CASE REPORT

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Advanced Giant cell tumor of Right Antero-lateral Chest wall, at Pregnancy

Farhad Samiei[1], Afsaneh Alikhassi[2], Zahra Sedighi[3], Alireza Ghannadan[4], Mohammad-Ali Mohagheghi[*,5]

ABSTRACT

We report occurrence of a rare case of Giant Cell Tumor (GCT), in a 28-year old woman, arising from anterior arc of right 6th rib during pregnancy. It progressed rapidly during breast-feeding period, mimicking malignant bone tumor at delayed presentation.

Key words: Bone tumor; Giant cell tumor; Chest wall; Pregnancy

1. Department of Radiotherapy, Cancer Institute of Tehran, Tehran, Iran.
2.Department of Radiology, Cancer Institute of Tehran, Tehran, Iran
3. Cancer Research Center, Cancer Institute of Tehran, Tehran, Iran
4. Department of Pathology, Cancer Institute of Tehran, Tehran, Iran.
5. Department of Pathology, Cancer Institute of Tehran, Tehran, Iran.

***Corresponding Author:**
Mohammad-Ali Mohagheghi
Professor of Surgical Oncology, Cancer Research Center, Cancer Institute, Imam Khomeini Medical Center, End Keshavarz Blvd. Tehran, IR of Iran,
Phone:+ 982166581542,
e-mail:
mamohagheghi@gmail.com

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Introduction

Giant cell tumor of rib is extremely rare neoplasm. It considers a benign bone tumor and presents as painful, locally aggressive, osteolytic mass, at epiphysis of head and tubercle of a rib in young adults[1]. Uncommonly, such as this case, the presentation may be of anterior chest wall mass[2-3]. Like other sites, most cases are solitary and metastasis occurs in rare circumstances, mostly in lung and in the setting of local recurrence[4]. Primary bone GCTs, are even rarer during pregnancy, and a few cases have been reported[5-6].

Case report

A 28-year old lady, gravid 2, para 2, presented to the Cancer Institute with huge, painful, antero-lateral chest wall mass, below her right breast, at April 2014. She felt the mass, with mild pain, for the first time 18 months before presentation, during 3rd trimester of her second pregnancy, and falsely attributed it as a pregnancy-related symptom. She decided not to present for this painful mass until end of lactation, and only received NSAIDs for pain relief. She also mentioned 6 kilograms weight loss over recent period. On examination she was anemic and a fixed, hard and tender mass, 8 × 10 centimeters, was palpated at antero-lateral chest wall, from inferior crease of right breast towards the flank. Magnetic resonance imaging of the thoracic and abdamino-pelvic revealed a large heterogeneous mass of antero-lateral chest wall, most probably originating from the 6th rib, with destruction of adjacent ribs and extension with compression effect toward pleura and right diaphragm (Figure 1: A-E). Core needle biopsy of the mass reported an ill-defined tumor composed of numerous multinucleated giant cells, scattered uniformly throughout the tumor, intermingled with many mononuclear cells contains round to oval nuclei, small nucleoli and amphophilic to eosinophilic cytoplasm with indistinct borders. The giant cells are distributed uniformly with the nuclear features remarkably similar to those of mononuclear cells (Figure 2: F-H). During wide local excision of the tumor, including 5th to 7th ribs, severe bleeding occurred, and prevented negative margins attainment. Resultant flail chest was successfully controlled during post operative period. Pathology reported giant cell tumor, originating from rib, with involvement of one margin. The case was introduced at Cancer Institute›s tumor board, and due to clinical behavior of GCT, its sensitivity to radiation, one involved margin and close withinity of tumor to other margins, radiotherapy to the chest wall recommended. Moderate-dose radiotherapy (total dose of 6000 cGy in 30 fractions) performed as adjuvant, and completed at September 2014. Fallow-up MRI at May 2015 revealed probable residual/recurrent disease. A second surgical resection was attempted and a tiny of microscopic tumor reported at center of excised specimen, all margins was free of tumor. The patient is well and is free of tumor 10 months after surgery.

Discussion

GCT is a rare, benign, locally aggressive, primary tumor of bone and usually involves epiphysis in young adults and metaphysis in children. It accounts for about 5% of all primary bone tumors[7]. GCT mainly occurs around the knee joint, and rarely involves the rib[1,8]. Clinical behavior of GCT is unpredictable, but can be locally aggressive and has propensity to recur after less than radical resections. Distant metastasis, usually in the lung, occurs in 2 to 3 percent of cases[9]. Only about 1% of GCTs occur in the rib, mostly posterior aspect, and anterior arc involvement is very rare[10,11,12].

GCT'S occure more frequently in females, and estrogen and progesterone receptors in tumoral cells have been reported[13]. GCT of bone has been reported very rarely during pregnancy[14], and a report indicated rapid growth during which[15]. The influence of

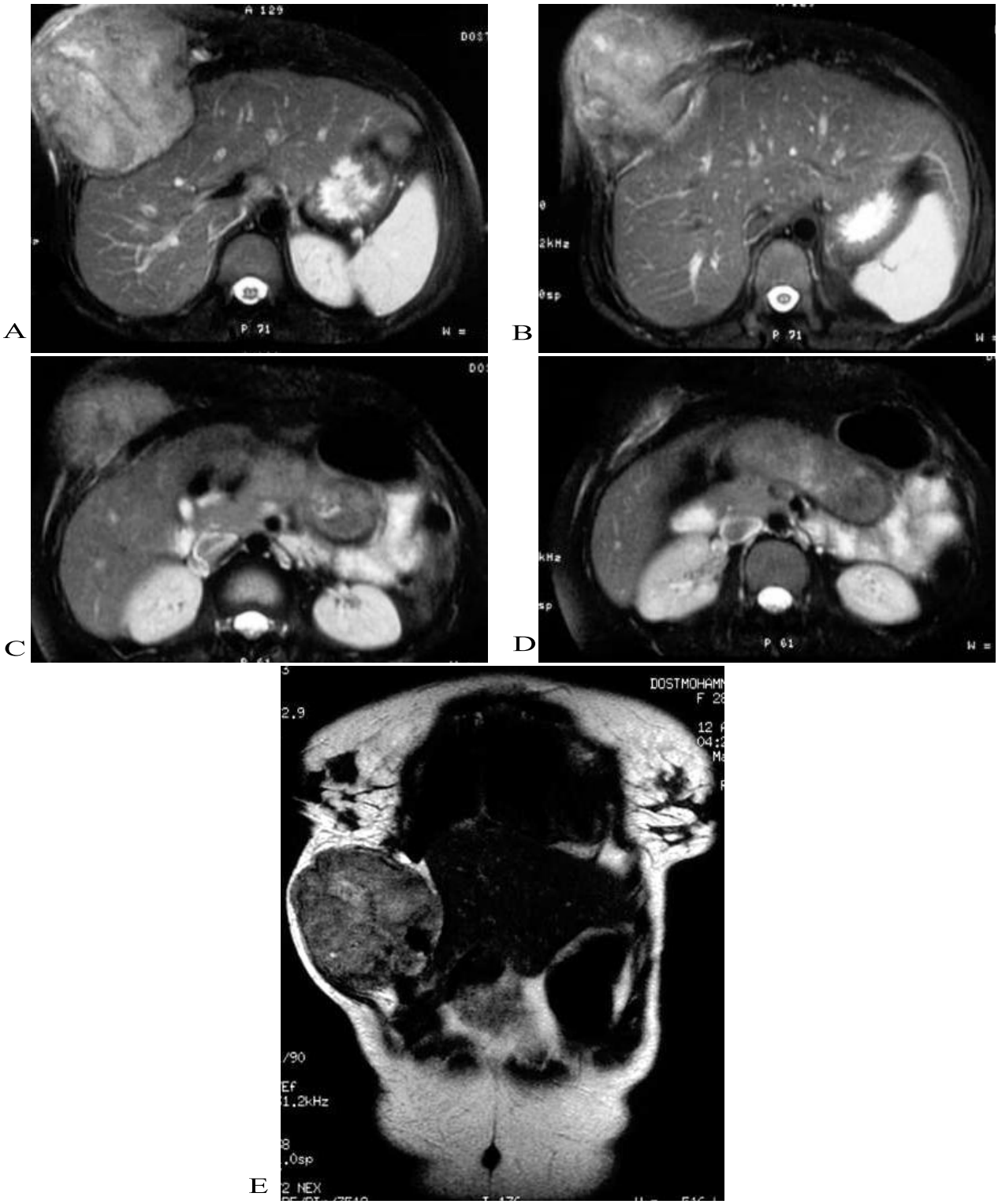

Fig. 1: A-E: Thoracic and Abdominal MRI at presentation showing a large expansile lytic lesion involving antero-lateral chest wall, with compression of adjacent pleura and diaphragm, indicating of a benign bone tumor

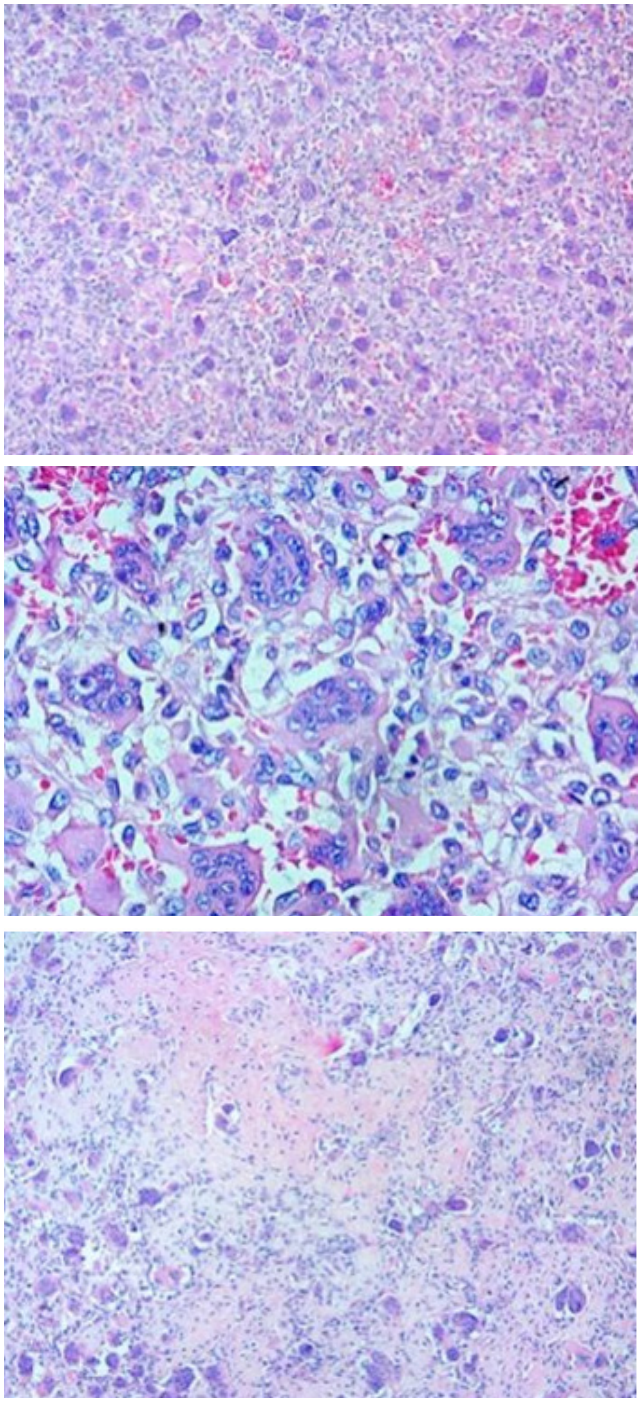

Fig. 2: F: Uniformly distributed multinucleated giant cells through the tumor intermixed with many monomuclear cells (H&E ×10), G: Mononuclear cells between giant cells characterized with the same nuclear feature and pale eosinophilic cytoplasm (H&E ×40) , and H: Reactive bone formation resembling to osteoid in one area intermerged with the tumor cells. (H&E × 10)

pregnancy in development and progression of bone GCT, and the role of hormonal receptors and oncofetal antigens, on the tumor cells, is controversial[14-16].

Bone tumors including osteosarcomas, chondrosarcomas, and giant cell tumors, may occur during pregnancy, but trend to be missed or progressed before diagnosis, especially when develop at sacrum. It is because of simililarity of symptoms to pregnancy-related symptoms[14,17-18]. Our patient, noticed a painful swelling below her right breast during 3rd trimester of pregnancy, but decided not to reveal it until the end of lactation period. Her physicians also overlooked this important symptom.

In summary, we report a rare case of GTT in a young woman, arising in anterior arc of right 6th rib during pregnancy, progressing rapidly during breast-feeding period, mimicking a malignant bone tumor at presentation, and finally controlled after wide surgical resection, a course of radiotherapy, and re-excision.

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