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Case report

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A case report of diffuse large B-cell lymphoma of breast associating an ovarian tumor

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Abstract

Described for the first time in 1959, Primary non-Hodgkin´s lymphoma of the breast is a rare clinical entity which clinical presentation and radiological description is not different from other breast malignancies. Due to the rarity of cases and the few cases reported in studies, the management has still no clear guidelines. The management and outcome of primary breast lymphoma and carcinoma are totally different. Early and prompt diagnosis of primary breast lymphoma is important to avoid unnecessary mastectomies. We are reporting a case of a nulliparous patient aged of 30 with family history of colon cancer who consulted first for the management of a pelvic mass and the exam

revealed a breast mass, which was diagnosed as diffuse large B-cell lymphoma. No diagnosis could be found for the ovarian tumor as the patient passed away under investigation.

Introduction

Primary non-Hodgkin's lymphoma of the breast is very rare and a distinct possibility in the diagnosis of breast malignancies, accounting for only about 0.1 to 0.5% of all reported malignant breast tumors [1]. It was described for the first time in 1959 by Dobrotina *et al*. [2]. There are various kinds of breast lymphomas (BLs), but the most common is the B cell non-Hodgkin's lymphoma [3]. BLs have been categorized into primary breast lymphoma (PBL) and secondary breast lymphoma (SBL) types [4]. The clinical symptomatology and imagery description are not different from the other kind of malignant tumors of breast. The diagnosis is obtain by histology. In this report, we are presenting a rare case of diffuse large B-Cell lymphoma of breast associated with an ovarian tumor which malignancy could not be proven and we provide a review of breast lymphomas.

Patient and observation

Patient aged 30 admitted for the management of a pelvic mass with kidney failure evolving for 2 months. From a father dead of kidney failure with colon cancer. She is nulliparous without any other significant pathological history. The patient was instable without a weight lost notion. The abdominal examination showed a distended abdomen with no collateral venous circulation and increased pain in the lumbar region and the right iliac fossa without defense. We noticed an irregular right pelvic mass arriving half way to the umbilicus. The exam with the speculum was difficult due to the weight of the mass, there were no bleeding from the vaginal tract, no vulvar and vaginal lesion. The vaginal touch found a mass filling all the posterior face of the vagina. The rectal touch was painful with the palpation of an irregular mass in the pouch of Douglas. The breast exam found a symmetric breast without any skin modifications of inflammatory signs. On the left breast: presence of two irregular masses of the upper extern quadrant (5cm/4cm) and the junction of the down quadrant (4cm/3cm) mobile compared to the superficial and the deep plan with the palpation in axillary area of a mobile node of 1 cm and a fix node of 8cm/6cm. tumor classified T2N2MX. On the right breast: there were no palpable mass. The dosage of tumoral marquor showed a CA125 higher at 452. On pelvic ultrasound: we found a uterus of normal size with a presence of a voluminous right lateral-uterine mass heterogeneous and hypoechoic taking the whole screen appearing in contact with the uterus and not vascularized on Doppler with a peritoneal effusion of great abundance.

On pelvic MRI: it was a bulky pelvic tumor suspicious of malignancy most probably of right ovarian origin measuring 112 x 105 x 120 mm with invasion of the right ovarian vascular pedicle and significant dilation of ipsilateral renal excretory pathways (37mm) and ipsilateral peri-renal infiltration; presence of ascites of average abundance. The left ovary was without abnormality. Absence of carcinomatosis.

On thoracic abdominal and pelvic computed tomography: massively necrotic and locally advanced uterine right lateral tumoral process of probable ovarian origin; right retro peritoneal infiltration locally advanced with peritoneal carcinomatosis; 03 left breast lesions; suspected right axillary and bone lymph nodes; pulmonary parenchymal nodule. The whole can be part of a lymphomatous pathology. The exploration of the breast by mammography showed a deep opacity of the left breast upper extern quadrant, contours masked by the gland, absence of suspicious macro calcifications, respect of sub cutaneous fatty tissues and fine and regular cutaneous borders. The exploration was completed by the breast ultrasound which found 02 lesions of the left breast: the first one in the upper extern quadrant, encapsulated, heterogeneous, hypoechoic with a large axis parallel to the skin, non-attenuating, measuring 23 cm: ACR4a and the second one

described as an heterogeneous hypoechoic of upper quadrant junction with irregular and large axis parallel to the skin measuring 26mm: ACR4b. The biopsies of the two masses of the left breast found a mammary parenchyma dominated by diffuse cellular proliferation of architect, large cells with vesicular nuclei and nucleoli with poorly limited eosinophilic cytoplasm; presence of mitotic figures; immunohistochemistry expression of CD20, anti-CD3 antibody expressed by the reaction T lymphocytes; anti-CK and anti-E cadherin antibodies were negative; ki67% estimated at 80%. Appearance of a mammary localization of diffuse large B-cell lymphoma. The cytology of the peritoneal liquid did not find tumor cell. In front of the instable condition of the patient, a neoadjuvant chemotherapy had been indicated waiting for histological proof for the ovary but patient died before any complete care. According to the argument in our possession, we were in front of a diffuse large B-cell lymphoma of the left breast associating an ovarian tumor with peritoneal carcinosis.

Discussion

B-cell lymphoma is an extremely rare disease. Evidences concerning this entity rely mainly on case reports and case series rather than clinical trials and indicate that both diagnosis and management are difficult. Indeed, while clinical presentation and radiological features mimic those of epithelial breast cancer, prognosis and treatment are quite different [5,6]. According to some authors, the lifetime risk of developing non-Hodgkin lymphoma for a woman is approximately 1.8%, and primary breast lymphoma accounts for 2% of all extra nodal non-Hodgkin lymphomas [7]. This pathology has been reported by Fatnassi *et al.* to generally affect the woman, however cases in men have been reported. Regarding age, two peaks of frequency were noted, a first peak in the young woman of reproductive age often during a pregnancy, the second is more important between 50 and 60 years and more favorable prognosis [8]. Clinical presentation and radiological findings of BLs are non-specific and mimic those of primary breast cancer. The attack is often unilateral. In 18% of cases, it is bilateral, it can be simultaneous (12%) or successive (6%). The mode of revelation is almost always the development of a mammary tumor [9]. In ultrasound, the presentation is not specific, most often in the form of a homogeneous hypoechogenic mass with regular and clean contours. Rarely one aspect of mastitis is found in ultrasound [8]. The typical mammographic appearance of PBNHL consists of a solitary, noncalcified, circumscribed or indistinctly marginated mass with adjacent lymphadenopathy. On mammography, lymphoma may lack the irregular border of infiltrating carcinoma and more than half exhibit no calcification [10].

The differential diagnosis with other breast cancers relies on pathological examination and biopsy is mandatory [11]. The anatomopathological analysis of the pieces of breast biopsy of our patient showed a mammary parenchyma dominated by diffuse cellular proliferation of architect, large cells with vesicular nuclei and nucleoli with poorly limited eosinophilic cytoplasm; presence of mitotic figures with expression of CD20, anti-CD3 antibody expressed by the reaction T lymphocytes; anti-CK and anti-E cadherin antibodies were negative; ki67% estimated at 80% on immunohistochemistry. No established guidelines exist for PBL management due to the fact that only few cases are reported in literature, and almost all of them are reported in retrospective series with variable results. The treatment might include combination of surgery, chemotherapy, and radiotherapy [12]. For some authors, the management of primary non-Hodgkin's lymphoma of breast is based on histologic grade. Patients with low grade disease can be managed with local therapy alone. The role of chemotherapy in this group is unclear. Patients with intermediate or high grade disease have better out come if chemotherapy is included [3]. A clear difference in prognosis and management of high- and low-grade BL can be observed [13]. Treatment strategies for high-grade BL comprise a combination of anthracycline-based chemotherapy and rituximab followed by consolidative ipsilateral

breast radiotherapy, which reduce the risk of local recurrence [14-16]. Armando *et al.* [13] recommended in their study that surgical interventions should be limited to biopsy to obtain the correct histological diagnosis and guide therapy. Low-grade BLs do not need chemotherapy, instead should be treated with surgical excision followed by radiotherapy in case of positive margins. Mastectomy which has been a common component of PBL therapy for decades and remains a frequent treatment choice in some reports has been reported as no benefit in several studies in the treatment of primary breast lymphoma and may delay the start of chemotherapy [4,17,18]. The histological type and the clinical stage of the disease remain the two main prognostic factors [8,19]

Conclusion

Primary non - Hodgkin's lymphoma of the breast is very rare and a distinct possibility in the diagnosis of breast malignancies. The review of the literature showed that there is no specific clinical symptomatology and radiological description. The diagnosis is obtain by histological analysis. The management has still no clear guidelines. The case we have described could not be managed as the patient passed away under investigation.

Competing interests

The authors declare no competing interests.

Authors' contributions

All the authors have read and agreed to the final manuscript.

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