IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 21, Issue 6 Ser.8 (June. 2022), PP 22-27
www.iosrjournals.org

TDAP Flap – As A Surgical Treatment Of Severe Hidradenitis Suppurativa Axilla

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Aims & objectives: *Hidradenitis Suppurativa (HS) is a chronic, inflammatory disease affecting the apocrine glands of the axillary, groin and mammary regions with significant physical and psychosocial sequelae Surgical excision of the affected tissue is the gold standard. we present our experience in the operative management of severe hidradenitis suppurativa axilla with radical excision and immediate reconstruction with Thoracodorsal artery perforator flap and analyze the results of the treatment..*
Methods*: Over 4 years, we enrolled 5 patients with HS of the axilla who underwent surgical excision with reconstruction with TDAP flap reconstruction . We evaluated intraoperative and post-operative data, quality of life , pain/discomfort before and after surgery.All patients were operated under general anaesthesia.*
Results*: Patients who underwent TDAP flap reconstruction had significantly faster recovery, fewer complications . All patients reported an improved quality of life, a reduction in pain/discomfort.*
Conclusion: *The use of TDAP flap as an option in the treatment of extensive axillary HS, after radical excision as it has good quality skin, anatomic proximity to axilla., no restriction of arm abduction ,has fewer post-operative complications, necessitates shorter follow-up.*
Key words*: hidradenitis suppurativa; TDAP flap;Reconstruction of the axilla,GENERAL ANASTHESIA*

Date of Submission: 14-06-2022 Date of Acceptance: 29-06-2022

I. Introduction:

Hidradenitis suppurativa (HS)/ Acne inversa / Apocrinitis/ Verneuil's disease /HS is a chronic, relapsing suppurative cutaneous disease affecting skin that bears apocrine glands in groin, axilla mammary regions 1,2 and is manifested by inflammatory follicular nodules, papules ,pustules, painful abscesses, fistulating sinus tracts, *with malodorous discharge leading to considerable physical and psychosocial effects on patients' daily life.3-6,27* and chronic infection leading to scarring. .The etiology is still poorly understood.There is genetic component with probable hormonal influence on gene expression.shearing forces from obesity & tight clothing contribute to its development.

Prevalence of HS is 1%,predominantly affecting females ,with Female to male ratio is 3:1.

Manifesting after puberty, usually in the second or third decade of life. It is rare in the elderly. The risk factors are metabolic syndrome, Family history (approximately 30%). Hyperandrogenism in women & obesity & Cigarette smoking. Smoking & obesity do not seem to affect progression of disease.7-11.The treatment of axillary HS can broadly be divided into medical and surgical. Medical treatments include both topical and systemic therapies as antibiotic, steroid and biological therapies.1-4,24,25.

Classified into Hurley Stages:
1. Stage I: abscesses without sinus tracts or scarring.
2. Stage II: multiple abscesses plus sinus tracts and scarring.
3. Stage III: diffuse involvement of entire area with abscesses, sinus tracts, and scarring

(12)Although conservative therapy may have some efficacy in early stages,(13) the nature of this follicular disease is progressive and radical excisional surgery along with different reconstructive options offers the only chance of cure removing completely the affected areas.

Surgical excision of the affected skin tissue with adequate free margins is the gold standard treatment for prevention of recurrence. Indeed, radical surgical excision appears to be the most effective treatment of the disease in terms of patient-related and disease-related outcomes.14-17 In mild or moderate disease and when feasible, the defect following surgical excision can be managed with primary closure.15,28

Various methods for restoration (i.e. skin grafting, random local or pedicled flaps) of the integrity of the axilla have been described(18-23) However, many of these options may have inherent drawbacks, such as donor site issues or limited capacity for optimal functional and/or aesthetic reconstruction. Functional impairment of shoulder abduction might occur especially after application of skin grafts.Further disadvantages of skin grafting includes poor graft take or significant color mismatch. In case of exposure of deep structures, such as the main vessels and nerves of the arm, defect coverage with an adequate soft tissue flap is mandatory.

The evidence base for surgical interventions for extensive, severe HS is limited but the available data suggest that these patients often incur longer hospital stays and a higher rates of revisions.7,9 Similarly, higher rates of post-operative morbidity, secondary scar contractures, shoulder stiffness with objectively reduced range of movement and prolonged recovery time have also been reported in this group.15 Historically, extensive severe HS is treated with excision of the affected tissue and the surgical defect either left to heal by secondary intention or grafted with a split thickness skin graft (SSG).9,26 However, more recently local, regional and free flaps, such as the fasciocutaneous V-Y flap, Limber flap and musculocutaneous flap, have been used for the reconstruction of the axilla after excision of HS. In particular, perforator flaps, such as the thoraco-dorsal artery perforator (TDAP) flap, have been reported as advantageous for the reconstruction of the soft-tissue defect following excision of severe extensive axillary HS.3,9,15. . we present a prospective study of use of the TDAP flap for the reconstruction of the axilla following excision of extensive or recurrent axillary HS.

Patients and methods

We conducted a prospective study of 5 patients undergoing surgical treatment for axillary HS at the

Department of Plastic and Reconstructive Surgery ,SriVenkateswara Medical college,Tirupati between September 2016 to 2019.. Demographic data were extracted on age, sex, comorbidity, smoking, obesity, duration of the disease, drug history and previous HS treatment (medical and surgical) (Table 1). Severity of disease was classified using the Hurley's classification.28 Patients who were eligible for primary closure of the defect after surgical excision of the axilla were excluded from this study (Hurley's stage I and II). The disease-free surgical margins were determined as 2 cm.3,7,9,12,14. Those patients with Hurley's stage III with extensive HS were treated with radical excision and immediate axillary reconstruction withThoracodorsal artery perforator Flap. Under general anesthesia All TDAP flaps were based on a single perforator and inset as propeller-like flaps into the surgical axillary defect. Operative variables that were measured include: ,

hospital stay, complications, recurrence of disease,ROM of shoulder , wound healing ,follow-up . (Table 2). Delayed wound healing was defined as a wound healing process longer than 4 weeks.

Patient's demographics.

SERIAL NO.	Age	sex	BMI	SMOKING	DURATION	SIZE OF AXILLARY DEFECT	COMORBIDITIES(DIABETES, HYPOTHYROIDISM,DEPRESSION)	PREVIOUS TRETMENT
1.	34	M	30	YES	2 YEARS	10X5 CM LEFT	NIL	ANTIBIOTICS,SURGICAL DRAINAGE OF ABSCESS
2.	24	F	35	NO	3YRS	8X4 CMRIGHT	HYPOTHYROID	ANTIBIOTICS, SURGICAL DRAINAGE OF ABSCESS
3.	25	F	25	NO	2 YR	6X4 CMRIGHT	NIL	ANTIBIOTICS, SURGICAL EXCISION AND HEALING BY SECONDARY INTENTION
4.	26	M	28	YES	2 yr	8 X4 CM LEFT	NIL	ANTIBIOTICS
5.	24	F	27	NO	2yr	6X4 CM LEFT	NIL	ANTIBIOTICS

II. Results:

A total of 5 cases of hidradenitis suppurativa were excised. Out of 5, 3 were male and 2 were females.Mean age of patients was 26.6 yrs .out of 5 cases, 4 were primary HS, 1 CASE OF FEMALE HAD RECURRENT hs AXILLA , PREVIOU
SLY operated outside with excision and healing by secondary intension with recurrence after 6 months.2 CASES OF MALE PATIENTS were smokers, 1 female patient was hypothyroid. The results are shown in table 1, 2.

SURGICAL VARIABLES

S.NO.	NO. OF DAYS STAY	RECOVERY TIME	RATE OF RECURRENCE	REVISION SURGERY	COMPLICATIONS	RESTRICTED ROM OF SHOULDER	WOUND HEALING, RECEIPIENT ARES	WOUND HEALING DONOR AREA
1	14 DAYS	28 DAYS	NIL	-	-	NIL	HEALED WELL	DELAYED 45 DAYS
2	12 DAYS	30 DAYS	NIL	-	-	-	HEALED WELL	DELAYED HEALING (40 DAYS)HYPERTROPHIC SCAR
3	12 DAYS	28 DAYS	NIL	-	-	-	HEALED WELL	HEALED WELL
4	12DAYS	28 DAYS	NIL	-	-	-	HEALED WELL	HYPERTROPHIC SCAR
5	12 DAYS	30 DAYS	NIL	-	-	-	HEALED WELL	HEALED WELL

III. Discussion:

The 'gold standard' management of severe axillary HS has yet to be identified.1,2,31 .

Skin grafting is one of the most commonly used methods of axillary reconstruction, when the defect is shallow and no vital structures are exposed. However, disadvantages of skin grafting may include poor graft take, color mismatch and possible scar contracture with functional impairment of shoulder abduction, PROLONGED RECOVERY AND INCREASED NUMBER OF SURGICAL PROCEDURES.. 4,7,9,26,29..Especially in the early postoperative period, skin grafting of the axilla may be uncomfortable to the patient due to cumbersome fixation of the graft with limited mobility in the shoulder joint. Excessive motion on the other hand may lead to delayed wound healing because of unwanted lateral shifting of the transplanted skin.

Another popular option is simple healing by secondary intention. The biggest advantage of this approach is that there is no added donor site morbidity associated with surgical wound closure. However, on the other hand there is definitive delay in healing of the axillary wound associated with prolonged need for wound care and absence of work. In many instances this approach will lead to scar contracture or an unstable scar. Thus, flap coverage proved to be the better solution in many instances of axillary reconstruction. The armamentarium of possible flaps for this endeavor is broad with all local and regional flaps ensuring good vascularity and primary donor site closure. Typical examples include local transposition flaps, such as the Limberg flap, or the V-Y advancement flap. They offer superior quality in terms of color match as well as adequate thickness for optimal defect reconstruction. However, their biggest draw-back is their limited mobility. Thus, bigger defects are not amenable for coverage with these types of flaps unless very large flaps are raised with the resulting donor site morbidity.

Pedicled perforator flaps such as the thoracodorsal artery perforator flap (TDAP) or the lateral thoracic fasciocutaneous islandflap have recently been introduced as a new alternative for *axillary defect coverage.3,8,11.*

Excision and TDAP flap reconstruction is an emerging technique that provides adequate coverage of the defect, such that many of the complications of SSG reconstruction are avoided and although the operating time is longer, the literature and our results suggest that patients experience a quicker recovery, fewer complications, shorter follow-up and a lower incidence of restricted range of movement of the shoulder 3,15,30.

We evaluated 5patients with Hurley's Stage III HS of the axilla who underwent excision and reconstruction with TDAP flap . 3 patients were male, 2 patients were female..All the five flaps survived. Suction drain was removed once the drain content was less than 30 ml.The suture removal was done on day 14.DONOR AREA SUTURES WERE DELAYED TO DAY 21 FOR REMOVAL.2 cases had dealayed donor area healing which were managed conservatively. There was no reccurrence of the HS IN OUR SERIES. AND range of movements of shoulder were normal and patients returned to activity after 1 month.

IV. Conclusion

Further investigation into the ideal surgical procedure for severe HS with randomized trials is needed before definitive recommendations can be proposed. Based on our results and the available literature, we advice the use of TDAP flap as an ideal option in the treatment of extensive axillary HS, after radical excision as has good quality skin, anatomic proximity to axilla., no restriction of arm abduction has fewer post-operative complications, necessitates shorter follow-up.

Case 2


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Dr.S.Sirisha, *et. al.* "TDAP Flap – As A Surgical Treatment Of Severe Hydradenitis Suppurativa Axilla." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 21(06), 2022, pp. 22-27.