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Pathology Page

Extraskeletal osteosarcoma in the back

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A 41-year-old woman visited our plastic surgeon with complaints of a progressively enlarged lower back mass for months. The mass had become very tender recently. Her physical examination demonstrated a round, movable, solid mass over the lower back, about 8 cm × 7 cm at its largest diameter (Fig. 1A). The tumor was excised and the mass had no attachment to bone or periosteum. The specimen included a grayish white calcified tumor and a 9 cm × 6-cm piece of attached skin (Fig. 1B). On histological section, the tumor showed a central 3 cm × 1.5 cm × 1.5 cm polycystic space with a reddish brown hemorrhagic cut surface. The histological examination revealed an ill-defined tumor involving the dermis (Fig. 2A) and subcutis, which was composed of atypical spindle, epithelioid, or pleomorphic cells surrounded by prominent osteoid (Fig. 2B) and bone formation. The tumor also transformed into a telangiectatic pattern with bizarre hyperchromatic sarcomatous cells and scarce deposition of fibrinoid osteoid. Immunohistochemically, the tumor cells were negative for cytokeratin, epithelial membrane antigen, smooth muscle actin, desmin, CD34, CD68, and S-100. Postoperative computed tomography revealed no distant metastasis in the chest, mediastinum, and abdomen and no bone lesions. Extraskeletal osteosarcoma was diagnosed. After the operation, the patient accepted neoadjuvant chemotherapy. She was stable without recurrence or metastasis after 5 months of follow up.

Extraskeletal osteosarcoma is a very rare soft-tissue sarcoma, compared with osteogenic sarcoma. The tumor accounts for approximately 1.2% of soft-tissue sarcomas [1]. It is defined as a soft-tissue sarcoma unattached to bone and periosteum, and

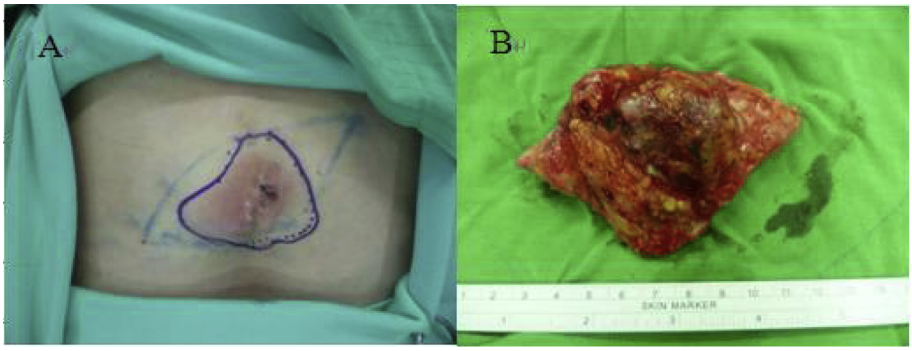

Fig. 1. (A) A fleshy movable red tumor over the lower back. (B) Gross surgical specimen has a polycystic, reddish brown, hemorrhagic cut surface.

Conflicts of interest: none.

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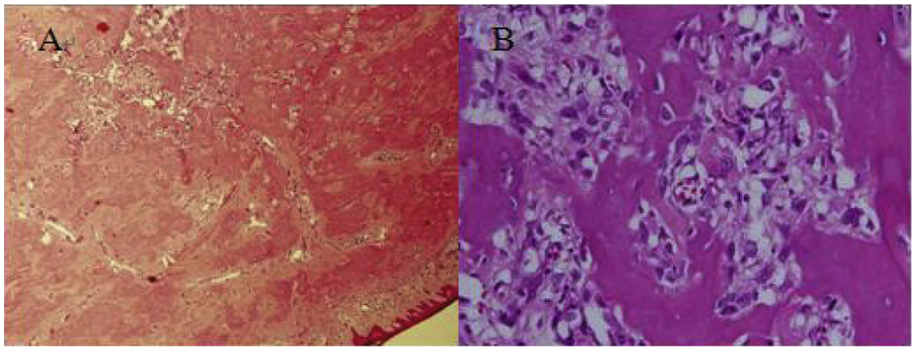

Fig. 2. (A) An ill-defined infiltrating tumor involving the dermis (hematoxylin and eosin 40×). (B) It has pleomorphic osteoblasts with osteoid formation (hematoxylin and eosin 400×).

contains malignant osteoid [2]. Unlike osteogenic sarcoma, most extraskeletal osteosarcomas occur in patients aged >40 years [3–5], with more men than women affected [2–4,6]. The tumors are mainly located in the deep soft tissue of the lower extremity, upper extremity, shoulder, retroperitoneum, neck, and chest [3–6]. The tumor in our patient was very superficial, involving subcutaneous tissue and dermis, and occurred in the lower back, which is an unusual location [3–6]. Some extraskeletal osteosarcomas are irradiation related, with a female predominance, and are usually more superficially located [3,7].

The microscopic features of extraskeletal osteosarcomas usually show high-grade malignancy [3,4,6,7]. Only scattered low-grade cases have been reported [8]. Most cases are classified as osteoblastic, fibroblastic, chondroblastic, or mixed patterns according to cellular differentiation [3,4,7]. Only rare cases show a telangiectatic histologic pattern [3,4]. The small cell variant is very rare [9]. Pathologically, extraskeletal osteosarcomas must be differentiated from myositis ossificans, parosteal osteosarcoma, periosteal osteosarcoma, and high-grade surface osteosarcoma [2].

The prognosis for extraskeletal osteosarcoma is usually poor and adequate surgery with wide surgical excision has a statistically positive impact on prognosis [7]. However, a preoperative diagnosis based on biopsy is usually difficult because malignant osteoid may not present in the preoperative core biopsy of a limited specimen [3]. Therefore, careful, multiple samplings of the tumor may lead to a correct preoperative diagnosis. We present this rare case and suggest the tumor be included in the preoperative differential diagnosis of a soft-tissue tumor.

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