

Primary synchronous thyroid and breast cancers, A case report and review of the literature.

1) Hajar Ben Ataya : Pneumology department, CHU Ibn Sina Hospital, Rabat, Morocco

2) Laila Herrak : Pneumology department, CHU Ibn Sina Hospital, Rabat, Morocco

3) Aziza Rhanim: Pneumology department, CHU Ibn Sina Hospital, Rabat, Morocco

4) Asmaa Jniene: Pneumology department, CHU Ibn Sina Hospital, Rabat, Morocco

5) Mustapha EL Ftoh: Pneumology department, CHU Ibn Sina Hospital, Rabat, Morocco

6) Leila Achachi: Pneumology department, CHU Ibn Sina Hospital, Rabat, Morocco

Corresponding author: Hajar Ben Ataya

Abstract: Multiple primary cancers (CPM) are increasingly encountered, their frequency varied from 5.5% to 8.5% for all cancers combined while it only represents 7.5% for head and neck cancers. They pose a real diagnostic and therapeutic problem, Due to the variability of clinical characteristics and their low incidence, they are often confused with recurrence or distant metastasis of primary tumors, However, diagnostic errors remain common between these two types of cancers. Primary synchronous breast and thyroid cancer remains rare. Only a few cases have been published in the French and English literature. We present the case of a 36-year-old woman, having taken oral contraception for 7 years as a history, presenting a synchronous primary cancer of the thyroid and breast, The diagnosis was obtained after biopsy of the two organs showing a papillary carcinoma of thyroid and invasive mammary carcinoma of the breast, The patient underwent total thyroidectomy for her neo-thyroid, and regular adjuvant chemotherapy every month with cyclophosphamide (800 mg), doxorubicin (100 mg) and paclitaxel (120 mg), oral levothyroxine has been recommended to maintain thyroid hormone homeostasis. The mechanisms of synchronous neoplasms have only recently been elucidated, their pathogenesis remains complex. The mechanism underlying the development of breast and thyroid cancer in the same patient is not well understood, although the breast and thyroid are both hormone-dependent endocrine organs, they are subject to regulation. Of the hypothalamus - pituitary - glandular axis, Therefore, endocrine changes and exogenous hormonal drugs can lead to the development of synchronous breast and thyroid cancers. We assume that the synchronous thyroid and breast carcinoma in our case was due to the long-term use of hormonal drugs. Thus, the aim of our work was to improve the understanding of synchronous primary thyroid and breast tumors in order to avoid the misdiagnosis that is common. Therefore, clinicians are advised to carefully examine patients with thyroid or breast cancer to avoid an incorrect diagnosis.

Keywords: primary, papillary multiple malignant tumors; thyroid; carcinoma; Breast

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I. Introduction

Multiple primary cancers (MPMT) are relatively rare. Their incidence is increasing over the last decades [1], they vary from 0.7% to 11.7%, Quite different values reported in studies of the literature, Due to the long evaluation period and the inclusion of autopsy series, [2]. Although differentiated thyroid and breast cancers are common malignancies in women, synchronous breast and thyroid carcinoma can occur but remains rare [3]. The pathogenesis of synchronous thyroid and breast cancer is complex, they are hormone-sensitive organs and are subject to the regulation of the hypothalamic - pituitary - glandular axis [4], Therefore, endocrine changes and hormonal drugs exogenous can lead to the development of synchronous breast and thyroid cancers. MPMNs have increased malignant behavior and a poorer prognosis.

II. Observation

This is a 36-year-old patient, with a history of oral contraception for 7 years, a multi-nodular goiter for 1 year (not explored), who presented in a table of respiratory distress with dyspnea stage III of the MMRC and a dry cough, evolving in a context of apyrexia and deterioration of the general condition, The clinical examination revealed the presence of a low anterior cervical swelling, a nodule of the supero-external quadrant of the left breast, and on pleuropulmonary examination bilateral fluid effusion syndrome.

The chest x-ray [figure1] demonstrated the presence of bilateral pleurisy predominant on the right, a pleural puncture was performed on the right side bringing back a lactescent-like fluid with levels of LDH and TG in the pleural fluid high, suggesting chylothorax, the patient underwent thoracic drainage. Biologically, the patient presented with tumor lysis syndrome with hypercalcemia, hyperkalemia and an increased LDH level.

As part of the etiological assessment, a thoracic CT [Figures 2,3] was performed revealing a compressive goiter at the expense of the left lobe with the presence of bilateral pleural effusion (chylothorax secondary to compression of the thoracic duct), and a nodule of the left breast, tissue with left axillary millimeter ADP, a cervical ultrasound which showed a goiter classified eu-TIRADS III was completed, the patient underwent a total thyroidectomy including the anatomic-pathological examination of the operative part concluded has an encapsulated papillary oncocyctic carcinoma of the right lobe of the thyroid measuring 1.4cm without vascular emboli, the patient also underwent a breast ultrasound showing a QII nodule 5cm from the hypoechoic heterogeneous nipple measuring 16 * 23mm containing micro-calcifications whose biopsy revealed invasive mammary carcinoma of the nonspecific type, grade II with estrogen and progesterone receptors are positive, HER2 positive and Ki67 proliferation index estimated at 27%. The evolution was marked by the progression of the disease with increased fluid effusion on the left, a pleural biopsy puncture was performed showing a predominantly lymphocytic exudative serohematic fluid, with anatomic-pathological study in favor of pleural localization of 'a poorly differentiated carcinomatous process whose immunohistochemistry profile favors the mammary origin. The patient underwent total thyroidectomy with cervical lymph node dissection for the thyroid tumor and adjuvant chemotherapy with cyclophosphamide (800 mg), doxorubicin (100 mg) and paclitaxel (120 mg), administered monthly for her neonatal cancer. breast with pleural metastasis and oral levothyroxine to maintain thyroid hormone homeostasis. The patient died after the third round of chemotherapy.

III. Discussion

Primary Multiple Cancers were first described in the 19th century (in 1889) by Billroth. Their incidence has greatly increased. This may be the result of progress made in the development of improved diagnostic techniques, therapeutic strategies for cancers, as well as increased survival and life expectancy of cancer patients [1].

The coexistence of several primary cancers in a single patient has been described in the oncology literature with a frequency varying from 5.5% to 8.5% for all cancers combined, whereas it represents only 7.5% for cancers of the head and neck [5]. Multiple primary malignancies are defined by the presence of two or more histologically distinct malignant tumors that are not due to recurrence, metastasis, or local spread in the same individual. Cancers are said to be synchronous when diagnosed within six months of each other and metachronous if diagnosed after six months of each other [6].

Thyroid cancer (CT) can be associated with primary cancers of many different organs, including breast cancer, hematologic malignancies, cancer of the esophagus, cancer of the head and neck, cancer of the kidney, prostate, ovarian, brain, central nervous system and colorectal cancer.

Although breast and thyroid carcinomas are considered the two most common female malignancies, the association of the two entities diagnosed at the same time in the same patient (synchronous primary thyroid and breast cancer) is rare in clinical practice [7].

To this day, the mechanism underlying the development of breast and thyroid cancer in the same patient is not well understood, although the breast and thyroid are both hormone-dependent endocrine organs.

Once endocrine changes occur in the body, glandular diseases increase. The mammary gland is a target organ for many hormones. Estrogens and progestins are closely linked to the incidence of breast cancer.

The ratio of estrogen receptor positive breast cancers is around 75% in all breast cancer subtypes. Estrogens and progestins can activate the transformation of breast cells and the proliferation and invasion of estrogen receptors in positive breast cancer cells.

A growing body of evidence has shown that thyroid tissue also contains estrogen and progesterone receptors [8] such as estrogen receptors α and β . The level of estrogen receptor α and progesterone receptor expression is significantly higher in papillary thyroid carcinoma than in other types of thyroid tumors.

Breast tissue also has receptors for the hormone thyroid stimulating hormone which, alone or in combination with estrogen, can promote the development of breast cancer. [9] and thyroid antibodies also promote the onset and development of primary thyroid cancer and breast cancer [10].

In our case, the patient was diagnosed with synchronous thyroid and breast cancer. She had a history of taking oral contraception for a long time (7 years). Unfortunately, no doctor reminded her to undergo screening for breast cancer.

Upon admission, she presented with a nodule in the upper outer quadrant of the left breast, the histopathological examination of which confirmed the presence of an invasive mammary carcinoma of nonspecific type, grade II, Given the positive estrogen receptors and progesterones in breast cancer tissues and

long-term use of hormonal drugs, we assume that synchronous thyroid and breast carcinoma in our case was due to long-term use of hormonal drugs. Further research on this topic is needed to confirm this association.

The results in our case suggest that clinicians should be careful when hormone therapy is used for a long time in a patient.

In summary, long-term use of hormone therapy may increase the frequency of thyroid and breast cancer. Doctors should pay attention to the occurrence of thyroid cancer and breast cancer in this type of patient.

IV. Conclusion

Despite the fact that synchronous primary malignancies of the thyroid and breast are rare, our case study and review of the literature reminded us of the possibility that they may occur synchronously.

The multiplicity of primary cancers itself is not necessarily a factor of poor prognosis. The clinician should always keep in mind the possibility of being confronted with multiple primary cancers. However, early detection will allow rapid management and increase the cure rate of the disease.

Declaration of interests

The authors declare no conflict of interest

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Figure 1: chest x-ray showing bilateral pleurisy More marked on the right.

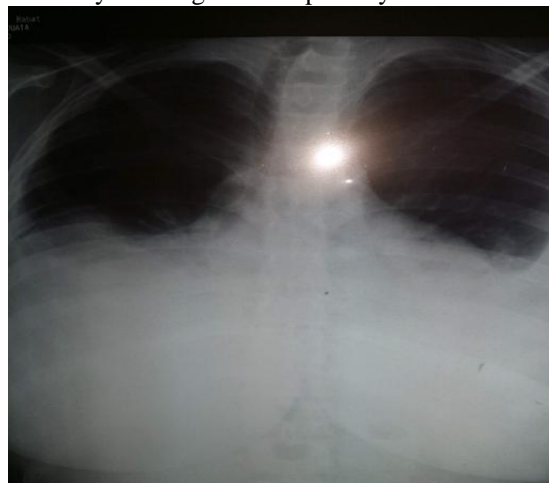
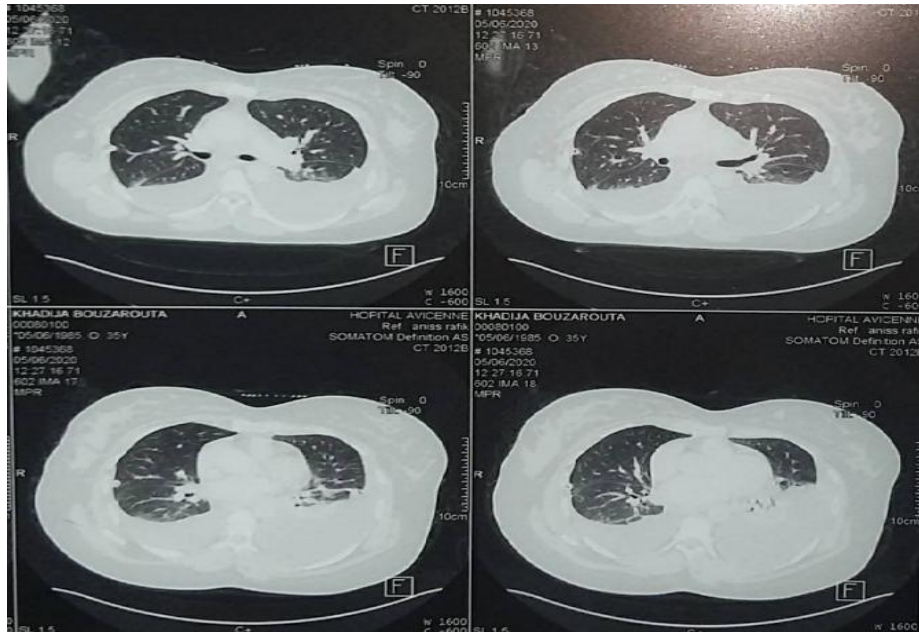


Figure 2: Cervico-thoracic CT showing a compressive goiter at the expense of the left lobe, pushing back the trachea and vascular structures.



Figure 3 : Chest CT showing bilateral pleural effusion.



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