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CASE REPORT

Metastatic Invasive Lobular Carcinoma of the Breast Masquerading as a Primary Renal Malignancy

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ورم الكلية قد يكون مؤشرا لانتشار سرطان الثدي الحويصلي

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الملخص: من المعروف أن سرطان الثدي قد ينتشر في أعضاء مختلفة من الجسم. وفي حالات نادرة جدا قد يكون اكتشافه نتيجة لألم شديد ناشئ عن ورم ثانوي في إحدى الكليتين. و قد رصدنا حالة لمريضة تبلغ من العمر 58 عاما حضرت إلى العيادة تشتكي من ألم في الجانب الأيسر من المنطقة السفلى من الظهر؛ ومع الفحوصات تم اكتشاف أنها تعاني من ورم سرطاني حويصلي مصدره الثدي. هذا الكشف ظهر في الأشعة المقطعية عندما كانت المريضة تخضع لفحص ورم في إحدى كليتيها حيث افترضنا بأنها تعاني من سرطان الكلية. و لكن بعد ذلك تم اكتشاف ورم في الثدي والذي تم تشخيصة الدقيق بواسطة الفحص المناعي الكيميائي . في هذه الورقة سوف نناقش أهمية عمل فحوصات المناعة الكيميائية في تحديد التشخيص و مراحل نمو الأورام.

مفتاح الكلمات: الثدي، الحويصلي، انتشار السرطان، الكلية، الفحص المناعي الكيميائي.

ABSTRACT: Breast cancer is known to metastasise to different organs in the body, but an initial presentation of breast cancer with loin pain secondary to a metastatic renal mass is extremely rare. We report a 58-year-old woman who presented with recurrent left loin pain due to a metastatic deposit of invasive lobular carcinoma of the breast. The detection of a renal mass on computed tomography led to the assumption of a renal pelvic malignancy. The diagnostic dilemma posed by the detection of a breast mass during staging and the usefulness of immunohistochemistry in the confirmation of diagnosis are discussed.

Keywords: Breast; Lobular carcinoma; Metastasis; Renal; Immunohistochemistry; Case Report; Oman.

Breast cancer is the commonest cancer among women in Oman, with an incidence of 15.6:100,000.[1] Due to a lack of awareness, strong cultural barriers and late access to specialised clinics, most patients in Oman present with a breast lump at an advanced stage of the disease.[2] The most common presentation of breast cancer is a painless lump in the breast, and only 5% of breast tumours present with dissemination to different organs, such as the bones, lungs, brain or liver. However, such metastases have been reported either during the follow-up of treated breast cancer patients or at autopsy.[3] Initial presentation of breast cancer with symptoms pertaining to an isolated metastatic deposit in the kidney is very uncommon.[4] We report the occurrence of an isolated metastatic renal deposit of an invasive lobular carcinoma (ILC) of the breast in a 58-year-old woman who presented with recurrent left loin pain.

Case Report

A 58-year-old woman presented with recurrent left loin pain of 4 months' duration. There were no other genitourinary or bowel symptoms. A contrast-enhanced coronal computed tomography (CT) scan of the abdomen showed an enhanced soft tissue mass along the inferior pole calyces of the left kidney, extending to the renal pelvis, ureter and left lateral wall of the urinary bladder, suggesting early infiltration. There was also perirenal and periureteric stranding with perinephric lymphadenopathy [Figure 1].

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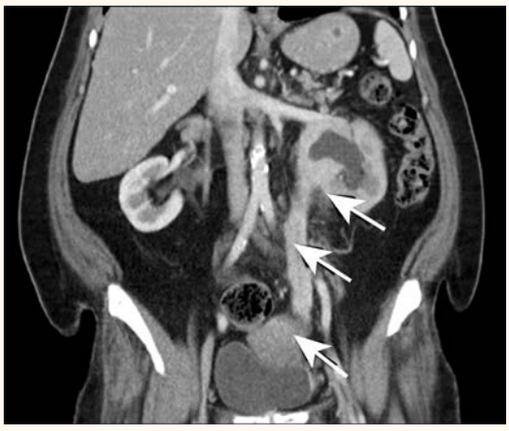

Figure 1: Contrast-enhanced coronal computed tomography scan of the abdomen. White arrows indicate an enhancing soft tissue mass extending along the left kidney, ureter and bladder.

A provisional diagnosis of transitional cell carcinoma was considered. A CT scan of the chest done for staging purposes showed a left breast lesion with significantly enlarged left axillary lymph nodes. Examination of the breasts at this stage revealed a 1.5 x 1.5 cm mobile lump in the outer upper quadrant of the left breast, and palpable, mobile, discrete, left axillary lymph nodes. A breast ultrasound and mammography were suggestive of malignancy. A bone scan did not show any deposits. The results of the CT-guided biopsies obtained from the renal and breast masses showed tumours with identical histological appearances. They were comprised of poorly cohesive sheets of round to polygonal cells with mildly pleomorphic nuclei. Some cells contained intracytoplasmic vacuoles. Signet ring-like cells and scattered mitotic figures were present [Figure 2]. The tumour cells stained positive for epithelial membrane antigen (EMA) and oestrogen receptor (ER). The staining was focally positive for cytokeratin (CK) 7 antibodies. Progesterone receptor (PR), human epidermal growth factor receptor 2 (HER2/neu), epithelial cadherin (E-cadherin) and CD10 and CK20 tests were negative. Ki-67 staining showed proliferative activity in 40–50% of cells. The pathological diagnosis was ILC of the breast with a renal metastatic deposit.

Discussion

ILC of the breast represents approximately 10–15% of mammary malignancies compared to infiltrating

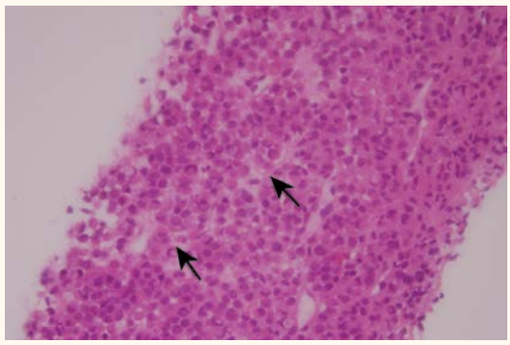

Figure 2: Microscopic appearance of the tumor showing poorly-cohesive sheets of cells with intra cytoplasmic vacuoles, signet ring like cells and scattered mitotic figures.

duct carcinomas (IDC), which accounts for 80% of breast malignancies.[5] ILCs are usually bilateral and are difficult to detect clinically since they fail to form a discrete circumscribed palpable mass. Mammographic detection of ILC can also be very challenging since the typical features of microcalcification and cytoarchitectural distortion of the breast tissue may not be seen. The atypical clinical and radiological appearance may be attributed to the histopathological features of ILC, which is characterised by small, round tumour cells which are non-cohesive in nature and infiltrate the tissues insidiously without destroying the anatomic architecture.[6] In this case, the non-cohesive nature was confirmed by immunohistochemistry, which was negative for E-cadherin and thus suggestive of ILC.

Furthermore, the metastatic patterns of both IDC and ILC are different. Distant metastases in the retroperitoneum, gastrointestinal tracts, leptomeninges, orbit and genitourinary tract have been reported more frequently in ILC.[7] Most cases of breast cancer metastasising to the urinary tract are detected as a part of disseminated disease either during follow-up or at autopsy. A review of autopsies in 181 cases of metastatic breast cancer showed ureteral involvement in 8.3% of cases.[8] Most patients who present with ureterorenal colic, hydronephrosis, acute renal failure, or urinary incontinence due to ureteric and bladder metastases also present with symptoms pertaining to common sites of involvement such as the bone, lungs, liver and brain.[9] Presentation with urinary symptoms secondary to isolated urinary tract involvement is very rare.[10] Guiliano *et al*. reported

one such patient who presented with renal colic due to ureteral obstruction and, after investigation, this was diagnosed as a solitary renal metastasis from the breast.[11] Hudolin *et al*. described a 59-year-old woman presenting with right flank pain and fever secondary to stenosis of the ureter caused by a tumour which stained positively for CK, ER and PR.[12] No primary cancer or additional metastases could be detected at that time. However, 11 months later the patient developed right breast cancer with metastasis to the left supraclavicular region.

As our patient presented with loin pain, the detection of a left renal mass upon CT led to the assumption of a renal pelvic malignancy. The detection of the breast mass after admission to hospital led to the diagnostic dilemma of whether the patient had separate primary cancers in the breast and the kidney or metastatic cancer from either site. The possibility of a primary renal tumour was excluded when the tumour tissue stained positive for CK7 and negative for CK20 by immunohistochemistry. The diagnosis of metastatic ILC of the breast was possible only after immunohistochemistry, which showed an absence of E-cadherin expression. This case is one of the very rare reported cases of breast cancer metastasis to the kidneys and ureters. However, in the presence of a renal mass, a secondary or metastatic tumour should be suspected and a more comprehensive physical examination and additional ancillary studies are warranted to rule out malignancy as the underlying aetiology.

Conclusion

This case highlights the importance of considering the possibility of metastatic deposits when an isolated renal mass shows histological features which are not typical of known variants of renal cell carcinoma. It also emphasises the need for comprehensive physical examination, the importance of mammography screening for women older than 40 years in order to achieve early diagnoses, and the institution of proper therapy.

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