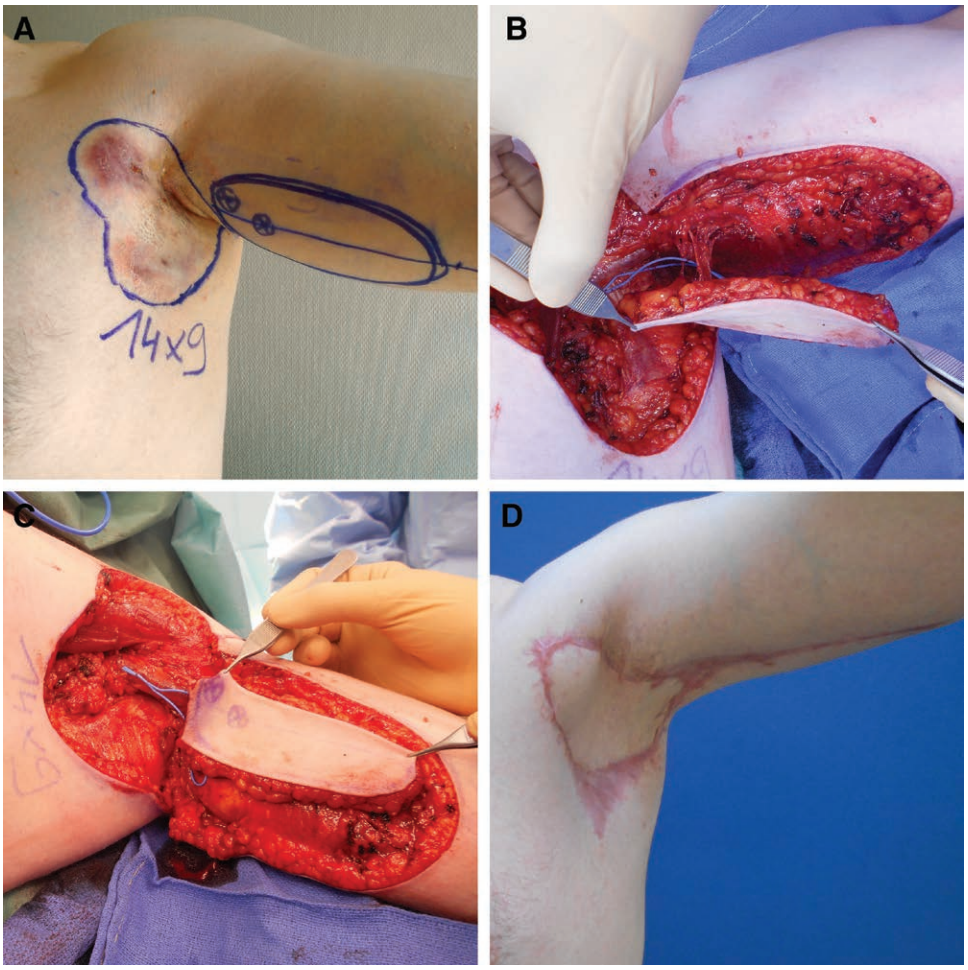

Fig. 4. Stage 3 HS in a 32-year-old man. A, The IAAP propeller flap was designed after a Doppler-ultrasound assessment of the perforator vessels. B, Intraoperative visualization of the perforator vessels. C, A full incision of the flap's skin paddle allows for easy rotation on the recipient defect. D, Good functional outcome was assessed at the 3-month follow-up visit.

Table 1. Patient and Flap Characteristics for the Whole Study Population

Case	Gender	Age 33.6 ± 9.4	BMI 30.2 ± 5.8	Smoking Status	Operative Time (min) 160 ± 48	Defect Size (cm^2) 156 ± 85	Flap Size (cm^2) 117 ± 48	Hospital Stay (d) 7.5 ± 4	Type of Flap
1	F	32	31.14	No	234	333.25	171	5	TDAP
2	F	24	22.65	No	188	165	128	7	TDAP
3	F	47	22.26	No	191	100	91	5	TDAP
4	M	40	29.08	Yes	225	308	210	6	TDAP
5	M	45	26.31	Yes	180	270	170	7	TDAP
6	F	42	30.43	Yes	210	176	171	8	TDAP
7	F	40	30.51	Yes	180	126	144	7	TDAP
8	M	39	38.06	Yes	130	100	100	6	IAAP
9	F	27	28.03	No	100	100	80	7	IAAP
10	F	28	43.82	Yes	120	104	84	19	IAAP
11*	F	15	33.2	No	100	98	78	12	IAAP
12*	—*	—*	—*	—*	90	84	78	—*	IAAP
13	M	32	28.39	No	145	140	84	4	IAAP
14	F	26	28.65	Yes	150	84	52	4	IAAP

*The same patient who underwent bilateral wide local excision and bilateral reconstruction with IAAP flaps.

all flaps except one were raised on a single perforator, whereas one flap utilized two perforators that joined intramuscularly. In this group, no flap complications occurred.

One patient experienced a donor site hematoma, requiring reoperation on postoperative day 1. Another patient presented with a donor site dehiscence managed with

Table 2. Patient and Flap Characteristics in the TDAP Group (n = 7)

Case	Gender	Age 39 ± 7	Smoking Status	BMI 27.5 ± 4	Comorbidities	Operative Time (min) 201 ± 22	Defect Size (cm^2) 211 ± 92	Flap Size (cm2) 155 ± 38	No. Perforators	Hospital Stay (d) 6 ± 1	Total Complications	Flap Complications
1	F	32	No	31.14	—	234	333	171	1	5	Partial donor site dehiscence	—
2	F	24	No	22.65	—	188	165	128	1	7	—	—
3	F	47	No	22.26	—	191	100	91	1	5	—	—
4	M	40	Yes	29.08	—	255	308	210	2	6	Recurrence	—
5	M	45	Yes	26.31	—	180	270	170	1	7	Hematoma	—
6	F	42	Yes	30.43	—	210	176	171	1	8	—	—
7	F	40	Yes	30.51	Epilepsy	180	126	144	1	7	—	—

Table 3. Patient (n = 6) and Flap (n = 7) Characteristics in the IAAP Group

Case	Gender	Age 28 ± 8	Smoking Status	BMI 33.4 ± 6	Comorbidities	Operative Time (min) 119 ± 23	Defect Size (cm^2) 101 ± 19	Flap Size (cm^2) 79 ± 14	No. Perforators	Hospital Stay (d) 9 ± 6	Total Complications	Flap Complications
1	M	39	Yes	38.06	Asthma hypertension	130	100	100	2	6	—	—
2	F	27	No	28.03	Epilepsy	100	100	80	3	7	—	—
3	F	28	Yes	43.82	—	120	104	84	1	19	Complete flap necrosis	Complete flap necrosis
4	F*	15	No	33.2	—	100	98	78	2	12	Partial flap necrosis	Partial flap necrosis
5	F*	—	—	—	—	90	84	78	1	—	Partial flap necrosis	Partial flap necrosis
6	M	32	No	28.39	—	145	140	84	2	4	—	—
7	F	26	Yes	28.65	—	150	84	52	1	4	—	—

*The same patient who underwent bilateral wide local excision and bilateral reconstruction with IAAP flaps.

secondary healing. Additionally, one patient experienced recurrence after a 3-month follow-up, which manifested as a solitary nodule and abscess formation next to the lateral edge of the flap scar. Revision surgery was performed, resulting in complete healing.

In the IAAP group (Table 3), the mean operative time was 119 ± 23 minutes. The mean defect size was 101 ± 19 cm^2, and the mean flap size was 79 ± 14 cm^2. The hospital stay averaged 9 ± 6 days. Venous congestion is common in propeller flaps; in this case, three flaps were affected. Leech therapy was used as a treatment for this condition. One of these patients had a complete IAAP flap necrosis, which was managed through debridement and secondary wound healing. Two flaps (in one patient) exhibited partial necrosis, specifically at the distal tip of the skin paddle. No cases of recurrence were reported.

Regarding functional outcomes, all patients in the study showed favorable results, with no restricted shoulder range of motion observed during the follow-up visits (Fig. 5), except for one patient in the IAAP flap group, who experienced total flap necrosis. In this case, the secondary healing led to scar contracture, which required prolonged physiotherapy for management.

Comparison of the groups (Table 4) showed a statistical difference in age (P = 0.0379), operative time (P = 0.0006), defect size (P = 0.0064), and flap size (P = 0.0012). No statistical difference was found in smoking status (P > 0.99), BMI (P = 0.2343), hospital stay (P > 0.99), or total and flap complications (P > 0.99 and P = 0.1923, respectively).

DISCUSSION

HS is a disabling condition, and Hurley stage 3 involvement of the axillary region results in severe upper limb functional impairment in both personal and professional aspects. Wide excision has become the established surgical management approach for these cases due to its demonstrated low recurrence rate.[46–48] The reconstruction of the resulting axillary defect should prioritize improving the functional outcome for the patients. Although traditional techniques such as secondary intention healing or skin grafts offer the advantage of low skill requirements and short operative times, they are associated with prolonged postoperative healing. They can result in scar contracture, leading to secondary functional impairment (limitation of arm abduction). On the other hand, perforator flaps present a novel option for reconstructing the axillary defect. Although they require longer operative times and greater surgical skills, they offer shorter postoperative healing

Fig. 5. Stage 3 HS in a 47-year-old woman. A, Preoperative view of the axillary fold with extended skin tunnels. B–D, Postoperative outcomes at 6 months show no evidence of shoulder range of motion restriction. The results also demonstrate a satisfactory aesthetic outcome, which complements the functional improvement achieved, resulting in high patient satisfaction.

Table 4. Comparison of Patient and Flap Characteristics in Both Groups

Group	Gender	Age	Smoking	BMI	Operative Time (min)	Defect Size (cm^2)	Flap Size (cm^2)	Hospital Stay (d)	Total Complications	Flap Complications
TDAP flaps (N = 7)	5 F and 2 M	39±7	4	27.5±4	201±22	211±92	155±38	6±1	3	0
IAAP flaps (N = 7)	4 F and 2 M	28±8	3	33.4±6	119±23	101±19	79±14	9±5	3	3
P value	>0.9999	0.0379	>0.9999	0.2343	0.0006	0.0064	0.0012	>0.9999	>0.9999	0.1923

periods and deliver excellent functional and aesthetic outcomes for the upper limb.[33,37,49]

To our knowledge, our study is the first to directly compare the islanded TDAP flap and propeller IAAP flap for axillary reconstruction after wide local excision in patients with stage 3 HS. All the flaps in our study were performed by a single academic surgeon (N. B.), which helped eliminate interoperator variations. Regarding the demographic comparison between the two small groups, we found a significant age difference, primarily due to one young patient (15 years old) who underwent bilateral excision and bilateral reconstruction using IAAP flaps. However, it is essential to note that age has not been identified as a significant risk factor or confounder in fasciocutaneous flap surgery.[50] Additionally, several studies have demonstrated the safety of using perforator flaps in pediatric patients, supporting the viability of this approach.[51–53] Surprisingly, we found a significant difference in defect size and flap size between the two groups (P = 0.0064 and 0.0012, respectively). This difference could be attributed to the small sample size of our study or to the lack of blinded randomization. It is possible that the choice to perform

a TDAP flap influenced the surgeon's decision to create wider excision margins, as TDAP flaps can accommodate a larger skin paddle compared with IAAP flaps.[54]

In the TDAP group, we did not encounter any cases of flap necrosis, whereas 42.86% of flap complications were noted for IAAP (one complete and two partial flap necroses). We attribute these differences in complication rates to the manner of harvesting flaps. The TDAP flaps were perforator island flaps, with centrally located perforators and long-skeletonized vessels. This design follows the principles of the perforasome theory,[55] resulting in more robust vascularization of the skin paddle. With fewer adjacent territories to cross to perfuse the entire flap, the TDAP flap showed improved vascular supply.

On the other hand, the IAAP flaps were designed as propeller flaps with peripherally located perforators, requiring the crossing of a greater number of perforasomes to ensure perfusion of the entire flap. Moreover, the pedicle is shorter, and the rotation of the flap produces a twist, which is a source of venous suffering. However, despite these differences, we did not find a statistically significant variance in flap complications between the two groups. Nevertheless, possible contributing factors for differing flap complication rates include noncompliance with smoking cessation instructions and higher BMI in case 3 of the IAAP group. In IAAP flaps 4 and 5, partial flap necrosis in bilateral reconstruction was influenced by the absence of a postoperative splint and challenges in adhering to limb positioning instructions. It is worth noting that the close monitoring provided by the nurse team allowed for early leech therapy, leading to the subtotal salvage of those flaps. However, simultaneous bilateral axillary reconstruction was performed at the patient's request, but it is not the department's usual practice. We recommend managing bilateral axillary HS in two stages.

Initially, we used a propeller flap due to more straightforward and faster harvesting. Still, the delicate postoperative management led us to change our strategy by switching to an islanded flap. Islanded flaps are more challenging to dissect but permit more extensive flap harvesting and easier modeling of the flap, which can reach the proximal quarter of the arm. Islanded TDAP flaps became the predominant approach in our institution.

Two studies have demonstrated that both IAAP flaps and TDAP flaps can be designed as perforator advancement flaps. Alharbi et al conducted a study on the application of the inner arm perforator flap in managing axillary HS in 10 patients, involving 12 flaps. In their study, six flaps were designed as V-Y advancement flaps, whereas the others were intended as propeller flaps. The choice of technique depended on the perforator's location on the arm's inner aspect, with a propeller flap being designed if the vessels emerged in the proximal third and a V-Y advancement flap being chosen if it was in the middle third. The study yielded promising results, as no recurrence was observed within the follow-up period (mean 12 months, range 6–21 months). Furthermore, no complications or instances of partial or complete flap necrosis were reported in their study.[38]

La Padula et al conducted a study comparing the efficacy of TDAP flaps (n = 35) versus secondary intention healing (n = 33) after surgical treatment of axillary HS. They performed 35 flaps designed as propeller or advancement flaps (without intramuscular dissection contrariwise to us) over the lateral edge of the latissimus dorsi muscle. They reported one case of partial flap necrosis (distal tip) in the TDAP group, which was managed by a revision surgery for debridement and primary closure. One case required revision surgery for flap debulking. They had no cases of infection or restricted shoulder movement. In contrast, three patients in the secondary intention healing group were treated for infection, and seven patients showed restricted shoulder movement due to scar contracture, which was managed with physiotherapy. Revision surgery was required in 11 cases, with split-thickness skin graft performed on the patient's request to decrease time to healing. All patients in both groups showed complete remission and zero recurrences, with a mean follow-up of 16 months and 18 months for the TDAP and the secondary intention healing groups, respectively.[34]

In a systematic review and meta-analysis conducted by Vaillant et al, they analyzed 36 studies to evaluate the reliability of perforator flaps in the reconstruction of HS defects, with a focus on axillary defects (which accounted for 83.2% of the flaps). The overall recurrence rate after wide excision and reconstruction with a perforator flap was 2.7%. The meta-analysis did not identify any significant difference in the complication rates based on the type of perforator flap used. Specifically, they reported complication rates of 17.1% for TDAP flaps and 16.7% for IAAP flaps.[33]

All studies above confirm our team's findings: surgical management for Hurley grade 3 axillary HS by radical excision offers excellent results with a low recurrence rate (a single patient in our series). A plethora of solutions exists for managing the resulting defect. Secondary intention healing is a possible option with the downside of long healing time, unaesthetic results, scar contracture once healing is achieved, and a higher recurrence rate. Skin grafts offer an intermediate solution. However, depending on the percentage of skin graft survival, it frequently includes a secondary intention healing period that prolongs the healing time.

Moreover, secondary contracture could lead to shoulder range of motion restriction. Fasciocutaneous flaps are progressively becoming more prominent, as additional studies continue to exhibit their excellent functional and aesthetic outcomes, in addition to their shorter postoperative healing time and low morbidity. However, they require longer operative time.

We found both TDAP and IAAP flaps to be valid options for reconstructing the resulting axillary defect. For the above reasons, our choice is now preferentially for TDAPs in the first intention. However, several limitations exist in this study, such as the small number of patients included, the monocentric design, and the absence of randomization. Future prospective randomized and meta-analytic studies are required to resolve this issue.

CONCLUSIONS

Both TDAP and IAAP flaps are adequate solutions for reconstruction after radical surgical management of

axillary stage 3 HS. The reconstructive technique should be based on individual patient factors, surgeon expertise, and patient preferences to achieve optimal functional outcomes and aesthetic results and minimize complications. We strongly encourage our peers to consider performing perforator flaps over secondary healing for these patients with significant functional impairment.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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