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RESEARCH ARTICLE

BREAST CARCINOMA WITH LOBULAR COMPONENT DISCOVERED BY THYROIDMETASTASIS: A CASE REPORT

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Abstract

Objective: Breast cancer is the most common cause of cancer-related deaths and is frequently diagnosed in women worldwide. The purpose of this study is to report a case of breast carcinoma with lobular component discovered through thyroid metastasis at the Mohammed VI University Hospital in Marrakech.

Case presentation: The patient, a 59 year old multiparous postmenopausal woman with a history of diabetes and hypertension, was referred from the ENT department for a thyroid localization of a carcinomatous process of mammary origin, incidentally discovered during total thyroidectomy + lymph node dissection. A cervical mass had been evolving for approximately 2 years.

Results: Physical examination revealed a cervical scar from thyroidectomy, along with an ulcerated lesion of the left breast measuring 2 x 2 cm in the sub-mammary groove, without palpable nodules or lymphadenopathy. Cervical CT scan showed a multinodular and heterogeneous cervical goiter, leading to the recommendation of total thyroidectomy + lymph node dissection. Histopathological examination with immunohistochemistry confirmed a thyroid localization of a mammary-origin carcinomatous process, specifically lobular type. Bilateral mammography revealed two lesions in the left upper outer quadrant and one near the left sub-mammary groove, associated with a left axillary lymph node classified as ACR 5. Biopsy of the sub-mammary lesion identified an infiltrating non-specific type of breast carcinoma with lobular differentiation, classified as luminal B. Following a multidisciplinary consultation, neoadjuvant chemotherapy AC60-Docetaxel + left patey post-chemotherapy was decided upon.

Conclusion: Breast cancer metastases to the thyroid, as observed in this study, are rare. Only a few studies (39 cases) have reported this type of breast cancer metastasizing to the thyroid, highlighting the uniqueness of this studyin a southern country.

Subject Areas: Gynecology & Obstetrics.

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Introduction:-

In the year 2020, breast cancer diagnoses totaled 2.3 million among women, resulting in 685,000 global fatalities. By the end of 2020, the number of women alive with a breast cancer diagnosis from the preceding 5 years reached 7.8 million, solidifying it as the most widespread cancer worldwide (OMS 2023) . In recent years, the COVID-19 pandemic has led to disruptions in the diagnosis, treatment and follow-up of cancer patients. This was mainly due to the fact that healthcare facilities had reached capacity and there were fears of potential exposure to the virus, resulting in delays throughout the cancer treatment process.As a result of these delays in diagnosis and treatment, advanced disease and mortality could increase(Yabroff et al. 2022).Incidence rates remain highest in the most developed regions, but mortality is relatively high in poorer countries, due to a lack of early detection and access to treatment(da Costa Vieira et al. 2017; Sayed et al. 2023).The aim of this work is to report a case of infiltrating ductal carcinoma of the breast with a lobular component discovered by thyroid metastasis at the Mohammed VI University Hospital in Marrakech.

Case Report:-

The patient was 59 years old, gesture 5 parity 5 with 5 children born vaginally, menopausal for 3 years, with a history of diabetes and hypertension on diet. Referred by the ENT specialist for management of a thyroid localization of a poorly differentiated carcinomatous process of mammary origin, discovered by chance on a total thyroidectomy + lymph node dissection.She had consulted us for a cervical mass that had been evolving for about 2 years, with no other associated clinical signs.

During the physical examination, the cervical thyroidectomy scar appeared clean with no palpable mass.On the left side, an ulcerated lesion measuring 2 x 2 cm was observed in the submammary fold of the breasts, with no detectable nodules or adenopathy (Figure 1a and 1b). The cervical scan revealed a moderately compressive cervical multinodular and heteronodular goiter. As a result, total thyroidectomy along with curative measures was recommended (Figure 2).

Anatomopathological examination and immunohistochemistry concluded to a thyroid localization of a poorly differentiated carcinomatous process of mammary origin, of lobular type. Bilateral mammography revealed two suspicious lesions in the left upper external quadrant and in the left inframammary fold region, associated with a suspicious left axillary lymph node graded ACR 5.

A biopsy of the lesion in the left inframammary fold notes an infiltrating breast carcinoma of nonspecific type, grade 2 SBR (Scarf Bloom Richardson) with probable lobular differentiation; immunohistochemistry favors luminal B.

After discussing the case at the multidisciplinary consultation meeting, a neoadjuvant chemotherapy followed by a modified radical mastectomy (left patey surgery) was decided upon (Figure 3). The patient received chemotherapy consisting of 3 cycles of AC60 (Adriamycin and cyclophosphamide) and 3 cycles of Docetaxel. The modified radical mastectomy was performed three months after neoadjuvant chemotherapy.

Figure (1a):- Mammary glands.

Figure (1b):- Lesion in the left inframammary fold.

Figure2:- Scar from total thyroidectomy.

Figure3:- Left mastectomy + axillary resection.

Discussion:-

Primary breast cancer stands out as the most common malignant tumor in women. In general, initial breast cancers tend to metastasize, frequently extending to the bones, lungs, and liver(Siegel et al. 2023; Weigelt, Peterse, et van 't Veer 2005) , but rarely to the head and neck (thyroid gland), orbit, gastrointestinal tract, genital organs, peritoneum, adrenal glands, and pleural surface(Di Micco et al. 2019).

The primary cancer that most commonly metastasizes to the thyroid is renal carcinoma, followed by malignant tumors of the gastrointestinal tract, lungs, and skin(Plonczak et al. 2017). Metastases of breast cancer to the thyroid, as observed in our study, are exceedingly rare. Despite the principle that metastatic deposits have a predilection for highly vascularized organs, the thyroid is rarely a metastatic site. We found 39 cases of breast cancer metastases to the thyroid reported in the literature, with the actual prevalence ranging between 3% and 34% of all thyroid metastases(Di Micco et al. 2019; Plonczak et al. 2017; Sanuki-Fujimoto et al. 2008; Rajesh, Varma, et Bhat 1998; Sadasivan et al. 2022). Indeed, several studies address the topic in the reverse sense, meaning thyroid cancer presenting with breast metastases(Meng et al. 2018; Zhang, Zhu, et Jiang 2023; Laforga, Dominguez, et Aranda 2020; Mukhtar et al. 2020; Kiziltan, Bozdogan, et Ozaslan 2021).However, few studies have reported malignant tumors in general and breast cancer in particular that have metastasized to the thyroid (Di Micco et al. 2019; Plonczak et al. 2017).Analysis of breast cancer metastases has shown that the aggressiveness of lobular carcinoma seems to be associated with metastasis to unusual sites such as the thyroid gland(Borst et Ingold 1993; Mathew et al. 2017). Moreover, meningeal dissemination in particular was more frequently associated with lobular carcinoma (Duraker et al. 2020; Arpino et al. 2004).

The patient received a sequential neoadjuvant chemotherapy protocol consisting of 3 courses of AC60 and 3 courses of Docetaxel.Over the last few decades, neoadjuvant therapy has become a preferred option in non-metastatic, inflammatory breast cancers, and particularly in node-positive, triple-negative or human epidermal growth factor receptor 2 (HER2)-overexpressing tumours(Hong et al. 2021; Wadhwani et Jatoi 2020).While the results of large randomized clinical trials have demonstrated that neoadjuvant and adjuvant chemotherapies are associated with similar long-term outcomes, preoperative chemotherapy has the advantage of inducing downstaging and tumor size reduction (Chen, Qi, et Wang 2023; Lobefaro et al. 2020; Harbeck 2022). Furthermore, the antitumor activity of neoadjuvant chemotherapy can provide valuable prognostic information, as patients achieving a pathologic complete response (pCR) have significantly longer disease-free survival (DFS) and overall survival (OS) (Wang et Mao 2020).

In the pursuit of achieving this pCR, there has been a remarkable evolution in neoadjuvant chemotherapy regimens, moving from the "old" CMF regimen (consisting of a combination of cyclophosphamide, methotrexate, and fluorouracil) to more recent regimens incorporating anthracyclines and taxanes(Lobefaro et al. 2020).

Currently, sequential administration of cytotoxic chemotherapy combinations with different mechanisms of action represents the norm. The first sequential regimen to demonstrate clinical efficacy consisted of doxorubicin (adriamicin)/epirubicin monotherapy followed by CMF (A → CMF), which showed superior clinical results compared with CMF alone. Subsequently, the phase III ECTO (European Cooperative Trial in Operable Breast Cancer) study showed higher efficacy of the doxorubicin-paclitaxel (AT) combination followed by CMF (AT → CMF) compared to the doxorubicin sequence followed by CMF with higher rates of conservative surgery. Following publication of the ECTO study, other trials established sequential anthracycline-taxane regimens, and in particular four tri-weekly cycles of doxorubicin-cyclophosphamide followed by weekly paclitaxel or tri-weekly docetaxel (Lobefaro et al. 2020).

Furthermore, the National Surgical Adjuvant Breast and Bowel Project (NSABP) in Clinical Trials B-18 and B-27 have demonstrated the safety and efficacy of neoadjuvant chemotherapy (NAC)(Potter et al. 2021). These trials have provided a robust rationale for this approach. In the B-18 trial, neoadjuvant anthracycline-based chemotherapy achieved a 13% rate of pathologic complete response (pCR). Subsequently, the B-27 trial demonstrated that the addition of taxanes to doxorubicin and cyclophosphamide could double the pCR rate to nearly 27%(Chen, Qi, et Wang 2023; Wang et Mao 2020).

There are no prospective studies addressing the role of surgery in thyroid metastases. Isolated thyroidectomy has been proposed as an option for local disease control to mitigate and prevent potential morbidity from tumor extension into the airways(Plonczak et al. 2017). The uniqueness of our case study lies in the fact that total thyroidectomy was initially performed as part of the management of a goiter, and the diagnosis of breast carcinoma was only made retrospectively based on the histopathological and immunohistochemical examination of the total thyroidectomy sample.

Conclusion:-

Breast cancers typically exhibit minimal metastasis to the thyroid, with those containing a lobular component being more prone to involvement. Nevertheless, numerous studies examine cases of thyroid cancers metastasizing to the breast, highlighting the unique aspect of this case report.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

Consent

Informed consent was obtained from the patient to report the case.

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