

## Breast Cancer with Inguinal Lymph Nodes Metastasis: A Case Report

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### Abstract

Inguinal lymph node involvement of breast cancer remains extremely rare. Here we report a 48-year-old patient with left breast intermediate grade locally advanced invasive lobular carcinoma (pT3N3aM0), positives hormones receptors, negative for HER2 amplification and synchronous left inguinal lymph node metastasis during her adjuvant chemotherapy. The pathological assessment of the left inguinal node confirmed metastasis from breast cancer. After left inguinal lymph nodes dissection, we noted a progression to left iliac external lymph node and the patient referred for palliative chemotherapy. Pathogenesis is not always established.

**Keywords:** Breast cancer; Lymphadenopathy; Inguinal metastasis

### Introduction

Breast cancer tends to metastasize to the lymphatic pathways to regional (especially axillary and supraclavicular) lymph nodes and hematogenous organs such as the liver, lung, bone, brain, etc. However, inguinal lymph node involvement remains extremely rare. We describe here a case of breast cancer that developed a synchronous inguinal lymph node metastasis during her chemotherapy.

### Case Report

A 48-year-old woman presented with an eight-month history of a painless left breast lump. Breast examination revealed a painless tumor measuring 3 x 4 cm located in the junction of the outer quadrants of the left breast with an ipsilateral axillary lymph node. She was 02 gestates and 02 parities and never used oral contraceptives.

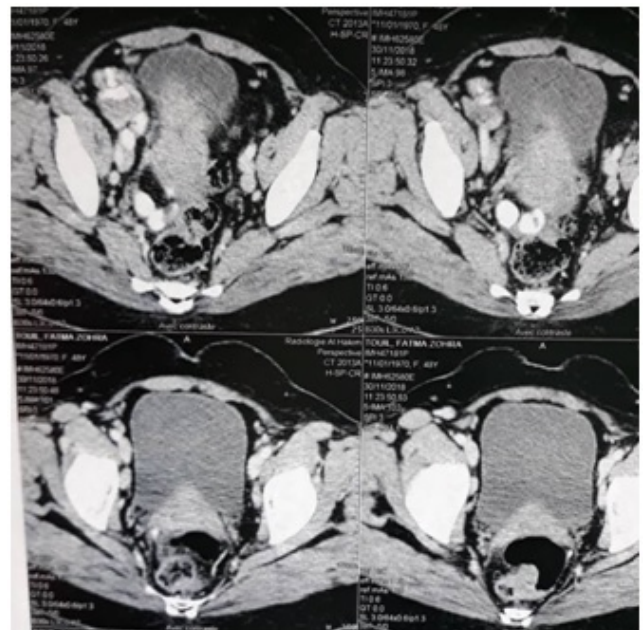
Mammography showed a round-shaped radio-opaque mass and ultrasound revealed several enlarged left axillary lymph nodes.

A Core needle biopsy confirmed a low grade (grade I of SBR) invasive lobular carcinoma without peritumoral lymphovascular invasion, perineural invasion, which was positive for estrogen receptor ER (+), positive for progesterone receptor PR (+), and negative for HER2 amplification. Her standard chest X-ray, abdominal ultrasound and bone scan were normal. Staging workup revealed a stage IIB (cT2N1M0) left breast cancer.

She underwent left mastectomy and axillary lymph node dissection. Postoperative pathology revealed a middle grade (grade II of SBR) invasive lobular carcinoma, tumor size was 6.5 cm. There was not peritumoral lymphovascular invasion or perineural invasion, no intralobular component, the nipple was not invaded, without Paget's disease. Negatives surgical margins. Axillary lymph node dissection revealed 15 metastatic lymph nodes (out of 19) with the extracapsular extension (pT3N3aM0).

Adjuvant chemotherapy six cycles of Adriamycin/Cyclophosphamide and Docetaxel (3AC60+3TXT) was administrated.

During her chemotherapy, she presented an enlarged left inguinal lymph node. A contrast-enhanced computed tomography of chest, abdomen, and pelvis was performed and revealed a left inguinal lymph node. The inguinal lymph node dissection is planned after adjuvant radiotherapy.



**Figure 1:** Contrast-enhanced computed tomography of the pelvis showing right iliac external lymph node progression.

Hypofractionated left whole chest wall and supraclavicular radiotherapy was performed (42Gy; 2.8Gy by fraction; 5fractions per week), followed by inguinal lymph node dissection. Pathology showed features consistent with those of breast cancer. Immunohistochemical

profile favoring a localization in the lymph node of poorly differentiated carcinomatous process compatible with breast origin:

- Anti-CK7+ antibodies: diffuse positive labeling of tumor cells.
- Anti-GAT2+ antibodies: diffuse positive labeling of tumor cells.
- Anti-estrogen receptor antibodies: diffuse positive labeling of tumor cells.
- Anti-CK20 antibody :absence of labeling of tumor cells

These findings suggested that the inguinal tumor was a metastasis from the lump in the left breast.

A comparative CT scan was performed and revealed lymph nodes progression with the involvement of the right iliac external nodes (Figure 1). She was referred for palliative chemotherapy.

## Discussion

Breast cancer can spread virtually to all organs of the body. Remote propagation is usually via the lymphatic system or the bloodstream [1,2].

The lymphatic metastatic pathway of breast cancer is from the axillary or parasternal lymph nodes to the supraclavicular lymph nodes. The regional spread can occur at the ipsilateral axillary, supraclavicular and sometimes at the ipsilateral internal breast chain. The metastases to the contralateral axillary region is classically called metastatic disease in the absence of contralateral breast disease. However, aberrant lymphatic spread can sometimes occur after occlusion of lymphatic drainage following axillary dissection or irradiation [3,4]. Non-regional lymph node involvement by breast cancer has been described earlier in mediastinum, para-aortic and pelvic lymph nodes. Metastasis of breast cancer to inguinal lymph nodes is extremely rare [1-8].

Shikha et al. described a case of triple-negative breast cancer, who developed contralateral breast cancer during treatment [1]. Three years later, she developed isolated inguinal nodal metastases, which responded to local radiotherapy and chemotherapy. However, the patient relapsed after 2 years and could not be salvaged thereafter. They suggested that Surgery and irradiation for breast cancer may interfere with conventional pathways of spread, leading to bizarre patterns of dissemination through lymphatics or hematogenous route. Lymphoscintigraphic studies may help identify nodal involvement.

The pathways to the inguinal lymph nodes are thought to follow one of two routes: a direct pathway through the skin or subcutaneous lymph vessels or a retrograde pathway through the submuscular fascia when axillary lymph nodes are blocked. Baba et al. reported the case of a patient with an inguinal ganglion and breast mass [2]. The appearance of the inguinal ganglion preceded the breast nodule one year. Treatment consisted of modified radical mastectomy, chemotherapy, hormone therapy, and bilateral inguinal lymph nodes dissection and right inguinal irradiation. Histopathology showed invasive ductal carcinoma, axillary lymph node involvement (4 nodes positives/16 nodes) and the negative status of the hormone receptors.

Kilciksiz et al. also described the case of a patient with early breast cancer (T2N0M0, triple-negative, with lymphovascular space invasion treated with breast-conserving surgery, adjuvant radiotherapy and chemotherapy [3]. Five years later, she developed edema of the right leg and pain. Repeated investigations for persistent complaints showed a right inguinal ganglion (3 cm) with right iliac and retroperitoneal lymph nodes. The balance for other abdominal malignancies was negative. The biopsy of the inguinal ganglion confirmed the presence of triple-negative adenocarcinoma.

Jebbin et al. described two other patients with inguinal lymph node metastases [7]. Retrograde embolization has been suggested as probable pathogenesis.

In our case as well as the available literature, altered lymphatic pathways could have been responsible for the inguinal involvement. A hematogenous spread is also plausible.

## Conclusion

The variability observed in the biological behavior and clinical course of breast cancer is well known. However inguinal lymph node metastases are very rare and clinicians should be cautious of unexpected complaints. The pathogenesis is a little known, probably a retrograde embolization.

## Conflict of Interest

No conflict of interest was declared.

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