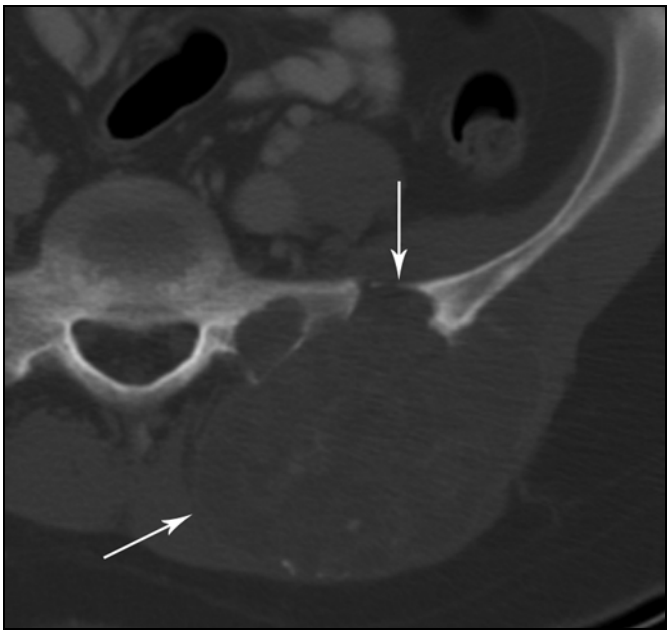
Chondromyxoid Fibroma of the Sacrum and Left Iliac Bone

Sumit Mehta[1]
Janio Szklaruk
Silvana C. Faria
A. Kevin Raymond
Gary J. Whitman

A 26-year-old woman with a history of progressively worsening lower back pain for 1.5 years presented for evaluation. Physical examination was remarkable for mild swelling of the left flank, which was tender on palpation. Radiographs of the pelvis showed a large, lobulated, expansile eccentric lesion in the upper medial aspect of the left iliac bone. CT showed a 10-cm mass with destruction of the left iliac bone and the left side of the sacrum (Fig. 1A). MRI showed the mass to be hypointense to muscle on T1-weighted images and hyperintense to muscle on T2-weighted images (Fig. 1B). The mass showed enhancement on T1-weighted images obtained after the administration of IV gadolinium (Fig. 1C). The patient underwent surgical resection and the majority of the tumor was removed (Figs. 1D and 1E), with the remainder undergoing curettage. Gross pathology showed a multinodular, gray-silver to white-tan-pink, friable tumor. The final histopathologic diagnosis was chondromyxoid fibroma with an element of chondroblastoma.

Chondromyxoid fibroma is a rare benign cartilaginous tumor, accounting for less than 1% of all primary bone tumors. Patients with chondromyxoid fibromas are usually in the second or third decade of life. The male to female ratio is reported to be 1.5:1. The tumor may be asymptomatic, and large lesions may cause pain, swelling, or distortion of bone. A study of 278 cases showed nearly half of the tumors in the long bones, and chondromyxoid fibroma has a predilection for occurring around the knee joint, especially in the proximal tibial metaphysis [1, 2]. Only five cases of chondromyxoid fibroma of the sacrum have been reported.



A

Fig. 1—26-year-old woman with chondromyxoid fibroma of sacrum and left iliac bone.
A, CT shows large mass (*arrows*) with destruction of left iliac bone and left side of sacrum.
(Fig. 1 continues on next page)

Keywords: bone, chondromyxoid fibroma

DOI:10.2214/AJR.05.1108

Received June 28, 2005; accepted after revision July 10, 2005.

S. C. Faria was supported by a grant from CAPES, Brazil.

[1]All authors: Division of Diagnostic Imaging, The University of Texas M. D. Anderson Cancer Center, Unit 1350, 1515 Holcombe Blvd., Houston, TX 77230. Address correspondence to G. J. Whitman.

AJR 2006; 186:467–469

0361–803X/06/1862–467

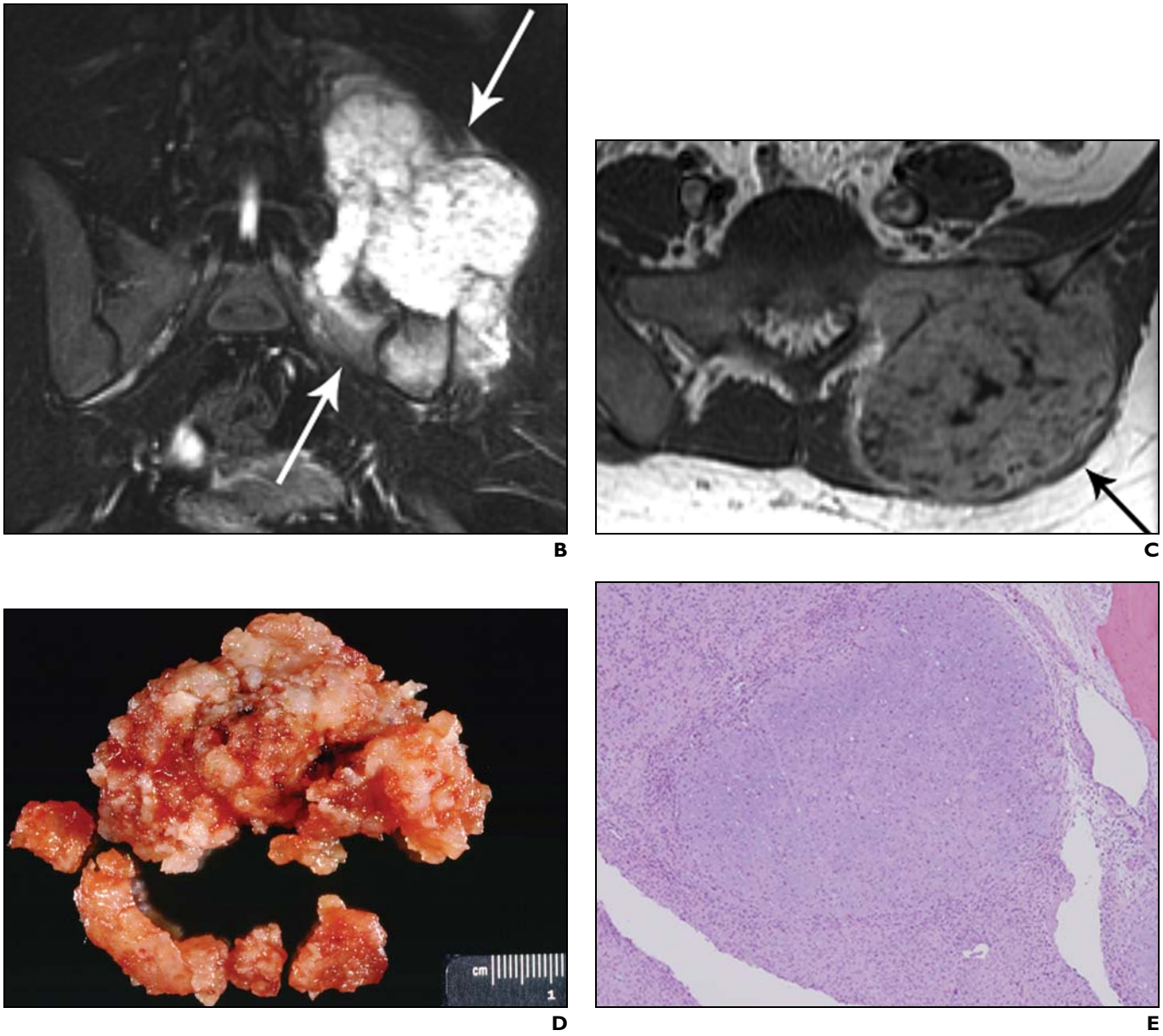


Fig. 1 (continued)—26-year-old woman with chondromyxoid fibroma of sacrum and left iliac bone.
B, Coronal, fat-suppressed T2-weighted MR image shows mass (*arrows*) hyperintense compared to muscle.
C, Axial contrast-enhanced T1-weighted MR image shows enhancing mass (*arrow*).
D, Gross pathology shows multinodular, gray-silver to white-tan-pink, friable tumor.
E, Photomicrograph shows zonated monophasic myxoid cartilaginous lesion. Tumor cells are more numerous, larger, and closer together at periphery of lesion. (H and E, × 40)

On radiography and CT, chondromyxoid fibroma is usually seen as an expansile, radiolucent, lobulated, geographic lesion with a sclerotic rim [2]. Septations may be present and calcifications are usually not visible on radiographs [3]. On MRI, chondromyxoid fibromas show low signal intensity on T1-weighted images, high signal intensity on T2-weighted images, and heterogeneous enhancement after IV administration of gadolinium.

On gross pathology, chondromyxoid fibroma is usually seen as a gray-white lobulated mass. Histologic evaluation usually shows the tumor arranged in lobules of spindle-shaped or stellate cells, with abundant myxoid or chondroid intercellular material [4]. The lobules are zonated. At the lobule periphery, the cells are longer, more numerous, and closer together. The cells are more stellate, thinner, less numerous, and farther apart in the center of the lobules. In about half of the cases, giant cells are noted at the edge of the lobules [4]. Bizarre nuclei may be seen in nearly 20% of cases [1]. Within the chondroid regions, the matrix is well developed. Calcifications may be present on histopathology in greater than one third of all cases [1].

Chondromyxoid fibroma may be treated with en bloc resection, curettage, or curettage with bone grafting. The risk of local recurrence ranges between 4% and 80%, depending on the surgical treatment. There have been some reports of malignant degeneration of

chondromyxoid fibroma; however, most of these cases are thought to represent chondrosarcoma initially misdiagnosed as chondromyxoid fibroma [3].

Acknowledgment

We thank Barbara Almarez Mahinda for secretarial support.

References

1. Wu CT, Inwards CY, O'Laughlin S, Rock MG, Beabout JW, Unni KK. Chondromyxoid fibroma of bone: a clinicopathologic review of 278 cases. *Hum Pathol* 1998; 29:438–446
2. Wilson AJ, Kyriakos M, Ackerman LV. Chondromyxoid fibroma: radiographic appearance in 38 cases and in a review of the literature. *Radiology* 1991; 179:513–518
3. Hau MA, Fox EJ, Rosenberg AE, Mankin HJ. Chondromyxoid fibroma of the metacarpal. *Skeletal Radiol* 2001; 30:719–721
4. Azorin D, Gil A, Sanchez-Aniceto G, Ballestin C, Martinez-Tello FJ. Chondromyxoid fibroma of the frontal sinus. *Br J Oral Maxillofac Surg* 2003; 41:418–420