Use of thoracoepigastric flap in the closure of large chest wall defects after surgical treatment of locally advanced breast tumor: a case report

ABSTRACT

Breast cancer is the most common type of malignancy among women in Brazil and worldwide, excluding non-melanoma skin cancers. The purpose of this report is to describe the case of a patient with invasive breast carcinoma, associated with a large extent of skin involvement and nipple-areola complex, whose lesion was unchanged after neoadjuvant chemotherapy. After a Halsted mastectomy, the thoraco-epigastric flap was used to close the thoracic defect, with a favorable evolution of the patient. The use of the thoraco-epigastric flap has been described as a reliable tool because it is characterized as a technique that is easy to perform, safe and with minimal post-surgical complications.

Keywords: Breast neoplasm; Radical mastectomy; Myocutaneous flap; Neoadjuvant therapy; Surgical oncology.

INTRODUCTION

According to the National Cancer Institute, breast cancer is the most common type of malignancy among women in Brazil and worldwide, excluding non-melanoma skin neoplasms, with 1.2 million new cases diagnosed annually, totaling 15% of all cancer deaths in women. In Brazil, this percentage is 29%, and for the year 2020, 66,280 new breast cancer cases are expected.

Despite prevention campaigns, locally advanced breast cancer, not being the majority of cases, can cover up to 50% of cases. Due to its severity, the initial therapeutic approach has been using neoadjuvant chemotherapy for possible primary reduction of the lesion and subsequent surgical treatment. In resistant cases, mastectomy becomes the treatment of choice, including axillary emptying and large skin resections, leading to important chest wall defects.
The thoracoepigastric flap has been an important surgical tool for such cases, with an excellent prognosis and low rate of complications.

The case of a patient with locally advanced breast cancer, associated with extensive involvement of the skin and pectoral muscles, with a large defect of the chest wall after surgical removal of the tumor is described, and the thoracoepigastric flap technique was used for complete closure of the region.

CASE REPORT

R.A.S., female, 53 years old, from Regent Feijó/SP with no family history of breast cancer, sought her municipality’s health center, stating that six months ago, she noticed a nodule in her right breast during the self-examination. She was referred to the Mastology outpatient clinic of the Regional Hospital of Presidente Prudente, presenting, on physical examination, a voluminous tumor occupying the entire length of the right breast, measuring approximately 20cm in diameter, fixed to the deep planes, invading the skin, providing ulceration and destruction of the nipple-areolar complex. Biopsy showed infiltrating mixed carcinoma (lobular component with discrete areas of non-special ductal carcinoma).

The patient underwent neoadjuvant chemotherapy treatment with four cyclophosphamide doxorubicin cycles, followed by 12 paclitaxel cycles, without the lesion’s clinical regression.

She was referred for surgical treatment, in which a mastectomy was performed with subsequent closure of the chest wall defect using thoracoepigastric flap. The technique involved the following steps: a) with the patient in a supine position, surgical marking of the area to be resected and the flap was performed (Figure 1); b) a wide resection of the tumor area was carried out, including breast, pectoral musculature and adjacent cutaneous tissue, with subsequent axillary emptying; c) making the flap by detaching it from the abdominal wall, keeping it pedicled in the epigastric region (Figure 2); c) rotation and fixation of the flap in the defective area (Figure 3); d) approximation and synthesis of local flaps with complete closure of the thoracic defect (Figure 4).

The patient progressed favorably with good flap perfusion, without areas of necrosis or infection. The surgical specimen’s anatomopathological analysis confirmed the diagnosis of mixed carcinoma measuring 16x14cm of high degree. It was observed that the tumor mass invaded the pectoral muscle and with great involvement of the skin and papilla.

DISCUSSION

Locally advanced breast tumors are defined as a neoplasm that compromises the breast in all, or almost all of its extension, tumors that compromise four or more axillary lymph nodes, or those with metastases in ipsilateral supraclavicular lymph nodes.

According to Ho et al., in 2016, its treatment should include loco-regional disease control and eradicating occult systemic metastases. In the case of voluminous tumors requiring extensive skin losses, impossible to be repared with primary closure, several studies highlight...
The flaps appeared in 1886, with Tansini, and among the existing options, stand out the large dorsal muscle, the transverse flap of the rectus abdominal muscle (TRAM) or vertical flap rectus abdominal muscle (VRAM), the thoracoepigastric or thoracoabdominal flap and skin grafts.2,5,7,10.

The use of the thoracoepigastric flap has been described as a reliable tool because it is characterized as a technique that is easy to perform, safe and with minimal post-surgical complications, highlighting the cases in which it is desired that the radiotherapy and chemotherapy treatment should not be delayed.2,5,7. Initially described in 1974 by Bohmert e Cronin, in 198011 this method allows the coverage of extensive defective areas of the breast, in lower or lateral thoracic regions, in addition to sternal defects, without the need for other flaps or skin grafts.11,12. Park et al., in 200613, described a series of 24 cases in which the closure of a large compromised area after mastectomy was performed with thoracoepigastric fasciocutaneous flaps, which were safe with 36% of small complications, possible to be recovered with conservative treatment, in a 14-month follow-up. Davis et al., in 197714, describe other cases with the use of the thoracoepigastric flap, which did not present complications, so they are shown to be very safe and effective techniques.14

The thoracoepigastric flap derives from a richly vascularized region with superficial segmental blood supply of perforating arteries, which allows the manufacture of long resistant and safe fragments.6, They are designed as transposition flaps, and the determination of length remains uncertain. Davis et al., in 1977 reported the largest flap size being 35x15cm. In this case, we used a fabric fraction of 15x8cm, ensuring the necessary coverage of the existing defect.14

There are numerous advantages described in the use of thoracoepigastric flaps, such as shorter surgical time compared to other techniques, less blood loss and less postoperative hospital stay.4. According to Deo et al., in 2003, patients who underwent musculocutaneous reconstructions demonstrated increased morbidity, blood loss in the abdominal wall and prolonged hospital stay compared to thoracoabdominal reconstructions.15,16

CONCLUSION

It is concluded that this technique is extremely useful, innovative and easily executable. The use of thoracoepigastric flap represents an important tool in closing chest wall defects, with satisfactory results.
COLLABORATIONS

RAH  Writing - Original Draft Preparation
FAMV  Final manuscript approval, Supervision

REFERENCES


*Corresponding author: Rafaela Alias Horta
Run Rio Grande do Sul, 244, Vila Marcondes, Presidente Prudente, SP, Brazil.
Zip Code: 19030-130
E-mail: aliasrafaela@gmail.com