Squamous cell carcinoma of the breast

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ABSTRACT

يعتبر السرطان الحرشفي في الثدى من الأورام النادرة التي تحتاج إلى معايير محددة لتشخيصه . وجود خراجات في الثدي ليس شائعاً. نعرض هنا حالة مريضة تبلغ من العمر تبلغ من العمر 69 عام، وتعاني من سرطان حرشفي في الثديSCC وأظهر التشخيص الأولي خراج في الثدي. تم عمل شق ونزح للثدي، و أظهر الفحص الخلوي و النسيجي سرطان حرشفي SCC. تم استبعاد المصدر الثانوي، وخضعت المريضة لاستئصال الثدي الذي تبعته النكسة في فترة الأربعة الأشهر.

Pure primary squamous cell carcinoma of the breast is a rare disease, thus strict criteria should be applied when making such a diagnosis. Breast abscesses are a common presentation. We report a case of primary SCC of the breast in a 69-year-old woman in which the initial clinical impression was a breast abscess. She had an incision and drainage, and cytological and histological examination revealed squamous cell carcinoma. A secondary source was excluded and the patient underwent mastectomy, which was followed by a local recurrence in 4 months.

Saudi Med J 2009; Vol. 30 (10): 1346-1349

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Received 24th June 2009. Accepted 14th September 2009.

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Primary squamous cell carcinoma (SCC) of the breast is a relatively uncommon entity with an estimated prevalence of less than 0.1% of all breast malignancies.[1] Most of the cases that have been described were isolated case reports with few published series on the clinical behavior and the management of these tumors.[2-6] The prognosis of this type of breast cancer is still controversial, some authors suggested that it has an aggressive outcome comparable to poorly differentiated adenocarcinoma.[3-6] This article describes a case of primary SCC of the breast, which is uncommon type of breast carcinoma among Saudi female. It also addresses the controversial issues in the management and prognosis of this type of tumor.

Case Report. A 69-year-old woman with a past medical history of hypertension and renal impairment presented with a right breast lump that is progressively increased in size over one month period. Clinical examination revealed a breast mass in the upper lateral quadrant of her breast that was tender on palpation. The overlying skin was erythematous and warm with no ulceration. The axillary lymph nodes were not palpable. She had an ultrasound, which revealed a 5x4 cm lesion with a homogeneous echo pattern. The clinical impression was a breast abscess and she underwent an incision and drainage. The fluid was sent to the cytology along with the fine needle aspiration biopsy and incisional biopsy. The cytology smears show a predominance of inflammatory cells, mainly neutrophils along with many single cells with hyperchromatic nuclei and keratinizing cytoplasm in a necrotic background (**Figure 1**). This was diagnosed as positive for malignant cells with features suggestive of SCC, which was confirmed by biopsy (**Figure 2**). The patient had a CT chest with contrast, which revealed 2 masses in the right breast. The largest mass was located in the retroareolar area, which was solid and heterogeneous. The second mass is smaller located medially and more of fluid density with a peripheral rim of enhancement. There were also innumerable nodules in both lungs with lymphangitic pattern consistent with metastasis. The axillary nodes were minimally enlarged. She had a CT of the neck, abdomen, and pelvis, which ruled out a secondary primary SCC. The patient had 6 session of radiotherapy followed by palliative simple mastectomy. The mastectomy specimen revealed a well-demarcated tan-white mass, measuring 5x4.5x4 cm, containing a central cavity filled with blood and necrotic material. The second nodule is located deeper and measured 1.5x1.5x1.5cm. Sections from both lesions showed multi-centric moderately differentiated SCC (**Figure 3**). The tumor arises deep within the breast parenchyma and has no connection to the overlying skin, which was normal (**Figure 4**). Extensive sectioning revealed

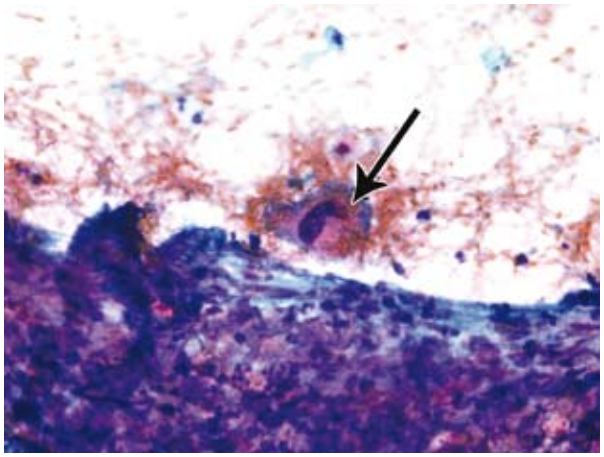

Figure 1 - Cytology smear showing abundant inflammatory background and rare single keratinized atypical squamous cells (Papanicolaou test x600).

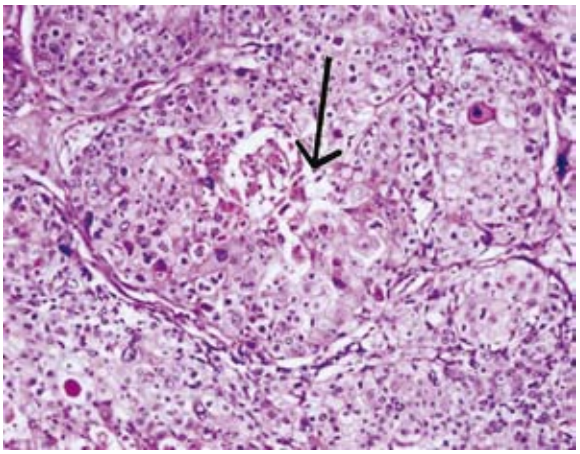

Figure 3 - Nests of pleomorphic malignant squamous cells exhibiting single cells keratinization (Hematoxylin and Eosin x600)

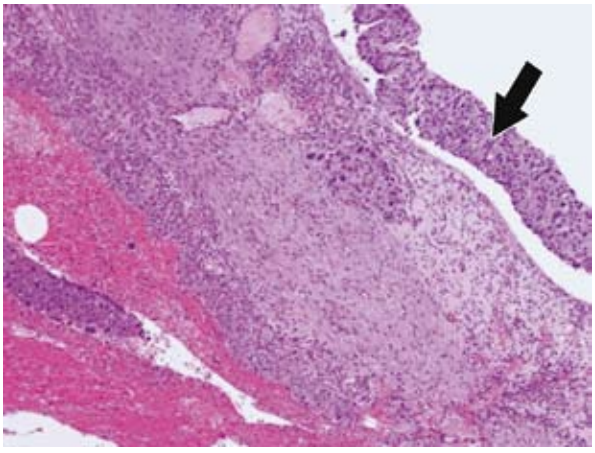

Figure 2 - Biopsy of the abscess cavity revealed fragments of malignant squamous epithelium in a background of hemorrhage, inflammatory cells and granulation tissue (Hematoxylin and Eosin x400)

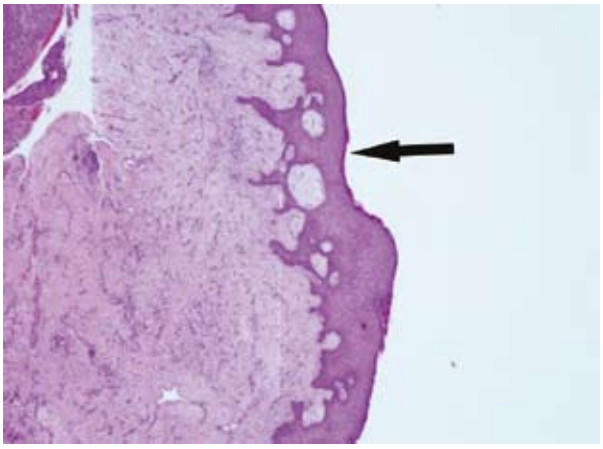

Figure 4 - The overlying skin is uninvolved by the carcinoma. (Hematoxylin and Eosin x200).

no evidence of in situ or invasive ductal carcinoma of the breast. Immunohistochemistry showed a positive reaction with high molecular weight cytokeratin (**Figure** 5) and negative reaction for cytokeratin 7, estrogen receptor (ER), progesterone receptor (PR), and Heur-2 neu. Four months post-mastectomy, the patient returned back with irregular fungating mass on the same site measuring 4x5cm, with ulceration and redness of the overlying skin. The patient underwent a palliative resection of the mass along with 7th, 8th, 9th, and 10th rib. This was followed by adjuvant chemotherapy consistent of 5-flurouracil and cisplatinum. The patient is still alive up to date.

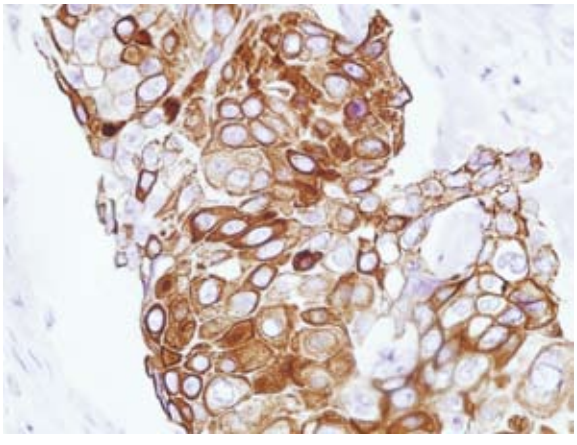

Figure 5 - The tumor cells are strongly positive for high molecular weight cytokeratin (x400).

Discussion. Squamous cell carcinoma of the breast was first described in 1908 by Troell.[2] It most

often involves post-menopausal women; however cases in younger patients have been described.[3-7] The clinical presentation is variable. There are several published cases in which the patients were initially presented as breast abscesses,[6] intracystic lesion or masses.[3] In patients who presented with masses, the lesion was larger than the usual ductal carcinoma; with the majority of the reported tumor are of more than 5 cm.[3-6] Strict criteria are required to establish the correct diagnosis of primary SCC of the breast. These are: the tumor should not originate from the surface of the skin of the breast or from the nipple or the skin adnexal elements, greater than 90% of the tumor cells must be squamous, absence of neoplastic ductal or mesenchymal elements through extensive sampling and lastly exclusion of metastasis from non-mammary sites.[1] No specific risk factor was found to be associated with these tumors, although some reports have suggested radiation as a possible link,[7] others had reported this tumor following silicone breast augmentation.[8] Ultrasound was reported to be more helpful in suggesting the diagnosis of these tumors than breast mammogram as they have a characteristic solid hypoechoic appearance with complex cystic component.[5] Fine needle aspiration is considered to be of diagnostic utility especially in those cases that were presented as an abscess.[6,10] The main cytological finding is the presence of major population of malignant squamous cells. However, diagnostic difficulties may arise in well-differentiated carcinoma, tumor with extensive necrosis and in the presence of extensive inflammation.[10] The differential diagnoses based on cytological examination also include bizarre cases of apocrine metaplasia, carcinosarcoma and fibroadenoma with squamous metaplasia.[10] Therefore, surgical biopsy is required to confirm the diagnosis. The majority of these tumors are negative for ER and PR and heur-2 neu, which means that these patients do not benefit from the hormone-based chemotherapeutic drugs that used for the treatment of the usual ductal carcinoma.[3-6,9] In a recent study of 27 cases of SCC of the breast; the cases displayed common profiles typifying a basal origin: they never expressed ER or PR, were HER2-negative in 93% of cases, exhibited positivity for CK5/6 or EGF-R in 75% and 85%, and for p63 in 70% of cases and were highly proliferative.[9] These tumors are also associated with a lower rate of axillary node metastasis when compared to the usual ductal carcinoma with reported range of 10-30%.[3] However, in a recent series by Hennesy et al[5] of 33 patients with SCC of the breast, lymph nodes metastasis was reported in 50% of the cases. Distant metastasis has been reported in a range of 30-38%.[3] Reported sites of distant metastasis include lung, soft tissue of the neck, and mediastinum. The exact histogenesis of these tumors is unclear, some authors had suggested that it might be due to metaplasia of the ductal epithelium and for this reason it is considered as a variant of metaplastic mammary carcinoma.[5] Others had suggested that it may arise on chronic abscess or keratinous cyst from metaplastic squamous epithelium secondary to chronic breast inflammation.[3,6] The occurrence of SCC of the breast in correlation with breast implants is supportive of this theory. Surgery is considered the primary therapeutic choice, sometimes wide segmental mastectomy is enough in well differentiated and small SCC, but most of the time the large size of the tumor will often dictate mastectomy as the treatment of choice.[3-5] There is still no agreement regarding adjuvant therapy. Current breast cancer chemotherapy regimens have limited use in breast SCC.[4] Adjuvant chemotherapy with 5-fluorouracil (5-FU) and cisplatinum with or without doxorubicin has been recommended in many reports.[6,10] The role of radiation has been reported as unclear in many studies.[3-5] It may be useful to begin the treatment with adjuvant radiotherapy earlier than usual for breast cancer, because of the tendency for locoregional relapse. However, in the study by Hennessy et al,[5] relapse occurred in the irradiated field in 4 out of 19 treated patients and they concluded that breast SCC is a relatively radioresistant. Some studies have found the concomitant use of radiation therapy plus a combination of EGFR inhibitors and or chemotherapy to be effective in decreasing the locoregional relapses in humans SCC of other anatomic sites.[6] In our case, the patient received 6 session of radiotherapy pre-operative, however she had a recurrence 4 months after the mastectomy.

Review of literature reveals that the prognosis of this type of breast cancer is somewhat controversial, though many studies suggest that it is an aggressive disease that may behave like poorly differentiated breast adenocarcinoma. In a recent study of 33 patients with breast SCC at the University of Texas, Anderson Cancer Center, the outcome of breast SCC was inferior to the outcome of all breast cancer patients and generally aggressive as grade 3 hormone receptor-negative adenocarcinoma.[5]

In conclusion, primary SCC of the breast is uncommon and extremely aggressive disease associated with frequent local relapse. Strict criteria should be used to make the diagnosis of this tumor as it has a lower rate of axillary nodal metastasis, lower estrogen, and progesterone positivity and is resistant to the usual chemotherapeutic agent used in treatment of the usual breast ductal carcinoma.

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