

## Oncological outcomes in oncoplastic breast surgery: a single institution analysis

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**SUMMARY: Oncological outcomes in oncoplastic breast surgery: a single institution analysis.**

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*Oncoplastic surgery is a well-acknowledged technique that combines conserving treatment in breast cancer with plastic surgery reconstruction. The aim of our analysis is to evaluate the safety of this surgical procedure in the setting of invasive primary breast cancer, and then compare breast oncoplastic surgery with the Veronesi quadrantectomy.*

*We have analyzed 1541 patients who underwent breast surgery for primary breast tumor between October 2004 and May 2018 at Sant'Andrea University Hospital in Rome: 880 women experienced the breast oncoplastic approach, while 660 patients received conservative surgery alone. The median follow-up time was 14 years with a completeness of 70% (1067 pts vs 1554).*

*The statistic comparison across these subpopulations suggested that there are no statistically significant results in term of Overall Survival, Disease Related Survival, Local recurrence or positive margins. Therefore oncoplastic surgery for primary invasive breast cancer represents a feasible procedure and an oncological safe surgical option.*

KEY WORDS: Oncoplastic surgery - Invasive breast cancer - Conservative surgery.

### Introduction

After the studies of Umberto Veronesi, demonstrating that overall survival did not differ in case of conservative breast surgery (quadrantectomy followed by radiotherapy) when compared with radical mastectomy, breast quadrantectomy became a great milestone in the treatment of breast cancer, representing the first conservative protocol scientifically assessed.

From Halsted mastectomy to oncoplastic procedures the breast surgery has evolved over the years, establishing a surgical approach that synthesizes the principles of oncologic breast surgery with those of reconstructive surgery. Thus, addressing the ques-

tion about the oncological safety of these new techniques, we have evaluated the long-term results derived from our data.

### Patients and methods

Our analysis is based on a population of 1541 women that underwent breast surgery for invasive primary breast cancer at Sant'Andrea University Hospital Breast Cancer Unit in Rome since October 2004 to May 2018. The average age of patients in this study is 58.37 year (age range from 26 to 89 yrs) and the most common tumor location is the outer upper quadrant (39.58% of cases). All these patients are clinically node-negative (cN0) and received sentinel node biopsy and an axillary dissection in case of node-positivity at histological examination. In the majority of cases primary tumor is identified as T1c breast neoplasia (from 1.1 to 2.1 in diameter).

The incision patterns performed by our breast

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oncologic surgeons as oncoplastic techniques are the partial or total periareolar mammoplasty, the vertical "J plasty" and the lateral or inferior mammary fold plasty (2-4). Furthermore all the cases were discussed after surgery during a weekly multidisciplinary meeting to establish the most proper adjuvant treatment according with biological features, staging and comorbidities. The endpoints evaluated were Disease Free Survival (DFS), Specific Overall Survival (OS) and local recurrence rate according with the type of surgical procedure.

## Statistical methods

This is a retrospective descriptive study based on a data collection system including patients' characteristics, types of surgical procedures, histopathology and follow-up records. All these data are inserted in an original database developed with Microsoft Access and then elaborated with Microsoft Excel and IBM SPSS Statistic Software. The DFS, specific OS and local recurrence incidence were estimated using the Kaplan-Meier method while the log-rank test compared the differences between groups and Student's t test is used for the comparison between means (evidence of statistical significance with a p-value <0.05, extremely significant with p<0.01).

## Results

We've analyzed a large cohort of 1541 patients, of whom 881 (57.2%) underwent oncoplastic breast surgery and 660 (42.8%) received a traditional quadrantectomy (5, 6).

With regard to the type of surgical approach 660 patients underwent a traditional quadrantectomy accounting for 43% of all case, while 635 patients (41%) received a periareolar quadrantectomy. The latter procedure consists of a semicircunferential incision around the Nipple-areolar complex (NAC), ensuring a great access to perform breast parenchyma resection with notable aesthetic impact. On the other side 180 patients underwent quadrantectomy with inframammary fold incision (12% of all cases), while 66 patients received ace trial quadrantectomy with resection of the Nipple-Areola-Complex (NAC).

We have conducted survival analysis based on Kaplan-Meier method according to type of surgery and we didn't detect an overall survival benefit in patients who underwent oncoplastic surgery for breast cancer after 14 years (7, 8). Moreover there is no statistical difference in term of disease-free survival or recurrence rate between the two subgroups of patients (log rank p-value>0.05) although we reported a modest increase in term of ipsilateral recurrence in the oncoplastic surgery group (p-value >0.05) (Figures 1, 2).

These results do nothing but emphasize the oncological safety of oncoplastic breast conservation.

## Discussion

Our breast cancer-specific survival analysis demonstrated that oncoplastic conservative treatment for breast cancer (97.3%) is essentially comparable to the traditional approach (98.6%). Therefore surgical strategy didn't affect survival rate, especially when excluding other major causes of death related to the older age patients (9, 10).

In our series we analyzed as primary end points overall survival and disease-free survival. As for secondary end points we evaluated recurrence rates for both the oncoplastic and the traditional surgical procedure's group, positive surgical margins rates (10.1% in our population with no statistical significant differences between the two groups) and cosmetic outcomes.

Surgeon's decision making is guided by patient's age, tumor size and localization, preferring oncoplastic techniques for inner quadrant or central quadrant lesions (11).

Anyway both the surgical procedures may be considered oncologically safe and the meaningless increase of local events in the oncoplastic group didn't affect survival.

At the end of this analysis the null hypothesis of no difference in term of outcome between oncoplastic and traditional surgery group can be confirmed.

Despite his retrospective and observational nature, this monocentric study demonstrated that the evolution of breast surgical techniques has not influenced patients' outcome. So oncoplastic breast surgery represents a safe approach in case of early breast cancer and must be performed in specialized centres after a multidisciplinary evaluation.

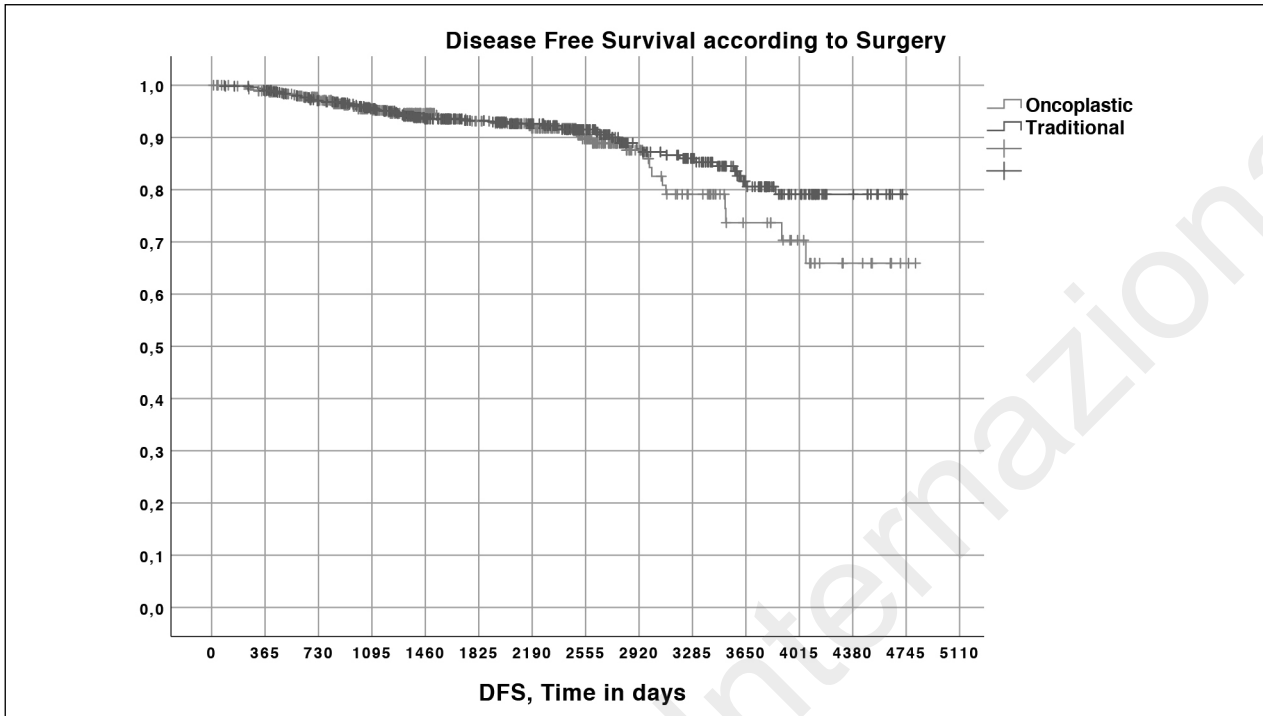


Figure 1 - Disease free survival according to surgery.

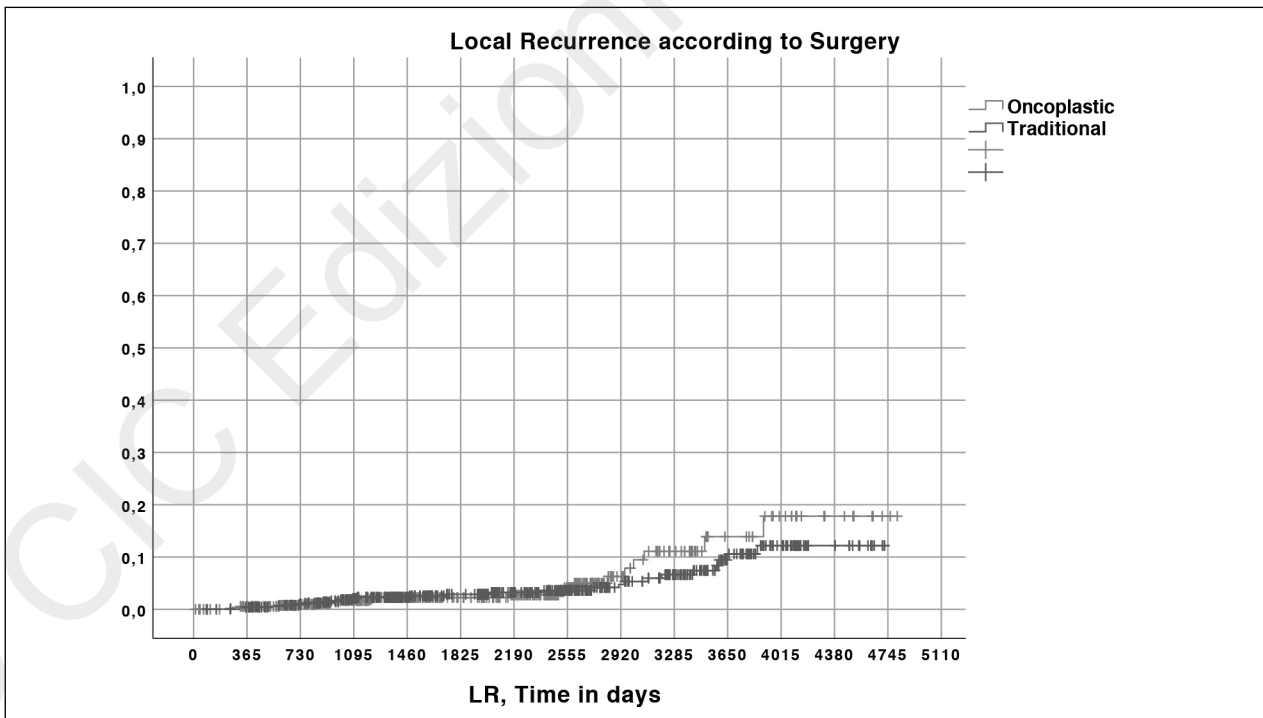


Figure 2 - Local recurrence according to surgery.

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