

Solitary Bone Cyst of the Rib

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Solitary bone cyst is not an uncommon lesion and its site of predilection is the shaft of some long tubular bone, especially the upper part of the humerus. Rarer location of the cyst are femur, tibia, fibula, metacarpal, metatarsal, rib, calcaneus, and ilium. In this paper a rare case of a solitary bone cyst of the rib was reported.

Case Report

A nurse-maid in age of twenty years was sent to the out patient department of the orthopaedic surgery to confirm a diagnosis of an unusual cystic lesion in the left ninth rib. The lesion was found by chance at the radiological examination of the chest. The woman has had a chronic bronchitis but she had never experienced any injury of the chest wall.

A slight swelling was observed in the chest wall in the left side and a swelling of the ninth rib was palpated. Neither a fluctuation nor a tenderness was found. Radiologic examination revealed fusiform cystic radiolucent area which occupied the ventral one thirds of the left ninth rib (Fig. 1). The cortical layer was thinn and honey-comb-like structure was supposed. Laboratory study showed normal results. Because of a danger of pathologic fracture the lesion was resected.

At the operation the left ninth rib was found to be adherent with periosteum and with parietal pleura and it was difficult to resect the lesion without any damage of the pleura.

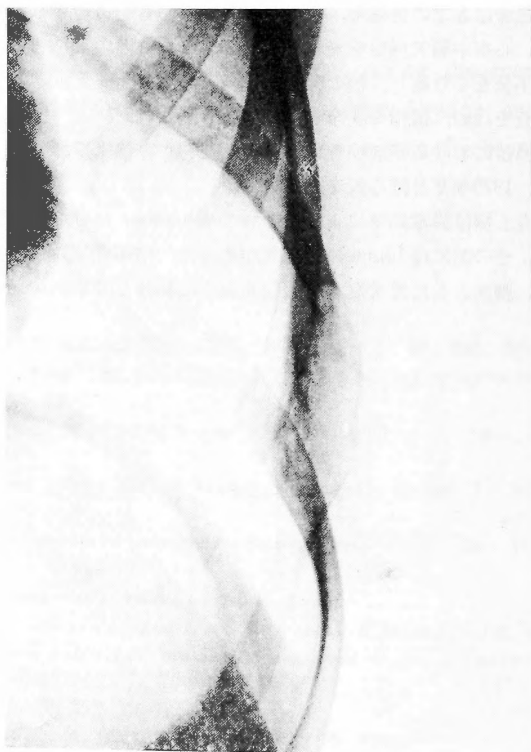


Fig. 1. Roentgenogram taken just before the operation

Key words : Tumor of the rib, solitary bone cyst, unicameral bone cyst

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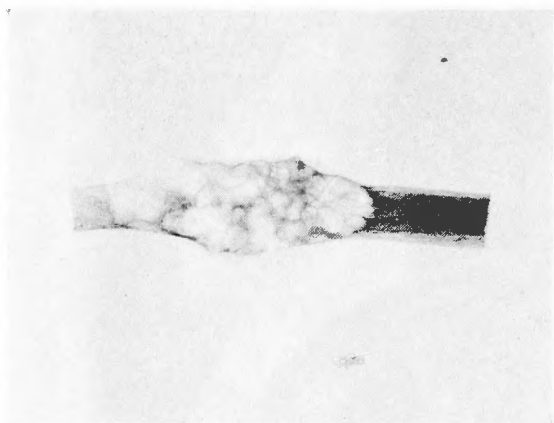


Fig. 2. Roentgenogram of the excised cystic tumor in the left ninth rib.

During the postoperative course a slight exsudate was found in the lateral inferior part of the left pleural cavity but it subsided in three weeks without puncture.

Pathology

The lesion was flat ellipsoid in shape and was $5.5 \times 2.0 \times 1.5$ cm large (Fig. 2). When the rib was sectioned brownish sanguineous fluid escaped from its cystic interior. Inner surface of the cyst was covered with thinn, connective-tissue-like membrane. The cavity was not divided off into compartments, however, the inner

wall of the cyst showed the web-like projections jetting into the cavity. On microscopic examination (Fig. 3 A and B), it was noted that normal cytologic picture of the marrow

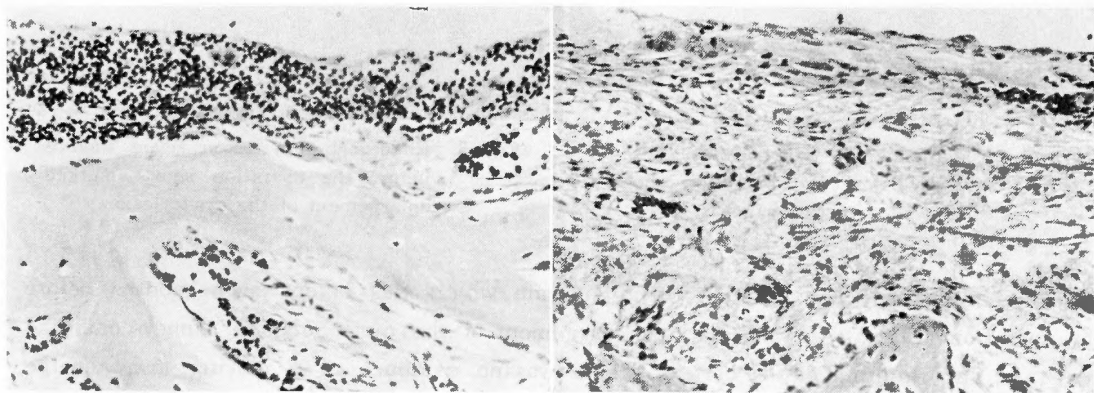


Fig. 3=A and B. Photomicrographs of the cyst. Marrow cavity is occupied with fibrous tissue with fairly large blood vessels (A). The thinn lining membrane is consisted of loose connective-tissue cells (B).

cavity of the rib was lost. The marrow appeared fibrous and contained fairly large thinn-walled blood vessels. The bone tissue was very thinn and on the cyst wall a scattering of osteoclasts was found. The thinn lining membrane was consisted of loose connective-tissue cells. The histologic diagnosis of a solitary bone cyst was confirmed by the clinical pathologist of the Department of Pathology and Clinical Laboratory.

Discussion

Retrospective study of two roentgenograms which had been taken for chest examination revealed early stage of this lesion and its subsequent development. A roentgenogram taken twenty seven months previously (Fig.4) showed already thinn walled cystic change in the left ninth rib. The lesion was radiolucent, limited in marrow cavity, and seemed separated



Fig. 4. Roentgenogram taken twenty seven months before the operation shows thinn walled cystic change (Arrows).



Fig. 5. Roentgenogram taken seven months before the operation shows marked enlargement of the cystic lesion.

into three compartments. Another roentgenogram which was taken seven months before the operation (Fig. 5) showed marked enlargement of the cystic change, honey-comb-like structure, and thinning of the cortex. There was no evidence of a moving away of the lesion which might be observed in the upper part of the humeral shaft in children.

There is no general agreement about the pathogenesis of the lesion. Traumatic theory¹⁾ and the theory that bone cyst represents healing process of central bone tumors³⁾ were opposed by JAFFE and LICHTENSTEIN¹⁾ and JAFFE²⁾. They favor the view which proposed by von MIKULICZ⁵⁾ that the lesion has its basis in a local disorder of bone growth and development. The lesion in the present case was already cystic in its early stage and it seems unlikely that the lesion represents healing process or a cystic change of some central bone tumor. From the retrospective radiological studies the lesion belongs to a group of "active cyst"²⁾.

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References

- 1) Jaffe H. L. and Lichtenstein, L. : Solitary unicameral bone cyst with emphasis on the roentgen picture, the pathologic appearance and the pathogenesis. Arch. Surg., **44** : 1004-1025, 1942.

- 2) Jaffe, H. L. : Tumors and tumorous conditions of the bones and joints. Lea and Febiger, Philadelphia, 1968, pp. 63-75
- 3) Konjetzny, G. E. : Die sogenannte "Lokalisierte Osteitis fibrosa." (Ein Beitrag zur Kenntnis der solitären Knochencysten und der sogenannten "schaligen myelogenen Riesenzellensarkome".) Arch. f. klin. Chir., **121** : 567-634, 1922.
- 4) Pommer, G. : Zur Kenntnis der progressiven Hämatom- und Phlegmasieveränderungen der Röhrenknochen auf Grund der mikroskopischen Befunde im neuen Knochenzystenfalle H. v. Heberers. Arch. orthop. Unfall-Chir., **17** : 17-69, 1920.
- 5) von Mikulicz, J. : Über cystische Degeneration der Knochen. Verhandl. d. Gesellsch. deutsch. Naturforsch. u. Ärzte : 76, 107, 1906 cited from Jaffe, H. L. and Lichtenstein, L. : Arch. Surg., **44** : 1004-1025, 1942.

和文抄録

肋骨に発生した単発性骨のう腫

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渡 辺 良

20才の女子の左第9肋骨に発生した単発性骨のう腫のレ線所見, 手術所見, 組織所見について述べた. 本症例では手術の27カ月前, および7カ月前のレ線写真を入手したため病巣の発育の状況をさかのぼってレ線的に観察することができた. 病巣は発育の初期に既に

のう腫様であり, 本症が特定の骨腫瘍ののう腫化したものであるとする説には同意しがたく, 全国骨腫瘍患者登録一覧表による骨腫瘍性疾患として分類するのが適当であろう.