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Primary Osteosarcoma of the Breast in Young Women: One Case Report and Literature Review

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Case Report

A 21-year-old female with a breast tumor for over a month came to our hospital. The physical examinations on her breast showed a mammary neoplasm of about 4 cm, with a good range of motion and no abnormality seen in the skin. The patient remained single, and had no family history of breast cancer or ovarian carcinoma. CT and X-ray examinations on the osseous tissue of the whole body showed that no lesions were found. A glabrous tumor with peplos was seen during the surgery, and was completely excised.

The macroscopic findings indicated the features of the tumor: the size of 5 cm × 3 cm × 3 cm, smooth surface, grewish-white cut section, tenellous texture and hemorrhagic focus. The observation showed that no breast epithelium but the rich mesenchymal fibrocytes were seen under a microscopic. And also ossifying focus, tumor giant cell, and 10/50HPF of pathological caryokinesis were frequently seen. The results from the examination of the immunohistochemistry indicated that ER, PR, HER2 and broad-spectrum CK were all negative, and the vimitin was positive. The pathological diagnosis confirmed that it was a primary osteosarcoma of the breast (OSB). The diagnosis of OSB was confirmed through the consultation hosted by Prof. Zhang Lianyu from Tianjin Medical University Cancer Hospital by reviewing the pathological section. After initial report of the pathologic results, a simple subcutaneous breast resection without a subaxillary lymphadenectomy and plastic operation of the breast were conducted.

Discussion

Based on the reports, OSB has been rarely seen, an approximate 1.2% of all soft-tissue sarcomas and 0.15%-0.25% of breast sarcomas were OSB [1]. It is most commonly seen in the middle and old-age women. In a report from China, the eldest patient diagnosed as OSB was 75 years old, and the youngest one was 38, with a mean age of 54. The longest course of disease of the OSB was 20 years. Usually the OSB has grown for many years before the patients receive the treatment, and it might grow fast in a sudden after a long-term slow growth[2], suggesting that the course of this disease is possibly slow-moving. Osteosarcoma is a tumor with very powerful invasion and is prone to hematogenous metastasis but rarely lymphatic metastasis[2]. Total resection with sufficient margin of the tumor has become the choice

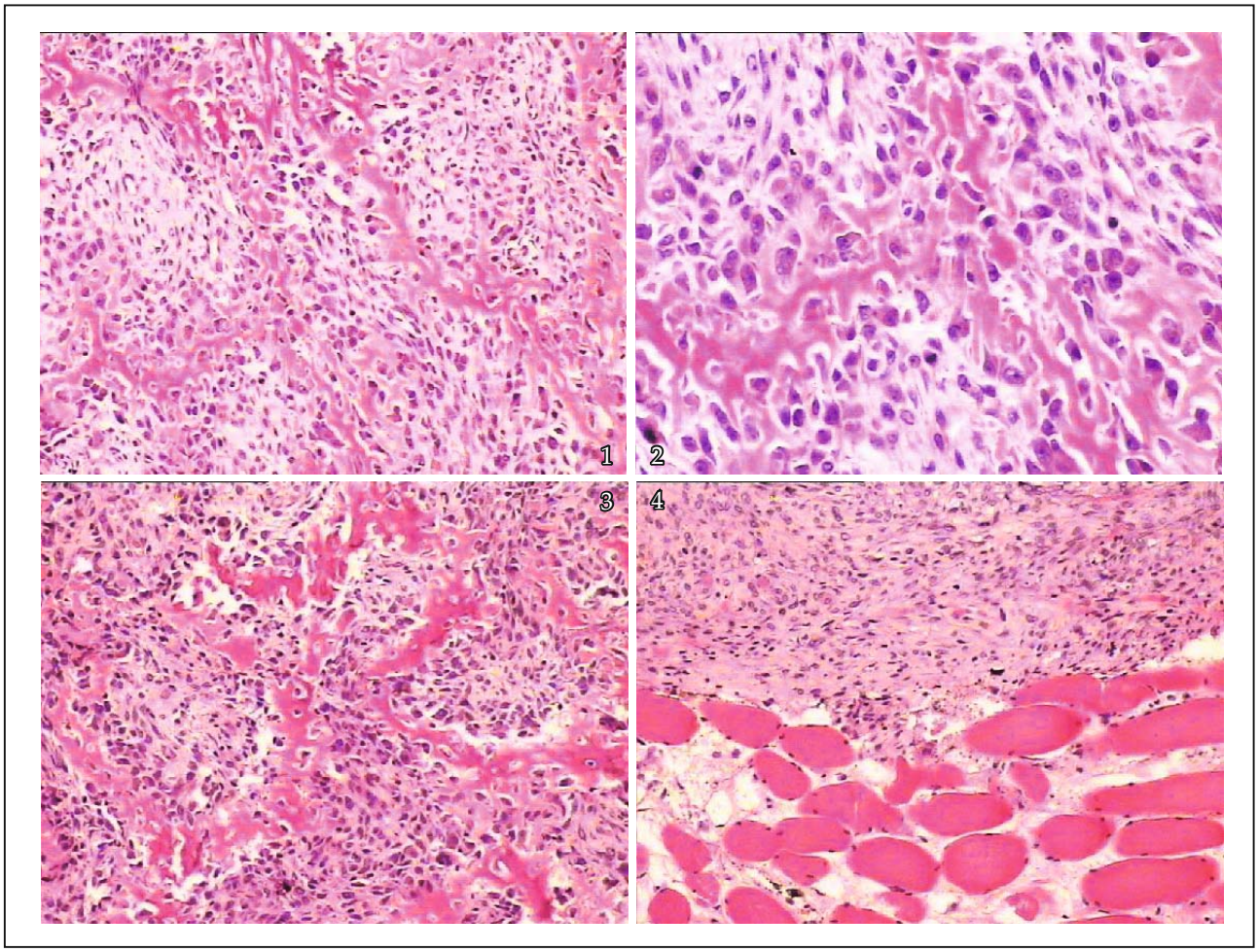

Fig.1. SP×100 OSB composed of heterotypic sarcoma cells and sarcomatosum osteoid trabeculae.
Fig.2. OSB: a high power of Fig.1.
Fig.3. SP×100 A much more clear figure of the osteoid trabeculae seen in OSB.
Fig.4. SP×100 Sarcoma component of OSB invades striated muscle.

of the treatment since the tumor is neither sensitive to radiotherapy nor to chemotherapy[3]. The patient's first visit to our hospital was April 2008, and up to now she underwent surgery in August, September and December 2008, respectively because of the relapses of OSB. In the last surgery, the tumor invasions of the chest wall and costal cartilage were presented. Radiation therapy was conducted for the patient, but failed to achieve a curative effect.

OSB may be traceable to fibrous component of primary fibrodenoma with, fibrous component or cystosarcoma phyllodes of the breast, or canceration after ossification, or it may originat from an osseous metaplasia of primary breast cancer. It may also be a formation of complete or partial interstitial ossification in tumor[4]. To diagnose the primary OSB, the exclusion of the chest-wall osteosarcoma invading into the breast is absolutely necessary[5]. Proof of the chest-wall osteosarcoma invading into the breast was not found in either the surgical or the pathological examination of this patient. This article can be regarded as a case report of the primary OSB.

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