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RESEARCH ARTICLE

METAPLASIC BREAST CARCINOMA: A CASE REPORT WITH LITERATURE REVIEW

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ABSTRACT

Metaplasic breast carcinomas are rare tumors. They constitute a heterogeneous group of tumors defined by the Wotld Health Organization as infiltrating ductal carcinoma but with metaplasic zones (epidermal cell, spindle cell, chondroid, bone or mixed), which vary from a few miscoscopic foci to a complete glandular replacement. The clinical and radiological aspects are not specific. The treatment combines surgery, radiotherapy and chemotherapy. Hormonal therapy has no place. The prognosis is gloomy. Histopathology combined with immunohistochemistry provides a reliable diagnosis. Since therapeutic management is limited, a new molecular approach could modify this weak and poorly understood contribution of classical systemic treatments. Patients with breast metaplasic carcinoma may benefit from targeted therapies, which remains to be confirmed by clinical trials.

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INTRODUCTION

Metaplasic breast carcinomas are rare tumors with particular interest because of their clinical, radiological, histological, and therapeutic differences from those of the usual form of breast cancer. We report a new case of metaplasic breast carcinoma, and through the analysis of data from the literature, we review the different aspects of this type of breast carcinoma.

Observation: It's a 55 year-old-woman, who had a total hysterectomy 15 years ago for benign pathology, without using hormone replacement therapy of menopause. She was hospitalized at Military Hospital of Instruction Mohammed V (HMIM-V) in Rabat for a left breast node discovered at autopalpation. The clinical examination found a 3cm node at the external upper quadrant of the left breast, not well limited, indurated, mobile, without inflammatory signs and without nipple discharge. The examination of the axillary and supraclavicular areas does not show palpable lymphadenopathy, the rest of the somatic examination is without any particularity. Mammography found an opacity in the external upper quadrant, measuring 3 cm of long axis, stellar with foci of micro calcifications (Figure 1). Breast ultrasound shows a round lesion, with irregular boundaries, heterogeneous, with solid and cystic component (Figure 2), vascular with color Doppler. This echo-mammographic aspect is classified as BI-RADS 4 of the ACR. The micro biopsy revealed as invasive breast carcinoma whose morphological and immunohistochemical appearance is in favour of metaplasic breast carcinoma (Figure 3,4).

The extension assessment including chest X-ray, hepatic ultrasound and bone scintigraphy was negative. It is therefore a stage T2N0M0. A conservative treatment involving a large tumorectomy with left axillary lymph node dissection was performed. Chemotherapy and adjuvant radiotherapy are to be discussed in multidisciplinary concertation meeting after final anatomopathological examination of the specimen.

DISCUSSION

Metaplasic breast carcinoma is a rare primary malignant tumor but steel growing up (Song, 2013; 3) representing 0.2 to 5% of breast cancers. A growth in the number of cases reported annually has been noted and can be explained by an increase in the incidence of the disease and the attention paid to its diagnosis (Babahabib, 2014; Barnes, 2005). The World Health Organization classification of 2003 distinguishes between purely epithelial carcinomas including squamous cell carcinoma, adenocacinoma with fusiform differentiation, adenosquamous carcinoma, and mixed dual epithelial and mesenchymal carcinoma (World Health Organization Classification of Tumours, 2003). These tumors occur in postmenopausal women with a mean age of 53 years old (Babahabib, 2014; Penault-Llorca, 2009) which corresponds to the age of our patient. The clinical symptomatology is nonspecific. The tumor is usually in the form of a mass comparable to a benign tumor but usually with rapid development. Mastodynia, inflammatory signs, nipple discharge, nipple retraction, ulceration of the skin and sometimes breast abscess are often reported.

Lymph node involvment is rare (Günhan-Bilgen, 2002; Greenberg, 2004). The radiological aspect is also nonspecific. But signs such as hyperdensity of the mass and the absence of micro calcifications may be evocative at mammography (Günhan-Bilgen, 2002). Breast ultrasound can reveal foci of haemorrhagic, necrotic or cystic changes, which are common (Yi-Chen Lai, 2012). These tumors may escape screening because of usually rapid evolution (Penault-Llorca, 2009). In our case, ultrasound showed a rounded, irregular, heterogeneous mass, with solid and cystic component. The macroscopic appearance is nonspecific, it is usually a firm tumor, well limited, with a large size ranging between 0.5 and 18cm (Penault-Llorca, 2009; Greenberg, 2004). In our case, the tumor measures 3cm of long axis. Histologically, squamous cell carcinomas are easy to diagnose and are characterized by a proliferation of polygonal squamous cells connected by apparent desmosomes, with or without dyskeratosis foci. Adenocarcinoma with fusiform cell metaplasia is corresponding to a glandular carcinoma with extensive foci of fusiform cells of an epithelial nature. Adenosquamous carcinomas are made of two epithelial malignant contingents, glandular and epidermoid one. Mixed metaplastic carcinomas are characterized by the association of infiltrating carcinoma and heterologous mesenchymal elements represented by areas of cartilaginous, bone or muscle differentiation … when the mesenchymal contingent is malignant, the tumor is called carcinosarcoma (Luini, 2007). The association with in situ ductal cancer is not uncommon (50% of cases) (Greenberg, 2004).

Immunohistochemically, hormone receptors are positive in less than 17% of cases (Barnes, 2005) and overexpression of HER2 is also absent and metaplastic carcinomas are triple negative in 64% to 96% of cases (Song, 2013). In our case, hormone receptors are negative and HER2 overexpression is scored at 2+, cytokeratin 5/6 is positive in immunohistochemistry. The histogenesis of carcinosarcoma has long been controversial. Currently, the most likely hypothesis suggests the particular phenotypic transformation of epithelial cells into myoepithelial cells, then into sarcoma (Foschini, 1993). In molecular biology, metaplastic carcinomas of the breast have a basal type transcriptomic profile and express one or more myoepithelial or basal type markers (p63, 34'E12, cytokeratin 5/6, CK14, S100 protein, actin and EGFR). Various studies have found overexpression of EGFR Human Epidermal Growth Factor Receptor-1 (HER1) that may suggest a favorable response of these tumors to EGFR (HER1) targeting therapies (Foschini, 1993). Metaplastic carcinomas of the breast have significant differential diagnosis problems primarily with phyllodes tumors and primary mammary sarcomas. In case of pure squamous metaplasia, the possibility of skin carcinoma or metastasis should be eliminated. In front of a fusiform cells tumor, the main differential diagnosis is the phyllode malignant tumor (Luini, 2007). In front of a carcinoma with bone or chondroid metaplasia, a fibroadenoma, an osteosarcoma, a chondrosarcoma and a phyllode tumor must be eliminated. several types of sarcomas can sit at mammary gland, the most common are angiosarcoma and liposarcoma (Foschini, 1993). The treatment is based on surgery. It is often radical surgery, but conservative surgical treatment is possible for small tumors (Babahabib, 2014; Song, 2013). Axillary lymph node dissection is recommended, despite their low lymphophilic character (Babahabib, 2014; Song, 2013). The role of chemotherapy and radiotherapy is still discussed (8). Post-operative adjuvant radiotherapy is rarely indicated because conservative surgical treatment is less frequent and ganglia are often negative (Song, 2013), but it seems to have a key role in the control of local recurrence after conservative surgical treatment (Gauchotte *et al*., 2011). Standard chemotherapy is unsatisfactory because chemoresistance is common (Yi-Chen Lai, 2012). Hormone therapy usually has no place, because of the usual lack of expression of hormone receptors. Herceptin is not used in most cases because Herceptest is often negative. The overexpression of EGFR (HER1) may suggest a favorable response of these tumors to EGFR (anti HER1) targeted therapies. Other therapies are possible such as platinum salts and poly-ADP ribose polymerase inhibitors (PARPs) (Yi-Chen Lai, 2012). The prognosis of squamous cell carcinoma remains pejorative, the preferred site of metastases occurring in the first five years is the lung, liver, bone and brain. The average survival at 5 years is estimated between 38 and 86 %.

Conclusion

It is important to identify metaplasic carcinomas among the other types of breast cancer as their treatment is different and heavier. The treatment of choice remains surgery, but a new molecular approach could help the weak contribution of conventional systemic treatments.

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