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Desmoplastic Fibroma Arising in the Distal Phalanx of the Great Toe: A Case Report

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ABSTRACT

Desmoplastic fibroma (DF) of the bone is a rare locally aggressive tumor usually occurring in adolescents and young adults. These tumors most commonly occur in the mandibles and metaphyses of long bones but are extremely rare in small bones, often resulting in diagnostic problems. The occurrence of these tumors in the foot is especially limited. We report the clinical, radiographic, and histologic features of DF arising in the distal phalanx of the great toe and a review of the published data.

Desmoplastic fibroma (DF) of the bone was first described by Jaffe et al (1) in 1958. It is a rare entity reported to occur in approximately 0.1% of all bone tumors. It has a histologic resemblance to desmoid-type fibromatosis with similar aggressiveness locally. They usually present as a slow growing mass, most frequently occurring in the mandibles and long bones. Surgical resection with a wide margin has been advocated for the treatment. Curettage has been associated with a local recurrence rate as great as 50%, and, because of its rarity, data on the effect of adjuvant treatments on surgery are scarce. In 1986, el-Tabbakh and Al-Arabi (2) first described a case of intraosseous DF of a digit of the foot, and to our knowledge, the present case is the third such case occurring in the toe. We present a case of DF arising in the toe, a rare presentation with limited cases reported in published studies.

Case Report

An 18-year-old male presented with pain and a slow growing mass of his left great toe (hallux). He had no particular incidence of trauma or any relevant medical history. He had visited a nearby hospital because of deteriorating pain and was diagnosed with a bone tumor of the distal phalanx of the great toe radiographically. The overlying skin was smooth and nonadherent, with slight tenderness. No redness or hotness was present in the area. The blood examination results were all in the normal range. On the plain radiograph, a 2 × 3-cm osteolytic lesion was found in the distal phalanx with ballooning and thinning of the cortex. No periosteal reaction or calcification was associated with the lesion (Fig. 1). Because the patient refused to undergo surgery under general anesthesia, the operative plan was to perform an intraoperative biopsy of the lesion with the patient under local anesthesia and to perform extended curettage with bone grafting using allografts if the lesion was benign. The tumor was a white elastic hard mass with slight adhesion to the bone. On frozen section analysis, the tumor was composed of bundles of spindle cells with slight atypia and no mitosis, reminiscent of nonosseous fibroma. The operation was completed as planned, and the patient was released without any fixation (Fig. 2). On histopathologic examination after surgery, hematoxylin and eosin staining demonstrated dense bundles of spindle cells without the atypia and mitosis seen during surgery (Fig. 3). The immunohistochemical examination finding was negative for smooth muscle actin, desmin, S-100, and CD34. The MIB-1 index was less than 5%, consistent with DF. The postoperative period was uneventful, and, at the final follow-up visit after 3 years, no local recurrence, arthritic changes, or metastasis was observed (Fig. 4).

Discussion

DF of the bone is a benign, but locally aggressive, fibrous tumor usually occurring in patients younger than 30 years. The tumor was

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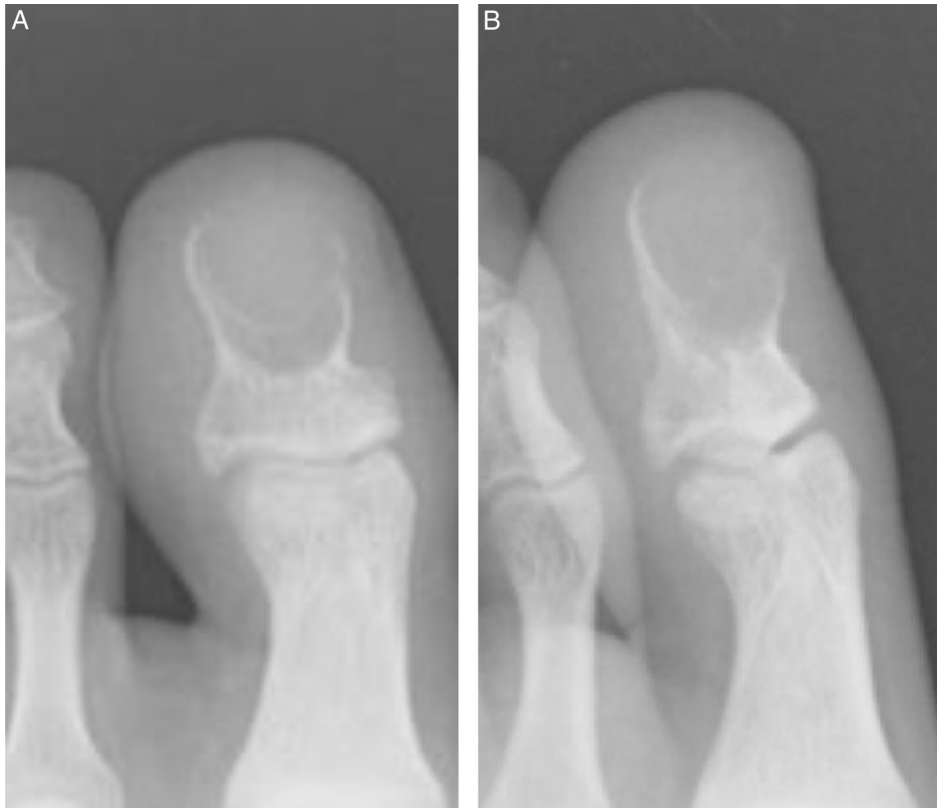

Fig. 1. (*A*) Anteroposterior and (*B*) oblique radiographs of the great toe at the initial presentation. The tumor is depicted as an osteolytic lesion with ballooning and thinning of the cortex.

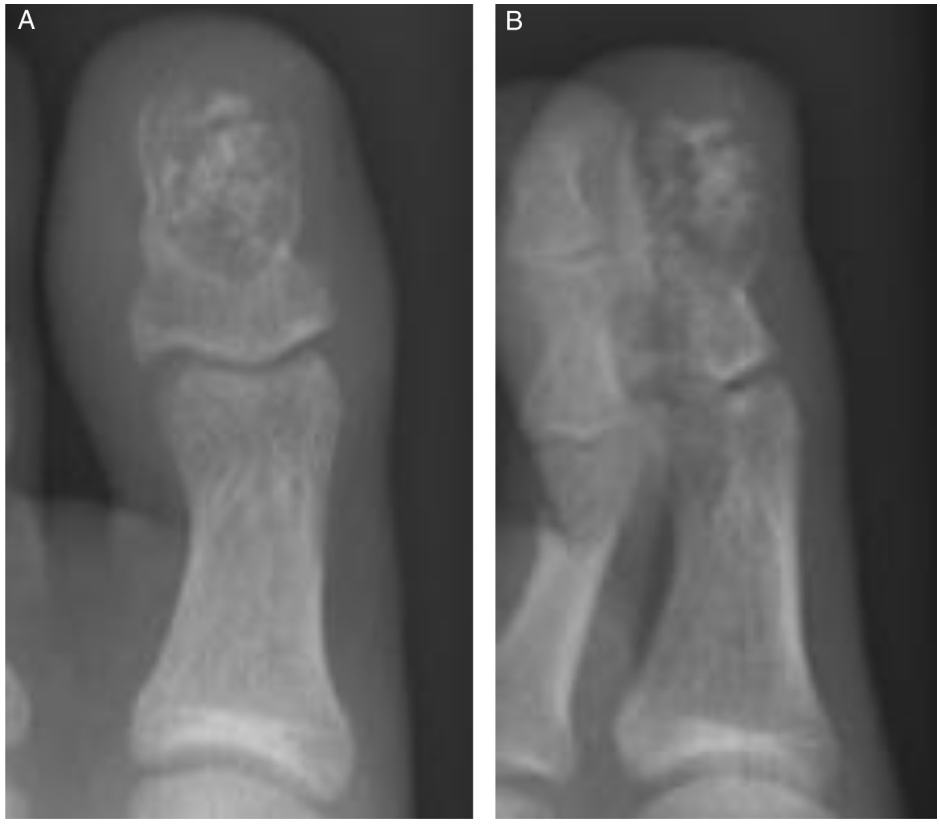

Fig. 2. (*A* and *B*) Radiographs after surgery showing allograft grafted into the cavity.