Invasive breast tumors in elderly women over ninety: a case series from a breast surgery center

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Abstract

Surgical therapy for malignant breast neoplasms in women over the age of 90 is used with caution due to the possibility of immediate postoperative complications from extended hospital stays. These patients frequently exhibit frailty, multiple comorbidities, and a limited life expectancy. A retrospective analysis of patients aged 89 and older treated in 2023 at our certified breast surgery center was carried out. The goal was to examine the clinical characteristics, decision-making process, surgical treatment, outcomes, and open questions surrounding this high-risk subpopulation. Ten patients participated in the study. The characteristics of tumors treated with extended lumpectomy or mastectomy were investigated. The average hospital stay was 1.7 nights, and only one patient developed postoperative delirium. The median survival time is currently 8 months. Only one patient received any adjuvant therapy. A multidisciplinary approach in very elderly patients allows for the assessment of acceptable operative risks as well as the limitation of immediate, short-term, and medium-term complications, reducing reluctance to undergo surgical treatment.

Introduction

Little data is available on the characteristics of Breast Cancer (BC), therapeutic choices, and overall survival in very elderly patients.[1]

Surgical resection with adequate margins remains the cornerstone of BC therapy. Modern surgery and anesthesia have made breast surgeries generally safe and are typically associated with very low complication rates, even in very elderly individuals.

Due to frailty, burden of comorbidities, and an increased likelihood of severe treatment related-toxicity, fewer elderly patients are fit tend to receive adjuvant treatments.[2]

In particular, in Triple-Negative Breast Cancer (TNBC), adjuvant chemotherapy after surgery is the primary pharmacotherapy and has shown improvement in specific and overall survival in patients between 70 and 90 years of age[3,4] but in older patients, the benefit remains controversial.

Few case studies involving patients over ninety have been

conducted. They conclude that medical treatment for BC in the age group should account for comorbidities, frailty, and complications associated with treatment, including mastectomy and axillary dissection.[1,4]

Materials and Methods

We reviewed ten patients, aged between 89 and 98 years, admitted to our daytime Breast Surgery Center between January 1 and December 31, 2023, who underwent lumpectomy or mastectomy for breast cancer. The most relevant associated pathologies included previous mastectomy for carcinoma in four cases, rectal neoplasia in one case, arterial hypertension in nine women, cognitive deterioration in five cases, atrial fibrillation (under anticoagulant treatment) in three cases, anemia in three cases, aortic stenosis in two cases, Pott's disease and pulmonary embolism in one case, and diabetes mellitus in two cases.

All patients underwent anesthesiologic examination, ECG, and cardiological examination; echocardiograms were performed in five subjects.

Of the five patients with cognitive impairment, only one required geriatric consultation.

The number of daily medications ranged from one to nine. Three patients were on dementia medications, nine were on cardiological medications, and one patient was being treated with Fulvestrant. The neoplasm site was bilateral in two cases, and palpable lymphadenopathy was detected in only two subjects (see Table 1, Figures 1 and 2).

Results

The time interval between the diagnosis of neoplasm and surgery ranged from 11 and 194 days (median 60 days). A preoperative biopsy was performed in only three patients.

Figure 1. Local recurrence (hypodermic nodules) in a 90-year-old subject who had already undergone a right radical mastectomy (2020) and underwent recurrence exeresis (2021) in the same location.

Figure 2. Postoperative result of left enlarged tumorectomy in the older 95-year-old patient with infiltrating carcinoma with G2 medullary features.

Table 1. Anamnestic and objective data of the 10 patients subjected to breast surgery during the 12 months of 2023.

Patient ID	Age	Previous surgery	Tumor characteristics	Tumor size	Palpable axillary lymphadenopathy	Current surgery
D.M.	91	Right mastectomy 2008, pleural recurrence 2015, Fulvestrant therapy	Single nodule	3 cm	No	Left mastectomy
B.M.	90	None	Retracted right breast, orange peel skin, lesion	12 cm	Yes	Right mastectomy, removal of lymphadenopathy
P.A.	89	Left mastectomy	Raised crusted/eroded plaque	4 x 3 cm	No	Local recurrent excision
Z.R.	98	None	Single nodule	2 cm	No	Tumorectomy enlarged left breast
B.M.	90	Right radical mastectomy (2020); exeresis of recurrence (2021)	6 hypodermic nodules on surgical scar	From 0.8 to 1.5 cm	No	Local exeresis relapses (two surgeries)
C.T.	93	Colorectal cancer resection	Hypomobile ligneous nodulation right breast (1.5 cm), not palpable lesions left breast	Right 1.5 cm Left 0.5 mm	No	Bilateral enlarged tumorectomy
P.G.	89	Right radical mastectomy (2021)	Single nodule	2 cm	No	Exeresis of local recurrence
V.B.	95	None	2 nodule sx 2 nodule dx	6 cm + 1.5 2 cm + 1.5	Yes	Bilateral enlarged tumorectomy
C.A.M.	93	None	Single nodule	3 cm	No	Left mastectomy
P.E.	91	None	Single nodule	3 cm	No	Left enlarged tumorectomy

Median age: 91 years; range: 89-98 years.

The surgical interventions included two bilateral enlarged tumorectomies, two unilateral enlarged tumorectomies, three mastectomies (one with associated lymphadenectomy), and three local recurrence excisions.

Six patients had general anesthesia, and four had local anesthesia with sedation. The duration of surgery ranged from 20 to 100 minutes (median 49 minutes). Hospitalization ranged from 1 to 3 nights, with one case of postoperative delirium.

Postoperative histology revealed infiltrating lobular carcinoma (G2-G3) in three cases, ductal NST infiltrating carcinoma (G1-G3) in five cases, infiltrating carcinoma with medullary features (G2) in one case, and infiltrating carcinoma with focal cribriform features (G2) in one case. Perineural infiltration was detected in seven cases and angioinvasion in three cases. Surgical margins were clear in eight cases. Estrogen receptor (ER) values 0 in four cases and ranged from 60% and 99% in six cases. Progesterone receptor (PR) values 0 in four cases and ranged from 1% and 95% in six cases. Ki-67 values ranged from 3% to 45%, and HER2 was negative in nine cases and positive in one case (see Table 2). The postoperative oncological examination was carried out in only four patients. No patient underwent neoadjuvant therapy, chemotherapy, hormone therapy, or radiotherapy. One patient was offered adjuvant endocrine therapy but did not undertake it due to progressive clinical deterioration, leading to death three months after surgery in a patient with hypertensive heart disease in atrial fibrillation.

A patient who had undergone a previous mastectomy and was treated with Fulvestrant stopped the drug after the second mastectomy. During the postsurgical observation period, currently between 3 and 16 months, no local complications appeared except for one case. Of two deceased patients, one died seven months after surgery due to pleural metastases. The clinical characteristics of a 95-year-old patient, with 16-month follow-up without complications are described as an example (see Table 3).

Discussion

Although our case series included a limited number of patients, some consideration can be made. The period between the diagnosis of neoplasm and surgical intervention did not exceed seven months, mainly due to the reluctance towards surgery by family members

Table 2. Tumors characteristics.*

Histology	Invasive lobular carcinoma: 3 Invasive carcinoma NST (of No Special Type): 5 Invasive carcinoma with focal cribriform features: 1 Invasive carcinoma with medullary features: 1
Grade	Grade 1: 1 Grade 2: 4 Grade 3: 5
ER (estrogen receptor) status	Positive: 6 Negative: 4
PR (progesterone receptor) status	Positive: 6 Negative: 4
HER2 (human epidermal growth factor receptor 2) status	Positive: 1 Negative: 9
Ki-67 protein	Greater than 20%: 5 Less than 20%: 5

*Table 2 provides important data for understanding the characteristics of tumors, including histology, grades, and various molecular markers such as ER, PR, HER2 status, and Ki-67 protein percentage. The evaluation of these biological parameters indicates a possible prognostic and/or predictive value in breast cancer, through the use of immunohistochemical technique on formalin-fixed tissue.

Table 3. Example of the clinical characteristics of a 95-year-old patient undergoing bilateral enlarged tumorectomy.

B.V., year of birth: 1928.
Concomitant pathologies: cognitive deterioration - hypertensive heart disease - aortic stenosis - disabling polyarthrosis - hypovitaminosis D - lower limb lymphedema – maculopathy
Functional status ADL: 1/6 - Advanced functional status IADL:1/8
Number of drugs taken: 4
Diagnosis-intervention time interval: 60 days
Type of surgery: bilateral enlarged tumorectomy
Type of anesthesia: general
Intervention duration: 82 minutes
Postoperative delirium: absent
Number of hospital nights: 2
Postoperative histology: left breast: infiltrating carcinoma with medullary aspects, G2, with necrotic areas and inflammatory, lymphocytic infiltrate and NST (E-Cadherin +)
Perineural infiltration: present - angioinvasion: absent
Surgical margins: free
ER status: negative - PR status: negative - HER2 status: negative (triple negative: TNBC)
Ki-67: 30%
Left breast: scleral-hyaline fibroadenoma
Right breast: scleral-hyaline fibroadenoma + calcific fibroadenoma
Chemotherapy: no - radiotherapy: no - hormonal therapy: no
Follow-up: 16 months without local and general complications
ADL (Activities of Daily Living), range 0-6
IADL (Instrumental Activities of Daily Living), range 0-8

and the need to stabilize the clinical picture and conduct preoperative evaluations during the post-Covid period. The preoperative checks were relatively rapid given the general good health compensation in most of these very elderly patients. Cognitive impairment and anticoagulant therapy were not limiting factors. Surgical removal was necessary to prevent the local progression of retractable superficial skin cancer and its disfiguring ulcerative evolution, in turn associated with pain.

The determination of hormone receptors did not influence clinical decisions regarding hormone and chemotherapy, which were not pursued in most patients due to their advanced age. However, the conclusions of a large observational cohort study conducted in England (Bridging the Age Gap) should be taken into consideration. This study detected, among other things, the effect of adjuvant chemotherapy in a group of elderly women (up to 95 years of age) in good health with early-stage, high-risk, ER-negative BC.[5]

To address discrepancies in the clinical management of older and frail patients, the use of a Decision Support Instrument (DESI) can be considered. Additionally, the online decision-making tool Age Gap could be helpful.[6]

Conclusions

Advanced age alone should not preclude surgical therapy for BC. A multidisciplinary evaluation, including comprehensive geriatric assessment, should be performed within specialized cancer centers[7-11] to evaluate life expectancy, comorbidities, autonomy, and frailty, and to minimize possible postoperative complications.[12]

Recent Italian guidelines recommend measures to reduce postoperative delirium, length of stay, and mortality prediction.[13] Adjuvant hormonal therapy was generally not considered due to the high risk of toxicity and low compliance among our oldest old patients, taking into account decision-making processes supported by recent scientific studies.

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