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Short Article

CASE REPORT

Reconstruction of the anterior abdominal wall using a myocutaneous flap from the tensor fasciae latae muscle in a patient with squamous cell carcinoma of the skin

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Abstract

The present study reports the case of a 59-year-old female patient admitted to the department due to advanced skin cancer in the lower abdominal region extending to the peritoneum. The patient was qualified for tumor resection with simultaneous reconstruction using flap surgery techniques, employing a tensor fasciae latae muscle flap. The intervention involved wide tumor resection aimed at maximizing the likelihood of achieving oncological radicality. Reconstruction was carried out using a propeller flap from the tensor fasciae latae muscle and a rotational musculocutaneous flap based on the external oblique muscle. The procedure concluded with a skin graft from the thigh, which covered the remaining tissue defect after flap harvesting. The described reconstruction technique was carefully planned, considering the defect's characteristics and the patient's condition, highlighting the importance of individualized approaches in plastic surgery. This case illustrates the complexity of surgical procedures in cancer patients and the significance of avoiding foreign materials in the context of chronic infections.

Keywords : Anterior abdominal wall reconstruction; Flap surgery; Tensor fasciae latae muscle; Squamous cell carcinoma of the skin; Oncological surgery

INTRODUCTION

This paper describes the case of a 59-year-old female patient who underwent an emergency expedited surgical procedure due to an advanced skin carcinoma with a purulent fistula extending into the abdominal wall muscles. Numerous reconstruction methods are available in plastic surgery; however, the choice must be individualized based on defect size, location, adjacent skin condition, patient preferences, and surgeon expertise. The choice of flap is primarily determined by the characteristics of the defect. However, factors such as technical feasibility, operative duration, and patient-related considerations also play a crucial role in

decision-making. The selection depends on variables like defect depth, pedicle length, ease of harvesting, and donor site morbidity [1].

CASE REPORT

A 59-year-old female presented to the clinic with advanced skin carcinoma and a purulent fistula penetrating the abdominal wall muscles. She was urgently qualified for expedited emergency surgery. Preoperative contrast-enhanced computed tomography (CT) of the abdomen and pelvis revealed a walled-off fluid collection with gas bubbles in the right rectus abdominis muscle, measuring 70 × 42 × 85 mm, suggestive of an abscess.

A complete tumor resection was performed, including parts of the oblique muscles, right and left rectus abdominis muscles, and the peritoneum. Reconstruction involved a propeller flap from the tensor fasciae latae (TFL) muscle and a rotational musculocutaneous flap based on the external oblique muscle (Figure 3). Fascial closure was achieved by suturing the fascial edges of both flaps (Figures 4, 5). Postoperatively, the patient remained stable, and the wounds healed without signs of infection. One week after surgery, gradual mobilization was initiated using a postoperative abdominal binder. The patient was discharged 14 days after surgery in good general condition. Histopathology Report * Macroscopic Description: Abdominal skin - squamous cell carcinoma (SCC) of the right lower abdomen infiltrating the rectus and oblique muscles. A skin flap measuring 15.5 × 9.7 cm featured slit-like fistula openings (1.5 cm and 3.5 cm) closed with sutures. The remaining skin was unremarkable. Cross-sectional analysis revealed a solid white tumor measuring 7.6 × 5.8 × 14.5 cm within the subcutaneous and muscular tissues, extending to the skin surface, with necrosis and cavity formation. The tumor was in close proximity to the deep margin (4.5 cm). Microscopic Description: Moderately differentiated keratinizing squamous cell carcinoma (SCC G2) with areas of necrosis and surface ulceration. The tumor infiltrated the aponeurotic fascia and striated muscle, with associated chronic nonspecific fibrosing inflammation. Angioinvasion (LVI1) and perineural invasion (PNI) were observed. * Margins: Skin margins (~10 mm): Free of carcinoma (R0).Deep margin: Carcinoma present at the inked resection line (R1). *

Staging (WHO/UICC):pT3; pNx; R1; LVI1; PNI ICD-10:C44.5 – Other malignant neoplasms of skin – trunk

DISCUSSION

In 2021, Mohamed A. Ellabban et al. described the use of freestyle propeller flaps and muscle flaps for reconstructing lumbar and gluteal defects. Their approach utilized the gluteus maximus muscle flap as the deep layer and a freestyle propeller perforator flap as the superficial layer, demonstrating good coverage and a low complication rate. Long-term follow-up is needed to confirm these results [2]. In 2022, Aritake et al. reported a case of colon cancer with extensive abdominal wall invasion treated with neoadjuvant chemotherapy followed by resection and reconstruction using a free ALT flap. This highlighted the importance of multidisciplinary collaboration and thorough preoperative planning for achieving favorable outcomes [3]. Autologous tissue reconstruction methods, such as the TFL flap, are particularly effective in extensive abdominal wall reconstructions, eliminating the need for synthetic materials and reducing infection risks. These techniques are vital for patients at high risk of infection and with significant tissue loss [3]. F. Nahai et al. emphasized the reliability and versatility of the TFL musculocutaneous flap, noting its suitability as a transpositional, island, or free flap [4]. NH Schulman highlighted the advantages of bipedicled TFL flaps for primary closure of pressure ulcers, reducing operative time, easing postoperative care, and shortening hospital stays [5]. Huang et al. (2022) discussed the use of ALT flaps in closing large abdominal wall defects after resection, emphasizing their extensive coverage and minimal donor site morbidity, making them ideal for cases of significant tissue loss and high infection risk [8].

CONCLUSION

Reconstructive surgeries for advanced skin carcinomas present significant challenges for plastic surgeons, requiring simultaneous planning of large tissue defect reconstructions. The use of a TFL propeller flap and a rotational musculocutaneous flap based on the external oblique muscle allowed for complete coverage of the tissue defect in this patient. The approach resulted in satisfactory aesthetic and functional outcomes. The application of an abdominal binder facilitated safe mobilization, enabling full recovery within 14 days

postoperatively. This case highlights the safety and efficacy of TFL flaps in reconstructing lower abdominal defects.

REFERENCES

1. Renuka Sathyamurthy , Kalapurmat Nagabhushanaiah Manjunath i inn, Free tensor fascia lata flap - a reliable and easy to harvest flap for reconstruction**,** Acta Chir Plast, 2021 Summer;63(2):57-63. doi: 10.48095/ccachp202157.

2. Mohamed A Ellabban 1, Alexander Wyckman 2, Islam Abdelrahman i inn, Dual Reconstruction of Lumbar and Gluteal Defects with Freestyle Propeller Flap and Muscle Flap**,** Plast Reconstr Surg Glob Open 2021 Jan 26;9(1):e3376. doi: 10.1097/GOX.0000000000003376. eCollection 2021 Jan.

3. Aritake, T., Ouchi, A., Komori, K. *et al.* Colon cancer with extensive invasion of the abdominal wall treated with neoadjuvant chemotherapy and a free anterolateral thigh flap. *surg case rep* **8**, 159 (2022). https://doi.org/10.1186/s40792-022-01515-5

4. F Nahai, J S Silverton, H L Hill i inn, The tensor fascia lata musculocutaneous flap**,** Ann Plast Surg, 1978 Jul;1(4):372-9. doi: 10.1097/00000637-197807000-00003.

5. NH Schulman, Primary closure of trochanteric decubitus ulcers: the bipedicle tensor fascia lata musculocutaneous flap, Plast Reconstr Surg, 1980 Nov;66(5):740-4. doi: 10.1097/00006534-198011000-00011.

6. Sonia Gaucher 1 2 3, Filippo Lococo 4, Claude Guinet i inn, Indications and Results of Reconstructive Techniques with Flaps Transposition in Patients Requiring Complex Thoracic Surgery: A 12-Year Experience, Lung 2016 Oct;194(5):855-63. doi: 10.1007/s00408-016-9921-0. Epub 2016 Jul 9.

7. Park Tae Hwan, The versatility of tensor fascia lata allografts for soft tissue reconstruction, Int Wound J, 2023 Mar;20(3):784-791. doi: 10.1111/iwj.13923. Epub 2022 Aug 12.

8. Huang, W., Lu, H., Zhang, YX. *et al.* Anterolateral thigh flaps in closing large abdominal wall defect after the resection of mucinous adenocarcinoma: a case report. *BMC Surg* **22**, 100 (2022). https://doi.org/10.1186/s12893-022-01550-x