Primary benign bone tumors in chiropractic practice and the importance of x-ray diagnosis: A report of two cases

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Two cases of primary benign bone tumors were diagnosed radiographically in a chiropractic practice. Although primary osseous tumors are somewhat uncommon, their potential presence emphasizes the importance of x-ray diagnosis as an essential adjunct to chiropractic practice. This procedure may preclude underlying lesions before considering treatment of seemingly uncomplicated injuries. Two such cases are presented: unicameral bone cyst and osteochondroma.

KEY WORDS: primary benign bone tumor; unicameral bone cyst; osteochondroma; chiropractic; x-ray diagnosis, manipulation

Deux cas de tumeur osseuse primaire bénigne ont été diagnostiqués radiologiquement dans une consultation de chiropractie. Bien que les tumeurs osseuses primaires soient assez rares, leur présence potentielle souligne l'importance du diagnostic radiologique comme auxilliaire essentiel à la pratique de la chiropractie. Cette manière de procéder permet d'exclure des lésions sous-jacentes avant de considérer un traitement pour des lésions apparamment simples. Deux cas semblables sont presentés, un kyste osseux à chambre unique, et un ostéochondrome.

MOTS CLEFS: chiropractie, manipulation, tumeur osseuse, kyste osseux.

Introduction

Injuries of the extremities are commonly seen in modern chiropractic practices. While assessing a patient for a seemingly mild trauma, the practitioner must bear in mind that potential underlying osseous lesions may also be present, hence the importance of x-ray diagnosis. In this paper, one will appreciate that "ordinary" injuries may often be compounded by deeper skeletal lesions. In the absence of radiographs, these would have been overlooked and there may have been a delay in appropriate care to the patient.

In case number one, a pathological fracture through a unicameral bone cyst was discovered and, in case number two, a muscular contusion was complicated by the presence of an osteochondroma.

Such cases are relatively uncommon in general practice. However, failing to diagnose sufficiently means possible risk for the patient in terms of care. For instance, it is now recognized that vascular complications may occur with protruding bone tumors such as osteochondromata.[1,2] The development of pain does not necessarily imply trauma or malignancy, but rather that vascular and deep soft tissue should be considered as a likely cause of symptomatology.[2]

Unicameral bone cysts, conversely, rarely produce vascular or other secondary effects; their diagnoses are mostly incidental in nature, and frequently arise upon direct trauma of the related bone.[3,4,5]

The following case reports demonstrate the importance of radiography in chiropractic.

Case number one

M.B. is an 8-year-old boy who presented with acute left leg pain after having fallen onto the ground during a soccer game. He mentioned having been "stepped on" over the posterior aspect of the knee as he was trying to arise from his fall. He pointed to the postero-lateral aspect of the left proximal fibula. He was limping and obviously quite uncomfortable.

On examination, there was localized swelling and redness over the proximal fibula. Flexion and extension of the knee joint did not produce intensified pain. Palpation of the involved area was exquisitely tender but there was only very mild discomfort when the leg was elevated or at rest. The first impression was that of a sprain of the left capituli fibular ligament. However, as he was unable to bear weight following the examination, radiographs were taken. These revealed a comminuted, non-displaced fracture of the left fibula, 2.5cm distal to the proximal epiphysis, travelling through the middle portion of a 1.5cm by 2.5cm radiolucent lesion at the proximal diametaphyseal region of the bone. (see figure 1) The lesion was solitary, well-demarcated and centrally located with no calcific inclusions noted. It was diagnosed a unicameral bone cyst of the latent variety with a secondary non-displaced fracture.[3,6] He was referred for orthopedic care at the local hospital. A cast was set for 3 weeks after which time he was seen again at this office for re-evaluation. A second x-ray was taken and disclosed new bone formation with no sign of a "fallen fragment" in the cyst. (see figure 2) He received therapy to restore motion and muscular balance, and he was asymptomatic after three weeks of therapy.

Case number two

L.L. is a 22-year-old male who was struck on the left knee during a basketball game. He presented the same day with moderate pain and swelling over the distal thigh medially, painful active knee flexion and difficulty in extension of the leg while sitting. On palpation, there was a large, hard mass at the distal femur medially, near the vastus medialis tendinous insertion. Tests for meniscal injury were positive as well.

X-rays of the left knee revealed a radiopaque osseous projection at the medial aspect of the distal femur. The lesion projected "away" from the joint and presented with a "cap" at its cartilagenous terminal end. The cortical margins and trabecular features were contiguous with those of the host bone. These findings were consistent with an osteochondroma of the

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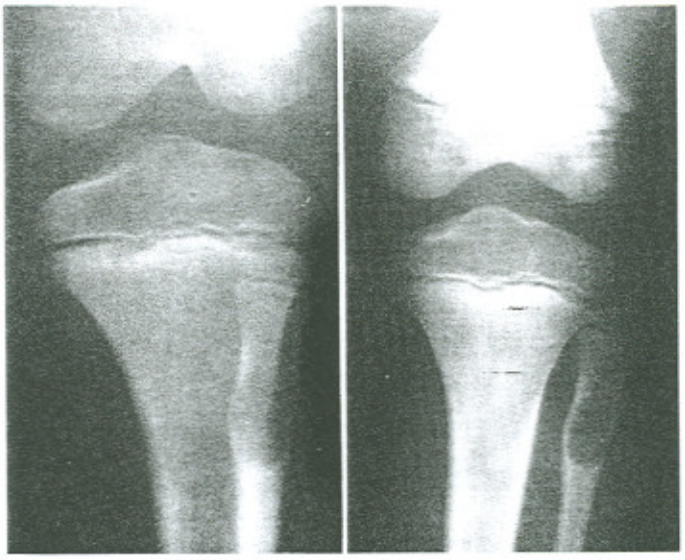

Figure 1: Radiograph of the left fibula shows a diametaphyseal unicameral bone cyst with a comminuted fracture through the lateral aspect of the lesion. The patient could not assume the true lateral position.

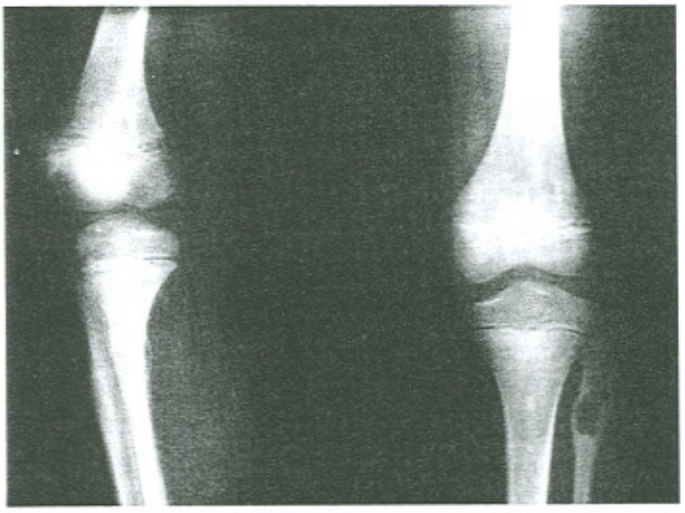

Figure 2: Same lesion after 21 days. Increased cortical thickness can be visualized. The young patient was then able to bear weight and further radiographs at the hospital showed complete healing. The cyst had not calcified within.

pedunculated form. (see figure 3) There was no fracture through the lesion and a schedule of treatment was instituted during a four-week period to reestablish ligamentous and cartilagenous integrity. He was fitted with a knee brace so he could resume some of his physical activities. It should be noted that the patient had been referred for further testing to preclude meniscal tear, but this examination subsequently proved negative. Ensuing consultation revealed an uneventful recovery.

Discussion

Unicameral bone cysts and osteochondromas are benign lesions of bone that are usually asymptomatic. Pathologic fractures within are most commonly the cause of initial discovery.[3]

Unicameral bone cysts were initially discovered by Mikulicz in 1906. Jaffe and Lichtenstein further described the lesion into two types—active and latent. The active form remains at its original site adjacent to the epiphyseal plate while the latent type migrates to a diaphyseal location.[3,4,5]

The cyst is a non-malignant fluid-filled lesion surrounded by fibrous tissue. The age incidence is between 3 and 14 years in a majority of cases.[4,6] The age of the patient is of primary significance since the bony cysts tend to act more aggressively in children than in adults, and the rate of recurrence is four times greater in children under 10 years old.[3,4]

In case no. 1 described above, the involved bone is the fibula, an uncommon site for such a lesion. Eighty percent of unicameral bone cysts are found at the proximal ends of the humerus and the femur. Other sites of involvement may include the proximal tibia and, occasionally, the cuboid and the calcaneal bones.[3,4,5,7] Therefore, the finding of a unicameral bone cyst at the proximal fibula is somewhat uncommon. Differential diagnosis of unicameral bone cyst should include aneurysmal bone cyst which is usually eccentric in location and "blown out" in appearance; giant cell tumor and chondroblastomas which are typically epiphyseal in location; and chondromyxoid fibromas being more eccentric and producing greater degrees of cortical expansion. Local fibrous dysplasia should also be part of the differentiation.[3,4,5,6]

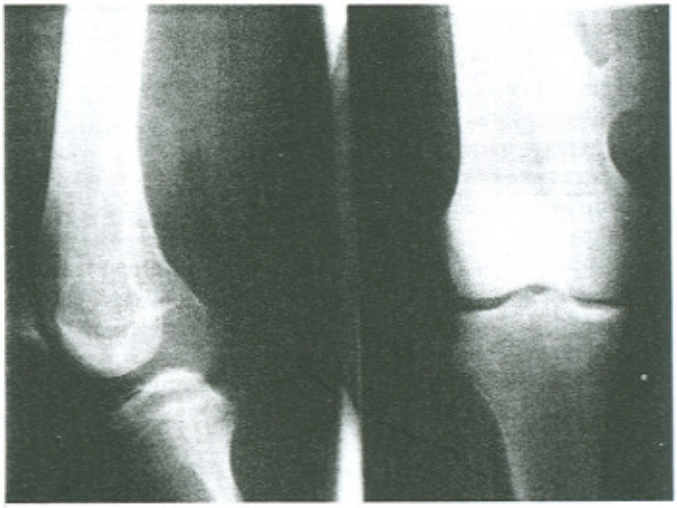

Figure 3: Case 2. Left knee radiograph showing an osteochondroma at the distal femur medially. This is a typical presentation of the pedunculated form.

Osteochondroma, also called osteocartilagenous exostosis, is the most common benign primary bone tumor involving the skeleton.[1,2,6] It usually presents as a painless mass, and is usually discovered as an incidental finding. It is speculated that it most frequently occurs during childhood and adolescence. This type of lesion is not often seen in chiropractic settings.

In case no. 2 the osteochondroma is of the pedunculated form with a narrow base projecting away from the joint, presenting a calcified cartilaginous "cap" rendering the typical appearance of a "coat hanger" exostosis.[6] It is also typically located at the distal femur near the metaphyseal region, the most common sites being the lower femur and upper tibia.[1,2,6]

Since the "pulling away" of the exostosis follows a tendon, one must differentiate this lesion from simple muscular disturbances such as contractures and spasms.

Conclusion

Incidental findings of primary benign bone tumors in a general practice are relatively uncommon. The practitioner should be able to make decisions based on clinical as well as radiographical findings. This emphasizes the fact that x-rays can be regarded as a necessary adjunct in chiropractic practice, and that the right to use radiography becomes clinically important, and therefore an essential component of practice.[8,9] Choosing not to incorporate radiography when in doubt clinically may well result in unfortunate consequences for the involved patient.

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