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# Conservative treatment of the central breast cancer with nipple-areolar resection: an alternative oncoplastic technique

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SUMMARY: **Conservative treatment of the central breast cancer with nipple-areolar resection: an alternative oncoplastic technique.**

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*Conservative surgery with radiation therapy is the standard treatment for early-stage breast cancer. Nevertheless, the patients with subareolar breast cancer have been often excluded from breast-conserving surgery and treated with mastectomy because of the unacceptable cosmetic effect associated with the resection of the nipple-areola complex (NAC), as well as oncologic concerns about multicentricity or multifocality associated with these tumours.*

*We show a conservative "oncoplastic technique" in which the resection of the central portion of the breast, including the NAC, can allow a wide excision of the tumour with uninvolved margins of resection and good cosmetic results.*

RIASSUNTO: **Trattamento conservativo del carcinoma retroareolare della mammella con resezione del complesso areola-capezzolo: una tecnica oncoplastica alternativa.**

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*La chirurgia conservativa e la radioterapia costituiscono l'attuale "gold standard" nel trattamento dei tumori della mammella in stadio iniziale. Tuttavia le pazienti con tumori localizzati in regione centrale/sottoareolare sono a volte escluse da questo trattamento e candidate alla mastectomia. Le ragioni per cui queste pazienti non vengono sottoposte al trattamento conservativo sono legate a motivazioni di carattere estetico ed oncologico: da una parte, infatti, i risultati estetici non sono soddisfacenti, in quanto le resezioni devono essere associate all'escissione del complesso areola-capezzolo; dall'altra vi è il rischio, con un atteggiamento conservativo, di pregiudicare la radicalità oncologica per la mutifocalità e la muticentricità spesso associate ai tumori retroareolari.*

*L'obiettivo del lavoro è di riassumere le recenti evoluzioni nella terapia chirurgica dei tumori sottoareolari e di presentare una tecnica alternativa di chirurgia "oncoplastica" che permetta di ottenere un'ampia escissione della neoplasia con margini liberi da malattia ed al tempo stesso ottimi risultati estetici.*

KEY WORDS: Central breast cancer - Oncoplastic surgery.
Carcinoma mammella retroareolare - Chirurgia oncoplastica.

## Introduction

Conservative surgery with radiation therapy is the standard treatment for early-stage breast cancer (1-8). The type of surgical approach depends on the tumour/breast size ratio, the breast volume, the location of the cancer and patient's preference. Traditionally, the patients with subareolar breast cancers have been often excluded from breast-conserving surgery because of the unacceptable cosmetic effect associated with the resection of the nipple-areola complex (NAC), as well as oncologic concerns about multicentricity or multifocality associated with these tumours (9-16).

More recently, some non-randomized studies have suggested that conservative treatment of cancers located in central quadrants may obtain similar oncologic and aesthetic results as in other breast sides (17-27). Besides, in an attempt to optimize the balance between the risk of local recurrence and the cosmetic outcomes in breast-conserving surgery, new surgical procedures that combine the principles of surgical on-

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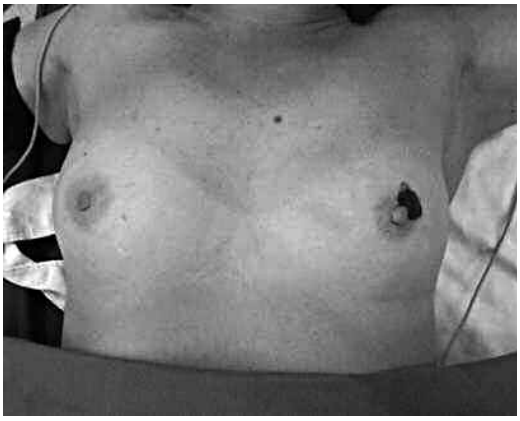
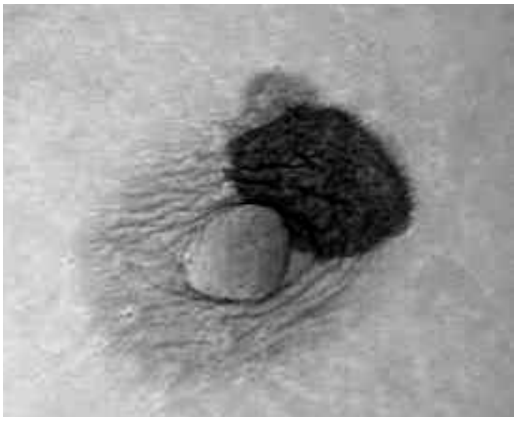




**Figs. 1 a, b - Patient with a central breast cancer that involved the areola.**

cology and plastic surgery have been introduced in recent years. These new techniques, called "oncoplastic techniques", may allow removal of larger amounts of breast tissue with safer margins without compromising the cosmetic outcome and may be used also in patients with central breast cancers that directly involve the NAC or are located in such close proximity to the NAC (28-32).

We show an alternative "oncoplastic technique" in which the resection of the central portion of the breast, including the NAC, can allow a wide excision of the tumour with uninvolved margins of resection and good cosmetic results. Then, adjuvant radiotherapy is delivered to treat the theoretical subclinical microscopic disease that may exist in the remaining areas of the breast.

## Case report

A 62-year-old woman was admitted in our hospital with a 2-month history of a retroareolar tumour. The patient had no family history for breast cancer.

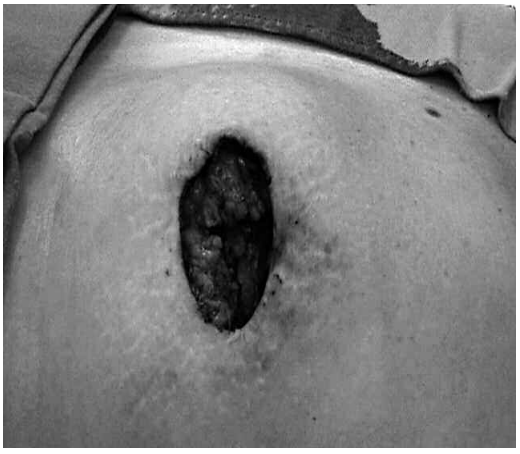
On physical examination, we found an irregular-shaped firm lesions, 2 cm in size, in the left breast, palpable just under the areola that was not retracted (Figs. 1a and 1b). There were no palpable axillary lymph nodes.

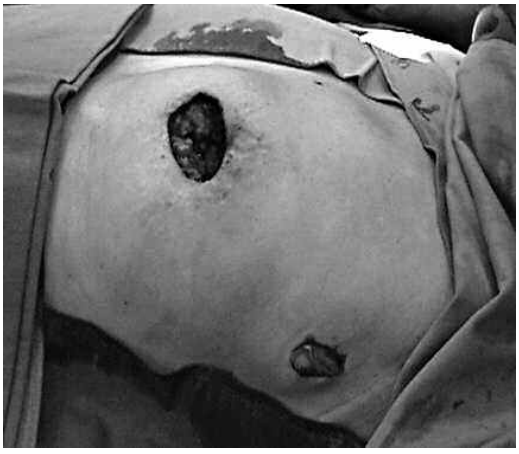
Mammography showed a retroareolar mass with irregular margins. Ultrasound examination showed an irregular lesion with a hypoechoic pattern and indistinct margins beneath the areola without clear evidence of infiltration.

Fine needle aspiration biopsy was positive for invasive carcinoma.

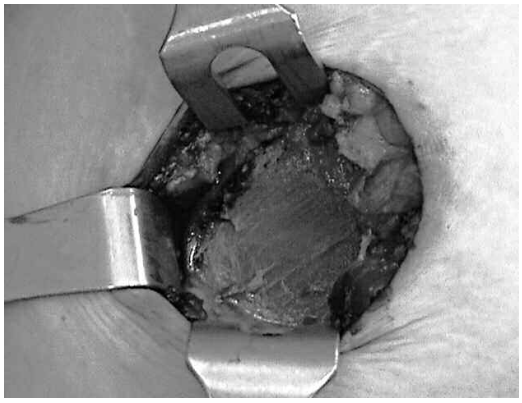
Preoperative evalutation revealed normal coagulation, chemistry profile, hemoglobin, white blood cell count, platelets and Ca 15.3. Chest radiograph, liver ultrasonography and bone scanning showed no evidence of distant metastases.

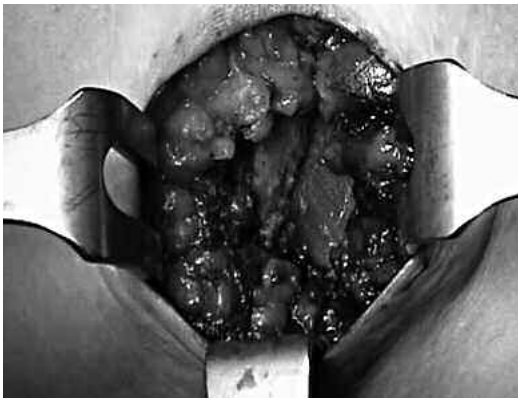
The patient underwent "central quadrantectomy" with complete excision of the NAC and subsequent "remodelling" of the breast. In particular, a circular periareolar cutaneous incision was made and extended down to the fascia of the large pectoral muscle (Fig. 2a), so as to permit the excision of a cone of glandular tissue, containing the tumour and wide margins of healthy tissue. Sentinel lymph node biopsy was performed through a separate transverse incision in the axilla (Fig. 2b). Then, a "remodelling" of the breast was performed by the separation of the glandular tissue from the fascia of the large pectoral muscle (Fig. 3a) and from the skin (Fig. 3b), extended around to about 5 cm from the edge of the wound. The circular skin defect, caused by the excision of the NAC, was closed using a purse-string suture with a 3-0 monofila-



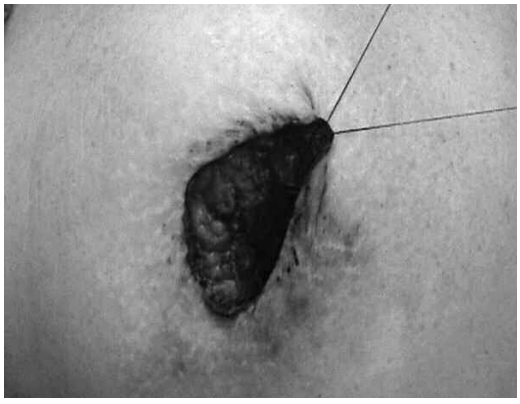


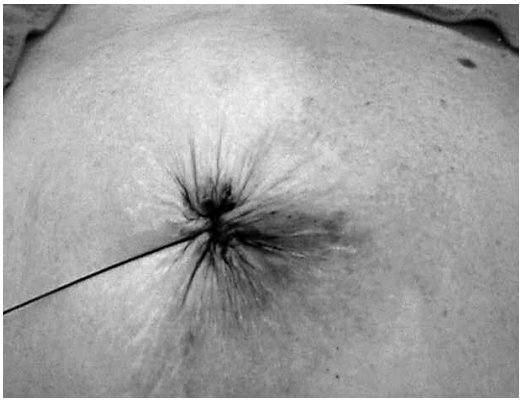
**Figs. 2 a, b - Complete excision of the NAC; a circular periareolar cutaneous incision was made and extended down to the fascia of the large pectoral muscle.**





**Figs. 3a, b - A "remodelling" of the breast was performed by the separation of the glandular tissue from the fascia of the large pectoral muscle and from the skin.**





**Figs. 4a, b - The circular skin defect, caused by the excision of the NAC, was closed using a purse-string suture with a 3-0 monofilament absorbable suture.**

ment absorbable suture (Figs. 4a and 4b), without positioning a drain and avoiding deep parenchymal sutures. Immediately after the operation, the skin looked wrinkled in the center of the breast (Fig. 5) but it flattened in few weeks (Fig. 6).

Histological examination showed a 2,1 cm invasive carcinoma infiltrating the NAC; the surgical edges were tumor-free and sentinel node resulted negative. The immunohistochemical evaluation of estrogen and progesterone receptor status was positive.

The patient underwent post-operative external irradiation to the whole breast (50 Gray in 25 fractions) and endocrine therapy with tamoxifen (20 mg daily). She is alive and free of disease (Follow up 24 months). Cosmetic result is satisfactory, as judged by both the patient and the surgeons (Fig. 7). Later, the nipple-areolar reconstruction will be performed easily if desired by the patient.

## Discussion

The surgical treatment of breast cancer has undergone continuous and profound changes over the last three decades. The long-term results of several randomized studies conducted in Europe and North America have definitively confirmed that breast-conserving surgery and radical mastectomy yield similar rates of survival, thus endorsing breast-conserving surgery as the gold standard of therapy for most women with breast cancer (1-8).

The long-term success of breast-conserving surgery can be measured by two end points: the rate of local control and the cosmetic appearance of the preserved breast. When performing breast-conserving surgery, it may occasionally be difficult for the surgeon to adequately meet both of these end points, particularly when attempting to resect larger lesions, in case of small breasts or in tumours localizated in subareolar area. The patients with central/subareolar tumours

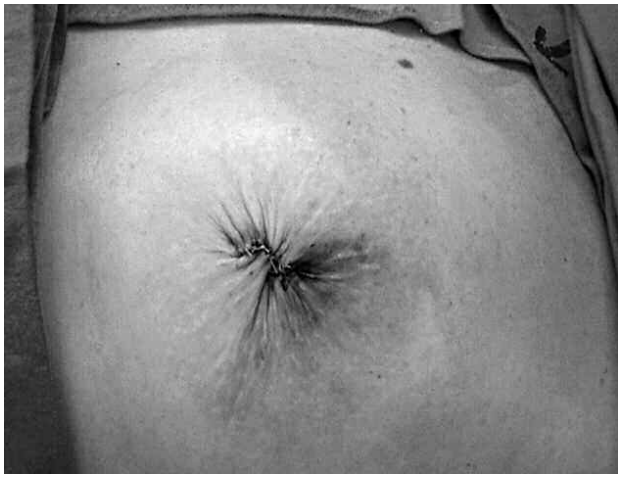


**Fig. 5 - Immediately after the operation, the skin looked wrinkled in the center of the breast**

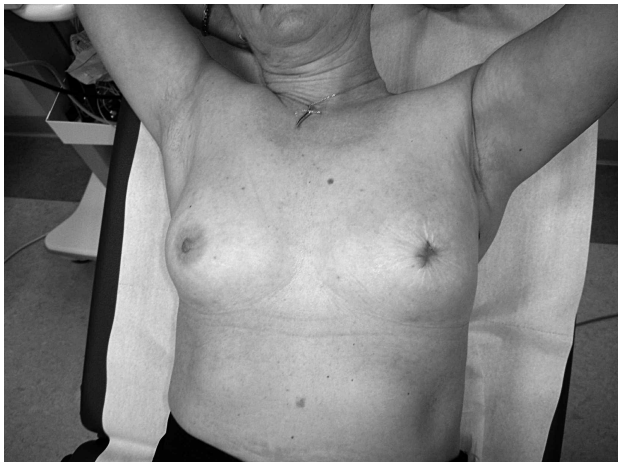


**Fig. 6 - The skin flattened in few weeks.**

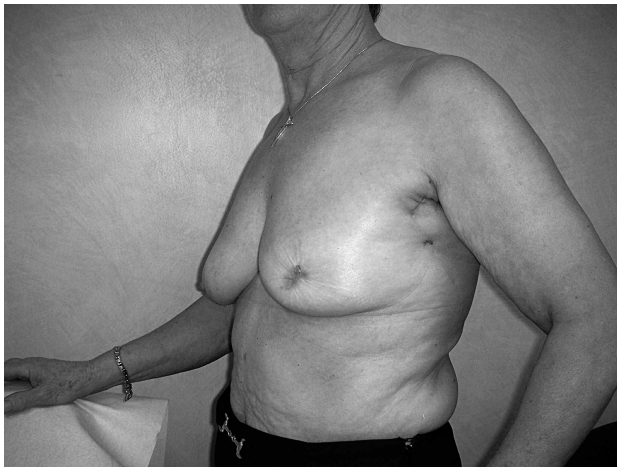


**Fig. 7 - The remodelling of the breast along with a purse-string suture for closure of skin defect allows to obtain good cosmetic results. The breast preserves its contour and natural shape**

represent a significant percentage, ranging from 5 to 15% of breast cancers (9, 16). Traditionally, they has been excluded from breast-conserving surgery and are still treated with mastectomy in many Centers. The reasons why patients with subareolar breast cancers are not often considered appropriate candidates for breast-conserving surgery are oncologic concerns about multicentricity or multifocality associated with these tumours, that might lead to unacceptably high rate of ipsilateral breast recurrence, as well as unpleasant cosmetic effects that would result from resection of the NAC (9-16). However, the present trends towards a conservative approach of breast cancer explain the claim of some women for a breast conservation, even in the case of central tumours.

Recently, some non-randomized series have addressed this issue with particular regard to local control and cosmetic results (17-27). Fowble et al. reported 70 patients with subareolar breast cancers treated with breast-conserving therapy and adjuvant breast irradiation. They found that the incidence of multicentricity, margin involvement with the initial excision, lymph node metastases, and most importantly 5-year recurrence rates were similar to breast cancers originating in other regions of the breast (25). In another series of 37 patients with centrally located cancers, treated with a central quadrantectomy, no local recurrence nor distant metastases were reported by Galimberti et al. (24). Similarly, Haffty et al. reported a 6% local recurrence rate in a series of 98 patients with subareolar breast cancers treated with breast-conserving therapy, including 10 who underwent NAC excision (26).

Regarding to the issue of cosmetic results, published data for patients with central breast cancer are limited. Haffty and Dale show satisfying cosmetic result after NAC resection even if recommend preservation of the NAC (26, 27). Bussieres et al. reported excellent or good cosmetic results following complete resection of the NAC with a remodelling of the breast (17). Similarly, Pezzi et al. showed that conservative treatment allows satisfying cosmetic results, even superior to mastectomy, in a series of 15 patients whose central breast cancers involved the NAC precluding its preservation. Through a conservative approach, the majority of the breast tissue together with breast contour can be preserved, while sensitivity of the skin is maintained (in contrast to mastectomy and breast reconstruction). Plastic surgical techniques allow NAC's reconstruction, usually after the completion of oncological treatments (22).

In an attempt to optimize the balance between the risk of local recurrence and the cosmetic outcomes in breast-conserving surgery, new surgical procedures that combine the principles of surgical oncology and plastic surgery have been introduced in recent years. These new techniques, called "oncoplastic techniques", may allow removal of larger amounts of breast tissue with safer margins without compromising the cosmetic outcome. Oncoplastic procedures are less technically demanding and time consuming than major reconstructive operations and usually require limited training to be properly performed by surgeons experienced in routine breast surgery (28-32). In Masetti et al. overview is described a "central quadrantectomy" with a skin-glandular flap, used in subareolar breast cancer and in Paget's disease (28).

We show an alternative oncoplastic technique for patients with early stage central breast cancers infiltrating or close to the NAC. This simple technique allows conservative treatment of retroareolar tumors, with good oncologic and aesthetic results.

## Conclusion

In patients with breast cancer located in the subareolar area, conservative approach, with complete resection of the NAC followed by adjuvant radiotherapy, is a safe procedure with satisfying oncological and cosmetic results. We show an alternative oncoplastic technique with resection of the central portion of the breast including NAC with remodelling of the breast which allows to obtain good cosmetic results thus avoiding extensive and time-consuming breast reconstruction procedures.

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