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Primary giant cell tumor of the female breast: a diagnostic red herring with therapeutic implications

BALAN LOUIS GASPAR,[1] SANIYA SHARMA,[1] RAJINDER SINGH[2] and RAKESH KUMAR VASISHTA[1]

[1]Department of Histopathology, PGIMER, Chandigarh, India; [2]Department of General Surgery, PGIMER, Chandigarh, India

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Primary giant cell tumor of the female breast is extremely rare. Major diagnostic difficulty is encountered not only by the surgeon but also by the radiologist and pathologist. Pathologically, it is similar to the bone and soft tissue counterparts. However, this is not always true. We describe a patient presenting clinically as cystosarcoma phyllodes and histopathological examination revealed a primary giant cell tumor which was confirmed by immunohistochemistry and electron microscopy. Interestingly, an intimate relationship between the mononuclear component of the tumor cells with eosinophils and mast cells was observed electron microscopically.

Key words: Female breast; giant cell tumor.

Rakesh Kumar Vasishta, Department of Histopathology, 5th Floor, Research Block-A, Postgraduate Institute of Medical Education and Research, Chandigarh 160012, India. e-mail: vasishtarakesh@yahoo.com

Giant cell tumor of soft tissue (GCTST) is an uncommon tumor of low malignant potential (1). Those that arise in the female breast are exceedingly rare. Clinically, the breast tumors present as a rapidly growing lump in the absence of axillary lymphadenopathy. Pathologically, these tumors are biphasic composed of osteoclast-like giant cells and mononuclear cells similar to the bone and soft tissue counterparts in morphology and immunohistochemistry (2). To the best of our knowledge, the clinic-pathological characteristics of primary giant cell tumor of the female breast (PGCTFB) are not well established. We describe a patient presenting clinically as phyllodes tumor and histopathological examination confirmed a malignant PGCTFB. A unique relationship between the mononuclear component of the tumor cells with eosinophils and mast cells was observed electron microscopically.

CASE SUMMARY

A 36-year-old lady with a family history of endometrial carcinoma presented to our breast clinic with a history of rapidly increasing right breast lump within a span of one and a half months. On examination, a hard lump was palpable in the upper quadrant with no fixity to the chest wall or skin. The mammogram showed a well-defined hyperdense mass located deep in the upper quadrant (Fig. 1). The underlying ribs were normal. There were no palpable axillary lymph nodes. With a clinical possibility of phyllodes tumor, she underwent a wide-local excision procedure. Intra-operatively, the mass measured 7 × 4 cm lying over the pectoral fascia. No axillary lymph nodes were visible at the time of surgery. The gross specimen on slicing yielded 150 mL of altered blood which left behind a 6 cm collapsed cystic tumor that had a peripheral firm gray-white area. Microscopically, the tumor was well circumscribed with a large central cystic area dominated by hemorrhage and necrosis (Fig. 2A). The periphery was more cellular. Adjacent normal breast parenchyma had a few ductal elements. The tumor cells were mildly pleomorphic, composed chiefly of osteoclast-type giant cells and mononuclear stromal cells in equal proportions (Fig. 2B). The nuclei of the osteoclast-type giant cells ranged from 10 to more than 50. The cells had a ruffled border with abundant amphophilic

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