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Breast metastasis from pancreatic adenocarcinoma in a male patient

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ABSTRACT

Metastasis to the breast from extramammary carcinoma are uncommun. A 63-year-old male presented with abdominal pain resistant to treatment. On clinical examination, the abdomen was soft, depressible but sensitive in the left upper quadrant. Palpation of the right breast revealed a subcutaneous mobile nodule, mobile, measuring 1.5 cm long axis. A whole-body CT was requested and showed a metastatic pancreatic. Mammogram and breast ultrasound showed a relatively well limited nodule of the right breast measuring 22 mm. The patient underwent a breast lumpectomy Final haematoxylin and eosin (HE) and immunochemistry staining of the tumour and immunochemistry confirmed the diagnosis of a metastasis to the breast from pancreatic adenocarcinoma. The patient died within 2 months of initial diagnosis.

Keywoords : Breast, cancer, metastasis, pancreas.

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Introduction :

Metastasis to the breast from extramammary carcinoma are uncommun. The incidence in clinical and autopsy series ranges from 0.5 to 6.6% [1-8]. Metastasis to the female breast are rare and those to the male breast are even rarer[5]. The most common primary neoplasms are contralateral breast cancer, lymphomas, leukemias and melanomas [1, 2, 8, 9]. Adenocarcinoma of the pancreas, known as one of the most devastating diseases of the digestive organs, is rarely presenting with breast metastasis[8]. Clinical presentation and radiological features are not specific for metastasis [1, 9]. Histopathological examination confirms the diagnosis, showing a circumscribed tumor surrounded by normal breast tissue with the same characteristics as primary cancer [2]. Immunohistochemical studies are needed in some cases[4]. Metastasis to the breast from an extramammary neoplasm usually indicates disseminated disease and a poor prognosis. Therefore an accurate rapid diagnosis, differentiating primary from metastatic breast carcinoma, is important for proper management[10].

Case report:

We report the case of a 63-year-old patient, with a 40 pack-year smoking history, chronic bronchitis and appendicectomy in 1990. He has a history of recent pneumonitis of the right lung base that had well responded to the antibiotic treatment. He presented with a strong abdominal pain resistant to analgesic treatment. Clinical examination found a patient in good general condition. The abdomen was soft, depressible but sensitive in the left upper quadrant. Palpation of the right breast revealed a subcutaneous nodule, mobile, firm, measuring 1.5 cm long axis. The left breast was normal. Abdominal ultrasound was performed and showed lesions of multiple liver metastases. A whole-body CT was requested and showed an important infiltrative mass interesting the tail of the pancreas 55mm diameter infiltrating the surrounding tissue with obstruction of the splenic vein and moderate segmental portal hypertension. It was associated with multiple hepatic lesions and diffuse nodular syndrome involving almost all lung fields. There were many infiltrative lesions of the vertebrae L2, L4, the 6th right rib and the left femoral neck. Blood examinations revealed only mild anemia. The tumor marker CA 19-9 level was high. The mammogram revealed a dense, relatively well limited nodule of the right breast measuring 22 mm. Ultrasound showed a round mass with mammillated contours, strengthening posterior echoes and measuring 20 mm. It was classified ACR4. The patient underwent a lumpectomy under local anesthesia. Macroscopically, two indurated whitish nodules were identified. They measured 1.8 cm and 1cm in long axis. Final examination, revealed that both nodules were heavily occupied by a cancerous tumor proliferation of glandular and trabecular architecture with tumor necrotic foci(Figure1and Figure2). The glandular coating was Cubo-cylindrical and frankly with atypical nuclei. Their lumen was often occupied by mucus. Immunohistochemical study showed that the tumor cells are CK7 ++, CK19++, CK20-, CEA focally positive, HR-, HER2 score 1+(Figure 3). We concluded to beast metastasis from pancreatic adenocarcinoma. The patient died two months within the initial diagnosis.

Discussion :

Metastatic involvement of the breast is relatively rare. The incidence in clinical and autopsy series ranges from 0.5 to 6.6% [1-3, 6, 7]. The published literature reports a female predominance. Hajdu et al. studied 51 cases of metastatic neoplasms to the breast, there were 44 women and 7 men[5]. Lee et al also reported in their series that Females were more frequently affected (3 males, 30 females)[10].

Contralateral breast cancer, hematopoietic malignancies such as lymphomas, leukemias and melanoma are the most common primary site of breast metastasis. Some of the less common sources include ovary, lung, soft tissue sarcoma, gastrointestinal and genitourinary and

thyroid neoplasms [1, 2, 6, 9]. One case of primary pancreatic adenocarcinoma was related by S. McCrea et al within a series of 16 cases[3]. Thus, Adenocarcinoma of the pancreas seems to be one of the rarest primary cancers that disseminate to the breast. Peixoto et al conducted original research about pancreatic adenocarcinoma. She concluded, through an autopsy series, that the most common sites of metastasis were liver (80%), peritoneum (48%), and lungs (45%)[11].

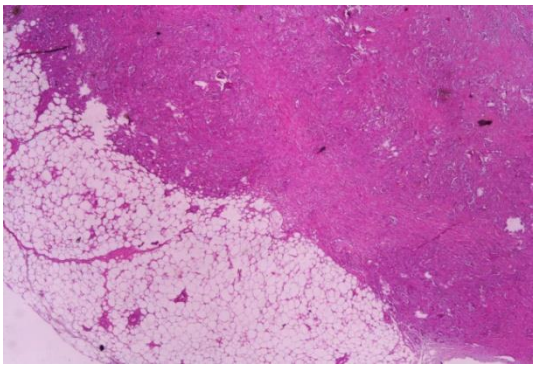

Figure 1 Adenocarcinoma infiltrating breast tissue

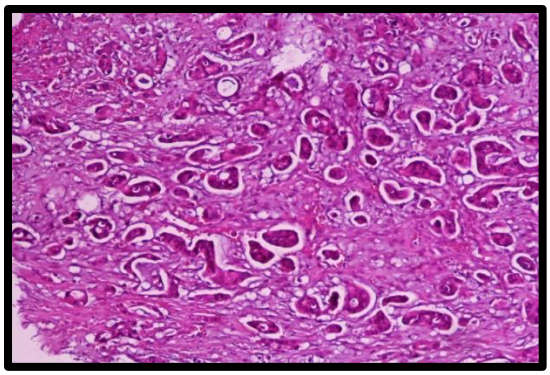

Figure 2 Adenocarcinoma showing glandular and trabecular architecture

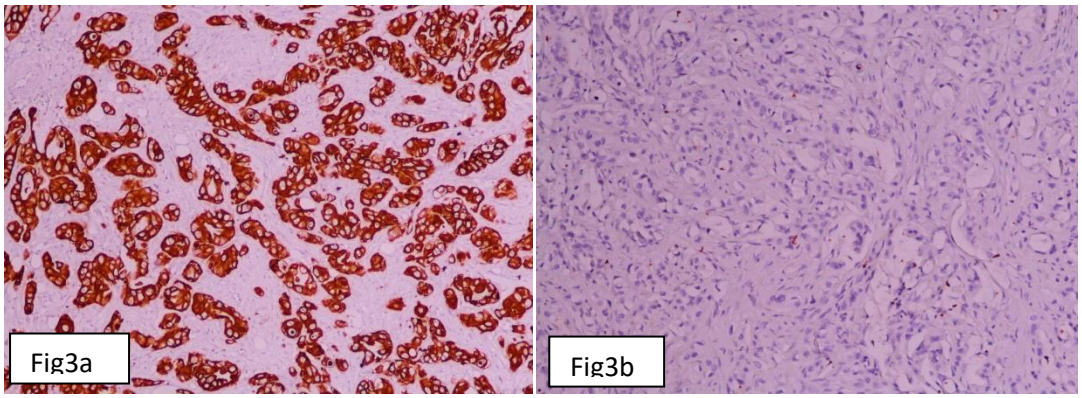

Figure 3 IHC a) CK19++, b) G6PDFP15-

Most patients presenting with metastasis to the breast are known to have an extramammary primary neoplasm [2, 10, 12]. However, breast metastasis was the first sign of cancer in 23% of 83 cases in the available literature [2].This rate rises to 40% according to S. McCrea et al [3] and 31% in the series of S.Hajdu et al [5]. In our study, the patient had a prior history of malignant disease and wide spread metastasis.

Clinically no reliable criteria can distinguish breast metastasis from primary lesion[13]. Many studies reported similar presentation to those of primary mammary carcinoma [5, 6, 14]. It is usually described as palpable rounded breast masses, firm in consistency, mobile without skin tethering. Rapid growth often suggests malignancy [4, 14]. Breast pain, tenderness, and/or discharge are distinctly unusual[9]. According to Toombs et al, a solitary lesion is the most common clinical presentation, while multiple, well-defined nodules have been seen in 11% of cases and diffuse involvement in 4%[3]. In our case, the patient presented a subcutaneous nodule, mobile and firm which concords with most of the literature findings.

Mammography has limited value in the differential diagnosis. Breast metastasis looks more like a benign lesion rather than a malignant tumor[13, 15, 16] **.** Mammography most commonly shows a solitary, round or oval, homogeneously dense, noncalcified with circumscribed or incompletely circumscribed margins [15, 16]. Sometimes, Breast metastasis may produce changes that look similar to those of primary breast cancer on mammography[16]. Microcalcifications are not a distinguishing feature, and although their margins may be ill defined, spiculations are not commonly found[14]. In the study conducted by Hee Lee et al, 16 mammographies were performed for breast metastasis. they revealed high density (15 cases, 93.8%), round to oval lesions (11 cases, 68.8%) with poorly defined or obscured margins (12 cases, 75.0%). Microcalcifications was not found in any lesion[17].

On ultrasonography, breast metastasis was hypoechoic with indistinct and occasionally irregular margins, frequently without a posterior acoustic phenomenon [17, 18]. Hee Mun et al has resumed typical ultrasonographic findings of breast metastatic malignancies as following[9]:

-Typical ultrasound (US) features of hematogenous metastases include single or multiple, round to oval shaped, well-circumscribed hypoechoic masses without spiculations, calcifications, or architectural distortion; these masses are commonly located superficially in subcutaneous tissue or immediately adjacent to the breast parenchyma that is relatively rich in blood supply.

-Typical US features of lymphatic breast metastases include diffusely and heterogeneously increased echogenicities in subcutaneous fat and glandular tissue and a thick trabecular pattern with secondary skin thickening, lymphedema, and lymph node enlargement.

These features were confirmed by kalli et al.they reported that Hematogenous spread of primary neoplasm often leads to a discrete circumscribed mass or masses without spiculations or microcalcifications whereas lymphangitic spread often leads to more diffuse findings such as edema, increased trabeculation, and skin thickening[8]. Concerning our patient, On ultrasound, there was the presence, at the under outer right quadrant, of a mass with mammillated contour, strengthening posterior echoes and measuring 1x1cm. It was classified ACR4.

With magnetic resonance imaging, extramammary metastasis usually appears as a round or oval circumscribed mass. The mass is typically isointense on both T1- and T2-weighted images, with homogeneous enhancement.

The basic diagnosis is founded on microscopy. It is important to distinguish primary breast carcinoma from extramammary metastasis since these patients may have mastectomy performed before the correct diagnosis is made[13]. Often breast metastasis shows histological features similar to original cancer, and not typical of primary breast carcinoma. The Comparison of previously diagnosed neoplasms and metastatic breast lesions is very important to establish the diagnosis of metastasis[10].

Vergier et al have listed the criteria on the basis of whitch breast metastasis was suspected as follows [14] :

1.Atypical histologic features for a primary breast carcinoma

2.A well-circumscribed but non-encapsulated tumor with periductal and/or perilobular distribution

3.Absence of associated in situ carcinoma

4.Multiple microscopic foci of tumor in addition to the grossly evident masses

5.Many lymphatic tumor emboli.

Gupta et al. described four different patterns of metastasis within the breast. The most common pattern is a circumscribed tumor surrounded by normal breast tissue. Less common are periductal and perilobular multinodular growths that spare the ducts and lobules. Lymphangitis carcinomatosa consisting of tumor cells floating in dilated lymph spaces is rarely seen. Diffuse involvement of the breast parenchyma also is uncommon. [2, 13].

Our patient has revealed lesions that suggested an extramammary malignancy such as glandular architecture as well as mucus. Referring to the whole history of widespread metastasis, the first diagnosis was the pancreatic adenocarcinoma. Nevertheless, we resorted to immunohistochemistry to identify the exact type of primary adenocarcinoma.

Immunohistochemical studies help confirming the diagnosis in some cases, for instance in cases mimicking primary carcinoma. Expression of C7 and CK20 for adenocarcinoma, PSA for prostate cancer, aFP for HCC, TTF-1 for lung cancer and ER/PR and BRST-2 for breast cancer is well-known markers for differentiating the origin of metastatic lesions whose morphological features do not specify the initial origin follows [14]. Immunohistochemistry using a panel of antibodies often plays a useful supplementary role to H&E-stained sections but no antibody is 100% sensitive or specific for any tumor type. The current case in our report showed positive results with CK7 antibodies, CK19 and focally CEA. Oestrogen and progesterone receptors were negative.

Adenocarcinoma of the pancreas is an aggressive malignancy with poor prognosis[11]. Unfortunately, most patients are diagnosed with metastatic disease at the time of initial presentation, just like in our case where the patient had already liver, pulmonary, bone, lymph and breast metastasis [7].

Comparing breast metastasis of any extramammary carcinoma to primary breast cancer, we could reach that breast metastasis has a much poorer prognosis. Barry D et al have realized that the crude survival rate is 10,9 months in contrast to primary breast carcinoma, which averages are greater than 5 years[12]. Nilseni et al. have reported that 80% of patients with breast metastasis died within one year after the diagnosis [13]. Prognosis of breast metastasis depends also on functional impacts of inappropriate therapy. Therefore it is essential to reach the accurate diagnosis of extramammary malignancy to the breast to avoid unnecessary mastectomy and to implement appropriate systemic therapy.

Conclusion:

Metastatic cancer to the breast are uncommon,however accurate diagnosis must be established in order to preclude unnecessary mastectomy and provide suitable systemic treatment . There are no specific clinical neither radiological features.The pathologist has a key role in considering the possibility of metastasis if the morphology of the tumour is not typical of a primary mammary tumour. The pathologist's hypothesis has to be guided by the clinical history of a previous spread disease, and eventually completed by immunohistochemistry.

References:

1. Akcay M. Metastatic disease in the breast. The Breast 2002; 11: 526-528.
2. Gupta D, Merino MI, Farhood A, Middleton LP. Metastases to breast simulating ductal carcinoma in situ: report of two cases and review of the literature. Annals of diagnostic pathology, 2001; 5: 15-20.
3. McCrea E, Johnston C, Haney P. Metastases to the breast. American Journal of Roentgenology, 1983; 141: 685-690.

4. Lee AH. The histological diagnosis of metastases to the breast from extramammary malignancies. Journal of Clinical Pathology, 2007; 60: 1333-1341.
5. Hajdu SI, Urban JA. Cancers metastatic to the breast. Cancer, 1972; 29: 1691-1696.
6. Vizcaino I, Torregrosa A, Higueras V et al. Metastasis to the breast from extramammary malignancies: a report of four cases and a review of literature. European radiology, 2001; 11: 1659-1665.
7. Muttarak M, Nimmonrat A, Chaiwun B. Metastatic carcinoma to the male and female breast. Australasian radiology, 1998; 42: 16-19.
8. Kalli S, Lanfranchi M, Alexander A et al. Spectrum of extramammary malignant neoplasms in the breast with radiologic-pathologic correlation. Current problems in diagnostic radiology, 2016; 45: 392-401.
9. Mun SH, Ko EY, Han B-K et al. Breast metastases from extramammary malignancies: typical and atypical ultrasound features. Korean journal of radiology, 2014; 15: 20-28.
10. Lee SK, Kim WW, Kim SH et al. Characteristics of metastasis in the breast from extramammary malignancies. Journal of surgical oncology, 2010; 101: 137-140.
11. Peixoto RDA, Speers C, McGahan CE et al. Prognostic factors and sites of metastasis in unresectable locally advanced pancreatic cancer. Cancer medicine, 2015; 4: 1171-1177.
12. Toombs B, Kalisher L. Metastatic disease to the breast: clinical, pathologic, and radiographic features. American Journal of Roentgenology, 1977; 129: 673-676.
13. NIELSEN M, ØRNVOLD K, ANDERSEN JA et al. Metastases to the breast from extramammary carcinomas. Acta Pathologica Microbiologica Scandinavica Section A Pathology, 1981; 89: 251-256.
14. Vergier B, Trojani M, De Mascarel I et al. Metastases to the breast: differential diagnosis from primary breast carcinoma. Journal of surgical oncology 1991; 48: 112-116.
15. Yang WT, Muttarak M, Ho LW. Nonmammary malignancies of the breast: ultrasound, CT, and MRI. In Seminars in Ultrasound, CT and MRI, Elsevier, 2000; 375-394.
16. Sippo DA, Kulkarni K, Di Carlo P et al. Metastatic disease to the breast from extramammary malignancies: a multimodality pictorial review. Current problems in diagnostic radiology, 2016; 45: 225-232.
17. Lee SH, Park JM, Kook SH et al. Metastatic tumors to the breast: mammographic and ultrasonographic findings. Journal of ultrasound in medicine, 2000; 19: 257-262.
18. Yang WT, Metreweli C. Sonography of nonmammary malignancies of the breast. AJR American journal of roentgenology, 1999; 172: 343-348.