Invasive solid papillary carcinoma: Report of the first case presenting as an occult breast carcinoma in a male

Dear Editor,

An 83-year-old man was referred for fine needle aspiration (FNA) of a recurrent right axillary mass. The patient had undergone right axillary resection with ipsilateral conservative mastectomy followed by chemotherapy 14 years earlier as a case of amelanotic melanoma. Both breasts and left axilla were unremarkable.

FNA [Figure 1a] and cell block preparation revealed features suggestive of metastatic carcinoma. However, it could not be characterized further. Immunohistochemistry (IHC) for melan-A and S-100 protein was negative [Figure 1a inset], excluding the diagnosis of recurrent melanoma.

Bilateral mammogram did not reveal any proliferative lesion in either of the breasts [Figure 1b]. An en bloc excision of the mass with right axillary dissection was performed. A skin-covered mass measuring 10 × 6 cm with multiple closely apposed nodules was received in the laboratory. Sections revealed lobular architecture with intervening fibrous bands and perivascular pseudo-rosetting. The cells showed minimal anisonucleosis, eccentric nuclei, and punched-out nuclei in some cells [Figure 1c and d]. No glandular pattern or ectopic breast tissue was appreciated. Stromal invasion was present focally [Figure 1d inset]. IHC for melan-A, S-100 protein, TTF-1, CK20, and CK7 was negative, thus ruling out melanoma, thyroid, or gastrointestinal origin of the tumor. The tumor cells showed positivity for estrogen receptor (ER) [Figure 2a], progesterone receptor (PR), GCDFP-15 [Figure 2b], and androgen receptor, confirming the mammary origin. Furthermore, strong E-cadherin [Figure 2c] expression in the tumor cells rules out lobular carcinoma. Calponin [Figure 2d] and p53 were negative in the tumor nodules, confirming the absence of myoepithelial cells. IHC for HER2/neu was negative [Figure 2e]. Neuroendocrine differentiation was evident by strong NSE and focal synaptophysin positivity [Figure 2f]. The dissected lymph nodes were all free of tumor.

Considering the histomorphological and immunohistochemical features, a diagnosis of axillary invasive solid papillary carcinoma (SPC) as a presentation of occult male breast carcinoma was rendered. The patient received chemotherapy, as per protocol for invasive ductal carcinoma (IDC) and has been on regular follow-up three negative positron emission tomography scans till date.

Occult breast carcinoma (OBC) in males is an extremely rare phenomenon, given the overall rarity of breast cancer in this gender. Specific, an uncommon lesion, has been recognized as a distinct entity in the latest World Health Organization classification of breast tumors in 2012 under the category of papillary lesions. Histogenetically, SPCs are considered to arise from ductal epithelium. Occurrence of SPC in males has been reported very rarely. Our patient adds to the scant literature of occurrence of SPC in a male, that too presenting as OBC with an axillary mass.

Histologic evaluation is mandatory to characterize the lesion. Upto 50% of the cases of SPC may show invasion and the invasive component can have a pure or mixed pattern. The invasive component in our case represented IDC-NOS (not otherwise specified) type. Immunohistochemically, SPCs express hormone receptors and are negative for HER2/neu. An interesting feature is the frequent expression of neuroendocrine markers like synaptophysin and chromogranin while being negative for basal cell–like keratin CK5/6. The tumor in the present case was positive for both ER and PR while being negative for HER2/neu and CK7.

The prognosis of SPC is favorable in the absence of an invasive component. Cases with an invasive carcinoma behave as per the invasive component. Complete excision of the tumor or mastectomy, either total or partial, are the surgical modalities...
of choice for SPC.[5] However, the therapeutic modality in a case of SPC presenting as OBC without an evident breast lesion is not clear due to the rarity of such a presentation. In the present case, the patient received postoperative chemotherapy as per the management protocol for IDC in view of the invasive component at the periphery of tumor.

The present case highlights, for the first time, the presentation of SPC as an OBC in a male patient. An unusual location in a rare clinical scenario can compound the diagnostic dilemma. Careful application of IHC is helpful, especially in a metastatic location with unknown primary.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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