American Journal of
Biomedical Science & Research

www.biomedgrid.com
ISSN: 2642-1747

Case Report

Reconstruction Of Anterior Thoracic Defect Following Massive Dermatofibrosarcoma Protuberance (DFSP) Excision: Case Study

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To Cite This Article: *Javad Rahmati, Shahriar Haddady Abianeh, Hosseinali Abdolrazaghi, Hojjat Molaei. Reconstruction Of Anterior Thoracic Defect Following Massive Dermatofibrosarcoma Protuberance (DFSP) Excision: Case Study. Am J Biomed Sci & Res. 2022 - 15(5). AJBSR. MS.ID.002141.* DOI: 10.34297/AJBSR.2022.15.002141

Received: February 12, 2022; **Published:** February 28, 2022

Abstract

Background: Resection of truncal tumors have resulted in large skin defects especially in DFSP reconstruction. Thoracoabdominal perforators provide opportunity to harvest suitable flaps with minimal donor site morbidity. Superiorly based Transposition flap is a proper flap to solve large anterior thoracic skin defect challenge.

Case Presentation: A woman with superficially extended DFSP underwent wide local resection. The resulted defect was too big to reconstruct with simple solutions. At last, 2 superiorly based transposition thoracoabdominal flaps from both anterolateral sides of trunk filled the defect.

Conclusion: Transposition thoracoabdominal flap is a good reconstructive option in covering large anterior truncal defect and can be done bilaterally.

Keywords: Dermato Fibrosarcoma Protuberance; Thoracic Defect; Thoracoabdominal Flap

Introduction

Dermato fibrosarcoma protuberance (DFSP) as an uncommon tumor, with incidence of between 0.8 and 5 cases per million, was first introduced in 1890 by Taylor as a sarcoma. But now it is defined as a slow-growing infiltrative skin tumor with a high rate of local recurrence but low metastatic capacity [1]. DFSP is appears mostly on the trunk and is usually a very slowly growing subcutaneous skin tumor without epidermal invasion with fibro sarcomatous transformation. The definitive diagnosis of DFSP is made by incisional or less frequently excisional, biopsy procedure, which confirmed by specific staining [2]. Tumor tendency to local recurrence, obliges surgeons to follow strict rules in wide local resections and excising as much as possible further margins [3]. It is approved that the more margin, the less recurrence, but the minimum margin is undefined and conventional 2-3 cm margin is associated with 0% to 30% local recurrence rate [4]. Thus, most of lesions excised with safe larger margins, which resulted in larger skin defects to be reconstructed. There are numerous ways to conquer this dilemma and we decided to share our experience to demonstrate a different solution.

Case Presentation

A 72-year-old woman referred with her left anterior trunk lesion. It appeared about 1 year ago and its growth was slow and without significant symptom. She did not do any work up and ultimately visited in skin cancer clinic. Upon tissue diagnose biopsy, it was defined as DFSP. So, then plan was wide excision and reconstruction of resulted free margin defect with available adjacent tissues. The lesion excised with 3 cm margin radially and up to muscle fascia deeply, the free margines confirmed by frozen tissue diagnosis. First, a superiorly based fascio cutaneous transposition flap designed from left thoraco-abdominal area (Figure1) and transferred to defect and covered (Figure 2).

Figure 1: DFSP Lesion on Anterior Thoracic and Marking for Flap.

Figure 2: Reconstructed tumor site.

Unfortunately, after 10 days, distal forth part of flap discolored and tissue loss happened at this area. So, another transposition flap designed, and final reconstruction was done successfully (Figure 3)

Figure 3: Ultimate reconstructed upper anterior truncal defect by two superiorly based fasciocutaneous flaps.

These flaps were designed as the final scars were hidden under breasts in IMF line and did not extend beyond IMF, which satisfied patient.

Discussion

Skin graft, complex closure with undermining, fascio cutaneous flaps, musculocutaneous flaps, posterior arm flaps, omental flaps, contralateral breast flap, perforator flaps are among commonly used optional lifeboats to solve challenging huge defects of body following cancer surgeries [5].

INTEGRA® consisting of an inner dermal substitute layer and a temporary outer epidermal substance layer, is a life-saving boat in reconstruction of neonatally produced thoracic defects which body is empty of reconstructive sources and prepare a safe and acceptable background to be refurnished by skin grafts [6]. Although rarely oncoplastic surgeons encounter such situations.

When the defect is less than 5 cm, primary closure can be acceptable option, nevertheless, Z plasty or other simple reconstructive solutions should be added to mapping pool. Single or bilateral skin advancement flaps, bipediculated skin flaps, Limberg flaps and rotation flaps can be selected for the repair of the defect that occurs after large excisions [7].

According to resulted defects patients may have rib cage defects, too. This may require extensive reconstructive surgeries to compensate structural defects that can alter vital functions and deteriorate condition. But, when this cage is saved and only, we have skin and subcutaneous tissue loss, the decision changes and aesthetic point views are more highlighted. Among such decisions, again flaps are more attractive, especially some with less donor

site morbidities. Pedicle myocutaneous flaps, thoracodorsal artery perforator (TDAP) flap, ICAP flap, SEAP flap, omentum flap, breast flap, andreverse abdominoplasty are some of commonly used flaps to cover larger thoracic defects [8]. *Men et al.* (9) (2017) had experiences with thoracic keloid treatment by using my cutaneous flaps such as rectus abdominus flap with its reliable blood supply. They illustrated effectiveness of flap in reconstruction of distal thoracic defects [9]. Always TRAM flap is a significant reconstructive operation, but abdominal wall defect following harvest, cannot tolerated by patients or may bother them. *Lupon et al*. (10) (2019) presented their experience in propeller perforator flaps in reconstruction of large thoracic defects based on intercostal arteries and DICAP flap in an old patient who could not tolerate significant operations and did successfully. However, there are multiple vascular variations surgeons may encounter and should manage [10]. Moreover, learning curve to be satisfied is significant. In our experience, large defects are problematic with this flap.

Thoracoabdominal (TA) flap is a rotation advancement fascio cutaneous flap which constitutes the skin and subcutaneous tissue of the anterior abdominal wall. It is based on two sets of direct perforating segmental arteries –the medial, arising from the deep epigastric arcade at the lateral border of the rectus abdominis and the lateral, arising from the lumber and subcostal arteries at the level of anterior border of the lattisimus dorsi [11]. This description defines extent of harvest and even transposition, though there are cases with transposition style [12,13], as we did. We considered by this means, a kind of body countering was achieved via reduction of lateral tissues. Our patient had bilateral superiorly base transposition flap which enhanced waist curvature. Moreover, upper limit of flap rotation was hidden under breast tissues in IMF line, that was acceptable by patient.

Conclusion

Transposition thoracoabdominal flap is a good reconstructive option in covering large anterior truncal defect and can be done bilaterally.

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