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Case report

Breast lymphoma occurring after an invasive ductal breast carcinoma developed in the same area: A case report and literature review

Lymphome secondaire du sein dans la région d'un carcinome canalaire traité auparavant : cas clinique et revue de la littérature

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ABSTRACT

Chemo- and radiotherapy are treatments very helpful to cure cancers but are also well known for adverse effects such as secondary cancers. Breast cancers following Hodgkin lymphoma have been relatively well studied. Breast cancers after radiotherapy covering or nearby breasts or nipples are usually carcinomas or secondary sarcomas. Among the big cohort of patients treated for breast carcinomas, breast lymphomas developed in the same area are not usual. Nevertheless, published studies described a significant increased risk of non-Hodgkin lymphoma after initial radiotherapy for a solid cancer. Here, we report a case of a secondary breast lymphoma observed in a 53-year-old woman treated 13 years before for a ductal carcinoma and analyse such second tumors with a review of the literature. This case report emphasizes the importance of the biopsy in case of recurrence in breast cancer to give the appropriate treatment.

Mots clés :
Cancers secondaires
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Lymphome mammaire
Biopsie

RÉSUMÉ

La chimiothérapie et la radiothérapie sont des traitements très utiles pour guérir les cancers, mais elles sont également bien connues pour les effets indésirables tels que les cancers secondaires. Les cancers du sein faisant suite aux lymphomes de Hodgkin ont été relativement bien étudiés. Les cancers du sein après une radiothérapie mammaire ou à proximité des seins ou des mamelons, sont généralement des carcinomes ou des sarcomes secondaires. Parmi la grande cohorte de patients traités pour des carcinomes mammaires, les lymphomes du sein développés dans la même région ne sont pas habituels. Néanmoins, des études publiées ont montré un risque accru significatif de lymphome non hodgkinien après une radiothérapie initiale pour un cancer solide. Nous rapportons ici un cas de lymphome secondaire du sein observé chez une femme de 53 ans traitée 13 ans auparavant pour un carcinome canalaire en analysant cette séquentialité avec les données de la littérature. Ce cas clinique souligne, par ailleurs, l'importance de la biopsie en cas de récidive dans le cancer du sein, permettant d'orienter la prise en charge.

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1. Introduction

Ionizing radiation increases risk for sarcomas or carcinomas. Chemotherapy and radiotherapy are both known to increase leukemia [1]. A few years ago, a radiation epidemiological study has described that the risk of non-Hodgkin lymphoma increased after radiotherapy for any solid cancer [2]. Here, we report the case of a 53-year-old woman presenting with a high-grade right breast lymphoma 13 years after being treated by surgery, adjuvant chemotherapy and local irradiation for a homolateral breast adenocarcinoma. Breast lymphomas are a rare entity which represent 2% of extranodal lymphomas and less than 0,7% of all malignant breast tumors [3,4]. Two distinct forms of breast lymphoma have been described: breast lymphoma occurring among young women are usually of high grade histology, bilateral and associated with lactation, sometimes during pregnancy [5], whereas breast lymphoma occurring among older women are usually slowly growing unilateral breast tumors [6]. The histological type is more often diffuse large-B cell lymphoma but can also be mucosa-associated lymphoid tissue (MALT) lymphomas [3,6]. No aetiology is usually found for this kind of tumor. Breast lymphomas are usually classified in the high-risk category of lymphoma. The initial symptoms do not differ from invasive carcinomas. The mammograms can be different and more than 50% do not have calcification. Treatment with chemotherapy is adapted to lymphoma histology and staging. A local treatment by involved-field irradiation may increase the survival [4]. The place of the surgery is still in discussion [4,7]. The survival depends on the histologic type and on the stage and varies from 26 to 65% at 5 years according to the different studies [7]. Here, we report the case of a woman who developed firstly at the age of 53 years an invasive ductal breast carcinoma and secondary 13 years after a non-Hodgkin breast lymphoma in the same area. This arises again the question of a potential influence of previous breast cancer treatments and obviously the impact of the ionizing radiation on the development of a breast non-Hodgkin lymphoma.

2. Case presentation

A 53-year-old Caucasian woman presented with an inflammatory right breast evolving rapidly over 3 weeks. She had been regularly seen at follow-up for a pT2 (20 mm) pN0 M0, stage II according to Scarff, Bloom and Richardson grading system, right breast ductal cell carcinoma, which had been treated 13 years before by lumpectomy and lymphadenectomy, followed by chemotherapy (three daily consecutive injections of 10 mg of thiotepa) and mammary gland irradiation (49.5 Gy to the entire breast with telecobaltherapy in 22 sessions by two opposite beams and brachytherapy boost of 12 Gy to the tumor bed delivered during 22 hours and 10 minutes by five lines of iridium 192). Her other past medical history included a craniofacial malformation (lack of frontal sinus, prognatism and nasal column deviation), which is probably a binder syndrome (a congenital maxillonasal characterized by a retruded midface with an extremely flat nose) and hysterectomy for fibroma in 2001. Her risk factors for breast adenocarcinoma included early menstruation beginning (starting at the age of 10), one late pregnancy at the age of 27 years without breast-feeding, estroprogestive contraception during 16 years. No family history of cancer was noted. Breast clinical and radiological follow-up was unremarkable. Physical examination at the time of admission in January 2005 found diffuse inflammatory symptoms with skin thickening. No peripheral lymphadenopathy nor contralateral abnormalities were noted. On mammography skin thickening and previously described post-therapeutic macrocalcifications of the right breast were noted. On ultrasound, heterogeneous liquid zones were noted not specific for local relapse or post-therapeutic modifications. An MRI was decided and it was noted multiple voluminous contrast enhanced lesions of the retronipple region of the right breast and no lesion on the left breast [Fig. 1a]. Biopsies revealed a CD20, MiB1 large cell breast lymphoma. Staging of the lymphoma with bone marrow biopsy and myelogram, head and neck, thorax, abdomen and pelvis scanner and (^{18}F)-fluorodeoxyglucose (FDG) positron emission tomography (PET) confirmed the strict localisation to the breast of the disease [Fig. 1b]. The patient was then treated with chemotherapy (two cycles of cyclophosphamide, epirubicine, eldesine, prednisone [CEEP] and rituximab in association with intrathecal methotrexate injection, one administration of methotrexate, aracytin and rituximab, high dose carmustine, etoposide, cytarabine, melphalan chemotherapy [BEAM]) followed by autologous bone marrow transfusion which ended 3 months later. A complete response was noted and the question of local treatment was raised. No radiotherapy could be given and the alternative was active surveillance or lumpectomy. A lumpectomy was performed 2 months after the end of the chemotherapy, at the patient's request and pathology did not find any tumor cell. Nine years later, the patient was still in complete remission.

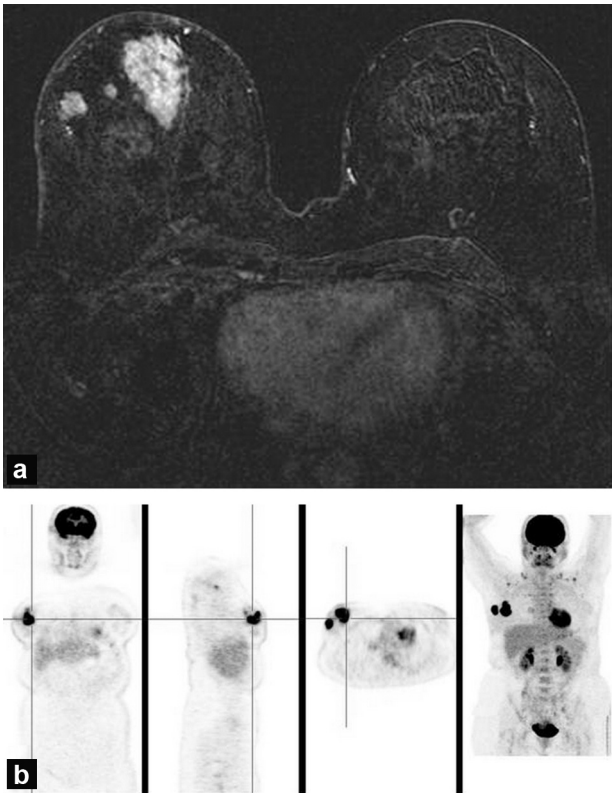

Fig. 1. a: breast MRI at the time of the breast lymphoma; b: PET-scan at the time of the breast lymphoma: one breast spot.

3. Discussion

Second malignancies occurring after radiotherapy used for breast cancers are a well-known complications. The question that was raised is whether this lymphoma was a complication of the last radiotherapy, or of the chemotherapy by thiotepa or if this association was due to genetic mutation. Literature is rather poor regarding such a rare entity.

In a retrospective series of 3315 women with a history of breast cancer, Tanaka and al. described a higher risk of 3.5 (range: 1.4–7.1)

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