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비골 원위부 골아세포종
- 증례보고 -

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박혜림 · 민수기 · 조현득 · 고성혜* · 권봉철 · 박용구*****

저자들은 32세 남자에서 비교적 드문 부위인 비골 원위부에서 발생한 골아세포종을 보고하고자 한다. 단순 방사선 소견상 내부 육주현상(trabeculation)을 동반한 풍선양 확대 병변으로 관찰되었다. 자기공명영상촬영 검사상 불균질성 저신호 강도의 중심부를 갖는 소엽상 팽창성 병변이 관찰되고 이는 조영 증강이 되었다. 소파술 시행 결과 석회화를 동반하지 않은 풍부한 분홍색의 유골로 구성되었고 유골 봉합선(seam)은 통통한 골아세포 및 소수의 거대 세포로 피복되어 있었다. 국소적으로 레이스 모양의 석회화되지 않은 유골이 관찰되었다.

색인 단어: 골아세포종, 비골

Osteoblastomas are rare, benign, bone-forming neoplasms[11,12]. They may occur at any age, however, 80 % of the cases occur between the ages of 10 and 25 years. Any bone may be involved, although the spine is the most common location, with the vertebral posterior elements being the principal sites of involvement. In the appendicular skeleton, the femur and tibia are the most common locations. Perusal of the English literature found only a few cases of osteoblastoma involving the fibula[2,6,10,13]. In this report, we have dealt with this rare location of an osteoblastoma which involved the fibular metaphysis in a 32-year-old man, and have also reviewed literature.

Case report

This 32-year-old male patient experienced pain in the right ankle region for three weeks. Physical examination was unremarkable. The range of motion of the ankle was not limited. The serum alkaline phosphatase level was slightly elevated (307 IU/L). Radiographs of right ankle (Fig. 1) showed a ballooning lesion of distal metaphysis of the fibula with internal trabeculation. There was little mineralization of the lesion. No cortical destruction or soft tissue mass was

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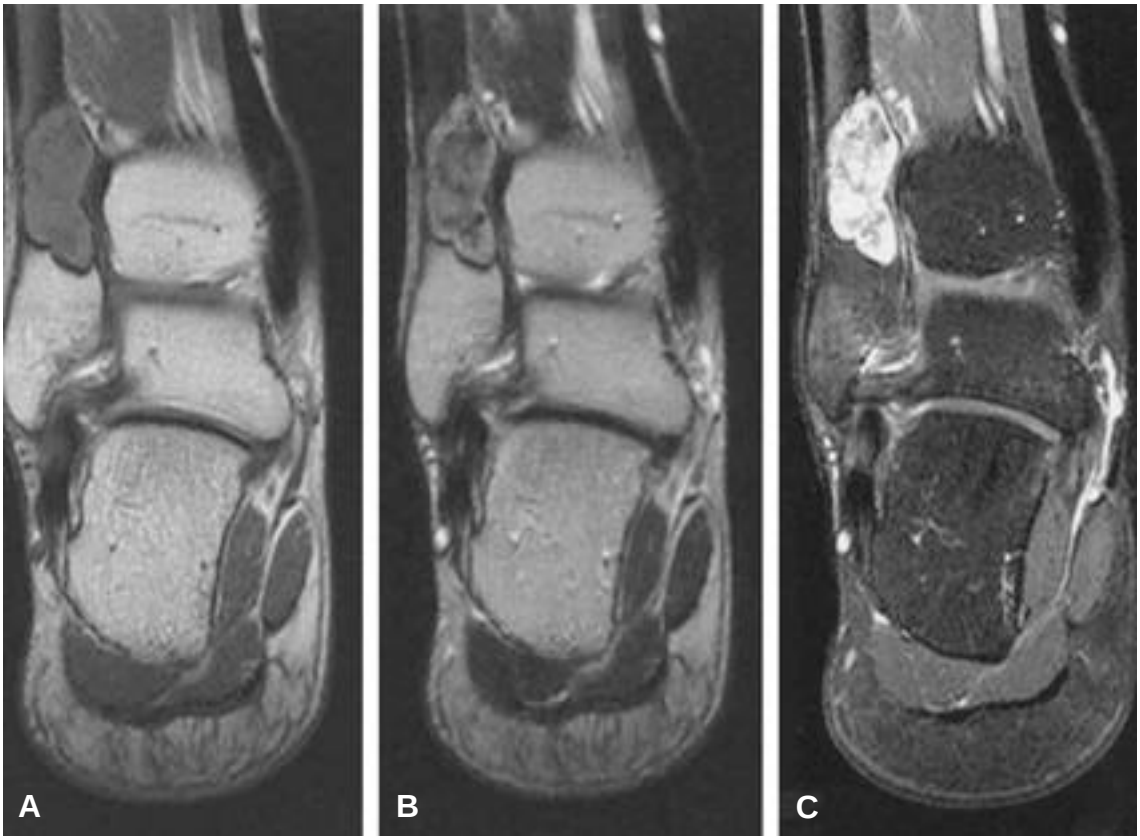

Fig. 2. MR coronal images. (**A**) T1-weighted image demonstrates a low signal soft tissue intensity. (**B**) T2-weighted image shows intermediate signal intensity with a lobulated margin peripherally. (**C**) Postcontrast T1-weighted image shows strong enhancement especially at the peripheral portion.

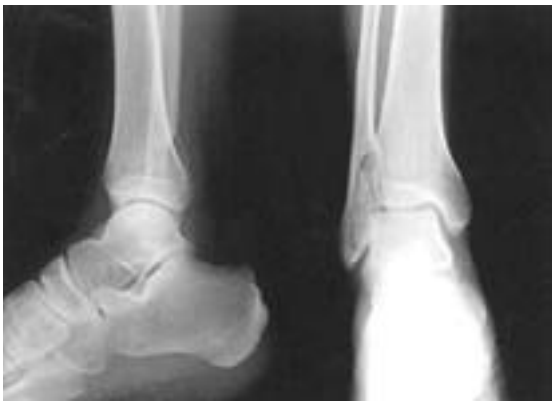

Fig. 1. Right ankle AP and lateral film shows a ballooning lesion of distal metaphysis in the fibula with internal trabeculation.

noted. Magnetic resonance imaging (MRI) of the ankle (Fig. 2) demonstrated a 3.2 cm, expanding lesion of central heterogeneous low signal intensity on T1- and T2-weighted images. The lesion had mildly heterogeneous enhancement. The peripheral portion showed intermediate signal intensity on T1- and T2-weighted images with strong enhancement. The outer cortex was attenuated, but intact, with a lobulated margin. Extraosseous extension was not noted. Differential diagnoses based on the imaging studies included desmoplastic fibroma, chondromyxoid fibroma, aneurysmal bone cyst, and fibrosarcoma. Curettage was done to establish a histologic diagnosis.

Histologically, the lesion (Fig. 3) was composed of abundant thick, pink osteoid with-

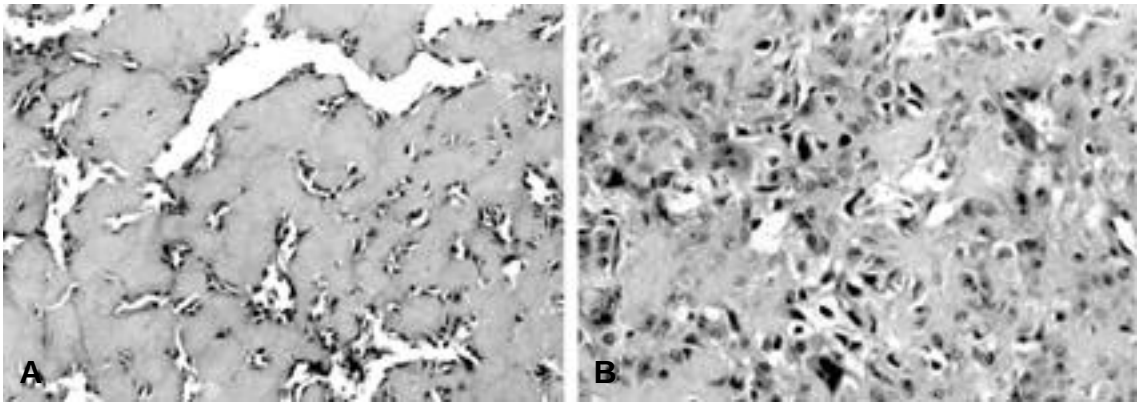

Fig. 3. Curettage specimen. (**A**) The lesion shows abundant, thick osteoid without mineralization (H&E, ×100). (**B**) These osteoblasts have large vesicular nuclei and prominent nucleoli. A few osteoclast-type giant cells are noted (H&E, ×200).

out mineralization. The osteoid seams were lined by osteoblasts, which had large vesicular nuclei with prominent nucleoli. A few giant cells were present. Small amount of intertrabecular stroma was composed of capillaries and spindle cells without atypia. A few mitotic figures were found but atypical mitotic figures were not present. Focally, a fine unmineralized lace-like osteoid was seen.

Discussion

The diagnosis of osteoblastoma was difficult in this case, because of its unusual location and unusual histological findings. The lesion was located in the distal metaphysis of the fibula. In long tubular bones, approximately 75% of osteoblastomas are situated in the diaphysis[14].

According to the largest series reported by Lucas et al.[10], the vertebral column including the sacrum was the most frequent site (32%). In their series, only five cases of osteoblastoma involved the fibula, however, no other details of the clinical information were available in these five cases. We found only three previous reports of a fibular osteoblastoma[2,6,13]. One case was almost unique as the patient, 74-year-old man, had a lesion on proximal diaphysis of the fibula[6]. The second case was an 11-year-old girl with a lesion of the proximal end of the fibula[2]. The third was a 47-year-old man with a multifocal osteoblastoma-like tumor involving a number of the bones of a single, lower extremity. The tumor was found in the fibula, tibia, talus, calcaneus, cuneiforms and metatarsals[13].

Radiologically, the current case showed a ballooning lesion with internal trabeculation. Cortical destruction or calcification was not noted. MR images demonstrated a low signal soft tissue intensity in T1 images and intermediate signal intensity in T2 images with strong enhancement especially peripherally. The outer cortex was intact with a lobulated margin. The overall benign nature of radiological findings and the lack of internal calcification suggested other benign bone tumors such as desmoplastic fibroma, chondromyxoid fibroma, and aneurysmal bone cyst. Radiologically, an osteoblastoma is usually a well-defined, expansile bone

lesion. It may be "aggressive," extending through the surrounding cortical shell into the soft tissues and recurring after surgical treatment[3]. MRI demonstrates low or intermediate signal intensity in T1-weighted images and mixed intermediate and high signal intensity in T2-weigted images. Adjacent soft tissues may show irregularity and increased signal, indicating edema[9]. Peritumoral bone marrow edema may be revealed[3]. Secondary aneurysmal bone cyst may be present, showing an additional cystic component in the process, possibly with fluid levels[5].

Histologically, this case was also different from the classical osteoblastoma, which usually has long interanastomosing trabeculae of osteoid or woven bone rimmed by a single row of osteoblasts within a loose fibrovascular stroma. This lesion was composed of an abundant, thick osteoid without mineralization. However, some pertinent features of this case such as a non-permeative growth pattern, intertrabecular stroma of fibrovascular tissue, and a single layer of osteoblasts surrounding bony trabeculae favor the diagnosis of osteoblastoma rather than osteosarcoma. Although most osteoblastomas have classical histological features, there is considerable variation in histological patterns. For example, epithelioid osteoblasts are present in 24% and fine lacelike osteoid foci in 20%[10]. Distinguishing osteoblastoma from osteosarcoma is very important, because of the great difference in the prognosis and treatment of these tumors. In most cases, the combination of clinical, radiographical and pathological features affords a clear distinction. However, in some patients, the diagnosis may be difficult, because osteosarcoma may occasionally resemble osteoblastoma[1,4]. Also certain variants of osteoblastoma (e.g., aggressive osteoblastoma, osteoblastoma with pseudosarcomatous features, multifocal osteoblastoma) may mimic osteosarcoma[5-7]. An important feature for differentiating osteoblastoma-like osteosarcoma from osteoblastoma is the identification of destructive permeation of surrounding tissue[10]. Sheets of osteoblasts without bone production also favor osteosarcoma.

In summary, we have reported the rare location of the osteoblastoma involving the fibular distal metaphysis of the 32-year-old man and also reviewed literature.

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Abstract

Osteoblastoma of the Distal Fibula - A Case Report -

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We report an unusual case of osteoblastoma in the distal fibula in a 32-year-old man. Radiographs showed a ballooning lesion with internal trabeculation. MR images demonstrated a lobulated expanding lesion of central heterogeneous low signal intensity with enhancement. Curettage specimen was composed of abundant thick, pink osteoid without mineralization. The osteoid seams were lined by plump osteoblasts and a few giant cells. Focally, a fine unmineralized lace-like osteoid was seen.

Key Words: Osteoblastoma, Fibula

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