


<http://dx.doi.org/10.35630/2199-885X/2021/11/1.15>

# LOCAL NODULAR PROCESSES AFTER BREAST CANCER SURGERY

Received 06 January 2021;  
Received in revised form 29 January 2021;  
Accepted 31 January 2021

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**ABSTRACT** — The present study is based on treatment outcomes in 140 women who underwent operative treatment in the volume of oncoplastic radical resection (main group, n = 70) and Madden's radical mastectomy (comparison group, n = 70) for 1<sup>st</sup> to 2<sup>nd</sup> stages of breast cancer. When examined during the first year after surgery, no progression (local and distant) of the disease was observed, both after oncoplastic radical resections and Madden's radical mastectomy. Nodal processes in the surgical area were identified in 7.1% of patients in the main group and 10.0% in the comparison group. No significant difference was found between the groups. We noted that after oncoplastic radical resection, oleogranulomas were more common, whereas after Madden's radical mastectomy — organized lymphoceleles were observed more often.

**KEYWORDS** — breast cancer, radical mastectomy, oncoplastic radical resection, nodular processes.

## INTRODUCTION

Breast cancer (BC) has a leading position in the structure of general oncological incidence and the first place in the structure of oncopathology in women [1]. The treatment of BC should always be comprehensive and comprise such activities as surgery followed by hormonal, targeted, radiation therapy [2]. Surgery is a strong stress for a person, which can adversely affect the course and outcome of the disease. Malignant breast neoplasms are significant medical and social problems of the modern society. Removal of the breast is a crippling operation, leads to loss of attractiveness, loss of femininity and sexuality, a decrease of self-esteem. Therefore, in the last decades classical mastectomy has shifted to organ saving treatment of breast cancer, if it does not violate oncological radicality and lead to deterioration of long-term results [3, 4]. Numerous methods of oncoplastic surgery have been developed combining the principles of radical oncological surgical treatment and plastic surgery [5]. Achieving a satisfactory aesthetic result with the ad-

herence to oncological radicality is most problematic in central localizations (due to loss of the nipple) and medial localizations (reduction of the subcutaneous fat layer) of the tumor, which makes it relevant, to study of the treatment outcomes in patients with central or medial localization of the tumor in the mammary gland [6]. Surgery should be executed with minimal local complications, such as nodular processes and surgical site infections [5, 7].

### The aim

was to assess the immediate results of breast cancer surgery when localizing the tumor in the central and medial quadrants.

## MATERIALS AND METHODS

The study was carried out in the Department of Breast Pathology of Tver Regional Clinical Oncology Centre in 2017–2019. The study included 140 women who underwent oncoplastic radical resection in various modifications or radical mastectomy by Madden, for 1<sup>st</sup> to 2<sup>nd</sup> stages of BC. The patient age varied from 30 to 89 years.

The main group included 70 women diagnosed with 1st to 2nd stages of BC, who had oncoplastic radical resections (OPRR) with various modifications. The tumor was located in the lower-medial quadrant — in 20 cases, in the upper-medial quadrant — in 38 patients, and in the central quadrant — in 11 patients, on the border of medial quadrants — in 1 case. OPRR were done in all cases. The modification of OPRR by Hall-Findlay's technique was used in 11 cases, the upper lateral glandular flap was used in 8 patients, and the lower flap was used in 3 patients. The T-invers version of OPRR was used in 12 patients: in 7 cases — using the upper glandular flap and in 5 cases — the lower one. Round-block OPRR was done in 13 patients, Batwing mammoplasty — in 9 cases, the S-technique of OPRR — in 3 patients, the sliding dermo-glandular flap with Z-shaped incision — in 16 patients, the Gristotti technique — in 5 patients and thoraco-epigastric flap was used in 1 case. The average length of hospital stay was about 21 days. All patients were recommended to undergo the radiation therapy and chemotherapy in the postoperative period depending on the stage of the disease and the immunohistochemical subtype of the tumor.

The comparison group included 70 women with 1<sup>st</sup> to 2<sup>nd</sup> stages of BC in whom Madden's radical mas-

tectomy was performed. The tumor was localized in lower-medial quadrant — in 13 cases, in upper-medial quadrant — in 22 patients, in central quadrant — in 31 patients and in the border between medial quadrants — in 4 cases.

Following the design of the study, all women in both groups had a follow-up examination within one year after surgery. The patients underwent a comprehensive medical check-up: clinical and the biochemical blood tests, oncomarkers (CEA, Ca 15-3), ultrasound of the mammary glands and regional lymph nodes — once every 3 months, then mammography, ultrasound of the abdominal organs, computed tomography of the chest organs every 6 months after the surgical treatment.

## RESULTS

In the period of observation after oncoplastic radical resection 3 patients (4.3% of cases) had marginal skin necrosis. One patient (1.4%) after T-inverted type of OPRR with lower glandular flap had marginal necrosis of areola.

The appearance of nodular formations in the postoperative scar region and soft tissues of the remaining breast tissue with a diameter of more than 2.0 cm was observed in 5 patients (7.1%) 6–9 months after surgery. Thin-needle aspiration puncture of these formations was performed. Unpalpable entities were not identified during this period even with ultrasound.

According to the results of a cytological study, 4 (5.7%) women had cytological signs of oleogranuloma and 1 (1.4%) patient had a lymphocele. Since there were doubts on the local recurrence of BC and the efficacy of conservative treatment of these malformations, we removed them with the use of local anesthesia. Histological examination confirmed the diagnosis of oleogranulema. Thus, there were no locoregional recurrences of BC after oncoplastic breast resections in central and medial tumor localization of tumor. We explain development of such the malformations as consequences of local trophic disruptions in the form of fibrotic-sclerotic processes after radiation therapy and decompensation of local hemodynamics in the early post-operative period. Hepatotoxicity, induced by anticancer therapy, presents an additional challenge. No significant changes in the liver and mammary gland were revealed by ultrasound and examination of oncomarkers.

In the comparison group, nodular formations in the postoperative scar zone on the thoracic wall were detected in 7 (10.0%) patients within 3–6 months after surgery. All of them were unpalpable and detected with ultrasound study. The tactics of treatment were identical to the main group. These formations were

punctured under ultrasound navigation. Cytological examination of aspirates diagnosed lymphocele in 6 (85.7%) patients and an oleogranuloma — in 1 (14.3%) patient.

## CONCLUSIONS

Our findings showed no progression of BC (local and distant) within a year after either oncoplastic radical resections or Madden's radical mastectomy. Nodular processes in the surgical zone were represented by development of lymphocele and oleogranulomas. The most common local nodular complications, we observed after oncoplastic radical resections, were oleogranulomas, whereas lymphocele were more common after Madden's radical mastectomy.

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