Computed Tomography Imaging Diagnosis of the Left Rib Chondromyxoid Fibroma: a case report

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Chondromyxoid fibroma is a rare benign bone tumor. The etiology of chondromyxoid fibroma is still unknown. We report a case of a 26-year-old male who suffered from chronic cough for a year. His chest radiograph showed a lobulated tumor over the left seventh rib. The computed tomography (CT) examination further revealed an osteolytic tumor arising from the left seventh rib with calcified matrix, incomplete marginal calcifications and cortical destruction. He underwent surgical resection of this tumor. The pathologic diagnosis was chondromyxoid fibroma.

Chondromyxoid fibroma is a rare benign bone tumor, accounting for less than 1% of all skeletal neoplasms [1]. Chondromyxoid fibroma at rib is even rare [2]. Recent advance in CT image makes the preoperative diagnosis easier and more accurate. En bloc tumor resection is the preferred treatment. We present a case of left rib chondromyxoid fibroma, his clinical presentation and CT image findings.

CASE REPORT

A 26-year-old male suffered from chronic cough since one year ago. He went to local clinics several times, but the medication did not help him much. A chest radiograph was taken because of his illness. He was told to have a left lung tumor. Therefore his was referred to our hospital for further study and treatment.

Chest radiograph and computed tomography were arranged in our outpatient department. Chest radiograph (Fig. 1) showed a lobulated tumor over the left seventh rib with expansile, thin, mildly sclerotic margins. The computed tomography images (Fig. 2a, 2b) revealed an osteolytic lobulated tumor arising from the left seventh rib with calcified matrix, incomplete marginal calcifications and cortical destruction.

During his first admission on October 10th 2006, computed tomography guided biopsy was arranged. The temporary pathologic report was chondromyxoid fibroma. He admitted to our hospital again on October 30th 2006 for tumor excision. Microscopic features of this tumor showed a lobular pattern of stellate or spindle-shaped cells in a myxoid background. The periphery of the lobules was more hypercellular. The fibrous septa between lobules contained dilated blood vessels, giant cells and osteoid. Focal areas of cystic changes were also seen. The final pathologic diagnosis was chondromyxoid fibroma of the left seventh rib.

The post operative course was smooth. He
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Discharged on November 8th 2006. No recurrence was found at his recent follow-up in our outpatient department.

DISCUSSION

Chondromyxoid fibroma is a rare benign bone tumor, accounting for less than 1% of all skeletal neoplasms [1]. It was first described by Jaffe and Lichtenstein in 1948 [3]. The etiology of chondromyxoid fibroma is still unknown, but chromosome 6 abnormalities (several distinct breakpoints) may have been involved in this benign bone tumor [4].

Histologically, the tumor is composed of lobulated or pseudolobulated areas of spindle-shaped cells or stellate cells, abundant myxoid intercellular material, bands of spindle-shaped or rounded cells and multinucleated giant cells [5]. That is the name “chondromyxoid fibroma” derived from.

There is no sex predilection with regard to chondromyxoid fibroma. The tumor is found predominantly in patients in the second and third decades of life [6]. The age of our patient is compatible with the peak age of chondromyxoid fibroma.

Figure 1. Postero-anterior roentgenogram of the chest show a lobulated tumor over the left seventh rib with expansile, thin, mildly sclerotic margins. The tumor is extrapulmonary in origin due to well-defined tumor-lung interface. The tumor size is about 10 × 6cm.

Figure 2. a and b The axial plane computed tomography images with both soft-tissue window and bone window settings demonstrate a lobulated tumor arising from the posterior part of left seventh rib. It has expanded the rib cortices with thin, mildly sclerotic margins and focal matrix calcifications.
Chondromyxoid fibroma usually occurs in the metaphyseal region of a large tubular bone, especially on either sides of the knee joint [7]. However, the chondromyxoid fibroma of our patient originated from a rib. If his chest radiograph was not read carefully, this lesion could have been initially mistaken as a pulmonary tumor [8].

The clinical presentation is nonspecific, including pain, local soft tissue swelling, palpable hard mass, limping gait [5], or a pathologic fracture.

On conventional radiographs, chondromyxoid fibroma is typically a well-marginated, osteolytic, eccentric metaphyseal lesion of long bone with variable size [1]. The medullary margin is usually scalloped and sclerotic. It may extend into the diaphysis or uncommonly into the epiphysis. When it occurs in a small tubular or flat bone, it may occupy the entire bone with the presence of expansile, thin cortices and losing internal trabeculations.

Computed tomography is the imaging modality of choice for the detailed evaluation of chondromyxoid fibroma. It reveals the tumor origin, sclerotic margin, scalloped cortices, soft tissue components, and matrix calcifications [6]. Differential diagnosis may be fibrous dysplasia, aneurysmal bone cyst, chondroblastoma and chondrosarcoma. However, the computed tomographic findings of our patient’s rib tumor showed internal septa, no fluid-fluid level, not at epiphysis and no soft tissue extension. The chondromyxoid fibroma was the appropriate preoperative imaging diagnosis.

The management of chondromyxoid fibroma is surgical curettage or en bloc resection. The recurrence rate (approximately 18%) is relatively high in the patients who undergoes curettage as the initial treatment [9]. En bloc resection of tumor may be preferred though chondromyxoid fibroma is benign. Radiation therapy is not recommended in patients with resectable tumors because radiation-induced malignancy has been reported [10].

REFERENCES

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左側肋骨軟骨粘液纖維瘤的電腦斷層影像診斷：病例報告

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軟骨粘液纖維瘤是一種罕見的良性骨瘤，它發生的原因至今仍不明。我們提出的這個病例報告，是一位 26 歲男性，其症狀表現是慢性咳嗽了一年。他的胸部 x 光影像顯示出他左側第七肋骨有一個擴張葉狀的腫瘤，進一步的電腦斷層檢查發現，這個腫瘤有著鈣化基質與骨皮質的破壞。最後他接受了手術切除，病理結果是軟骨粘液纖維瘤。