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Co-Existence of Non-ossifying Fibroma and Osteoblastoma of the Tibia

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A 17-year-old male without previous trauma was admitted to the orthopedic outpatient clinic with the complaint of pain in the right knee. Plain radiography indicated a lobule-shaped, lytic lesion with a sclerotic rim in the proximal metaphyseal part of the tibia. Computed tomography (CT) revealed a soft tissue lesion measuring 46x17 mm at the diaphyseometaphyseal region of the tibia, causing a periosteal reaction with destruction of the cortex and forming a lytic area in the medulla. A metaphyseal tibial mass with accompanying diffuse edema was detected in the intramedullary area. Fluid interpositions and increased signals were found in the adjacent muscular structures and fascia, with an increase of reactive thickness in the periosteum on magnetic resonance imaging (MRI). The edematous findings were interpreted as secondary to the pathological fracture. The histopathology of the biopsy from this lesion was compatible with non-ossifying fibroma (NOF), but concomitant osteoblastic activity was also evident. A retrospective radiological examination was performed due to the persistence of nocturnal pain. In addition to NOF, a lytic lesion with an interior mineralized matrix was seen on CT, and a cortical-located lesion with a central hypointense area was detected on proton density-weighted MRI. An open biopsy was performed and the patient received a histological diagnosis of concurrent NOF and osteoblastoma.

NOF is the most common benign bone lesion and is usually asymptomatic. NOF is typically located in the metaphysis of long bones and can lead to pathological fractures when it is large.[1,2]

In contrast, osteoblastoma is an uncommon osteogenic tumor >2 cm in size and histologically equivalent to osteoid osteoma.[1] The most common symptoms of osteoblastoma are pain, tenderness, and increased temperature in the area of the lesion.[3]

Co-existence of these tumors in the exact location is extremely rare and osteoblastoma can be overlooked with an accompanying pathological fracture and the inflammatory findings.[4]

To date, a few case reports have been presented in which osteoid osteoma and NOF co-existed.4 However, in this case, we present a patient with osteoblastoma that could have been overlooked due to the pathological fracture caused by NOF.

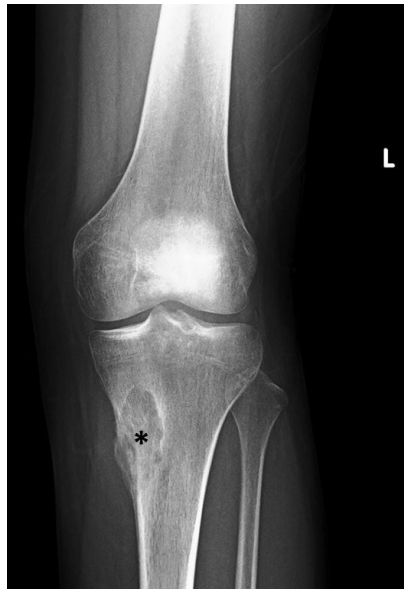

FIG. 1. Direct radiography shows lytic lesion (NOF) in the proximal part of the tibia (*).

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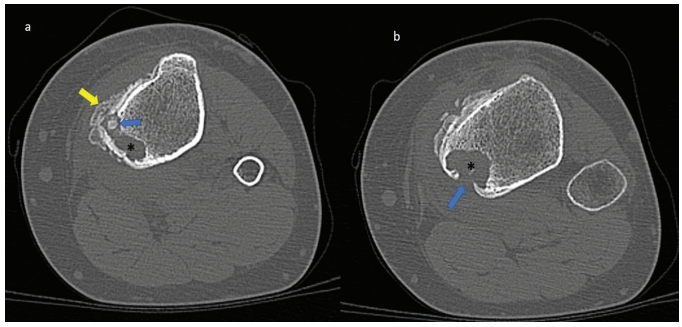

FIG. 2. CT revealing lytic lesion (NOF) in the tibia (*), another lytic lesion containing an internal mineralized matrix (osteoblastoma) (blue arrow) (a). Concomitant periosteal reaction in the anteromedial part of the tibia (yellow arrow). Lytic lesion with cortical destruction of the tibia (blue arrow) (b).

CT, computed tomography; NOF, non-ossifying fibroma.

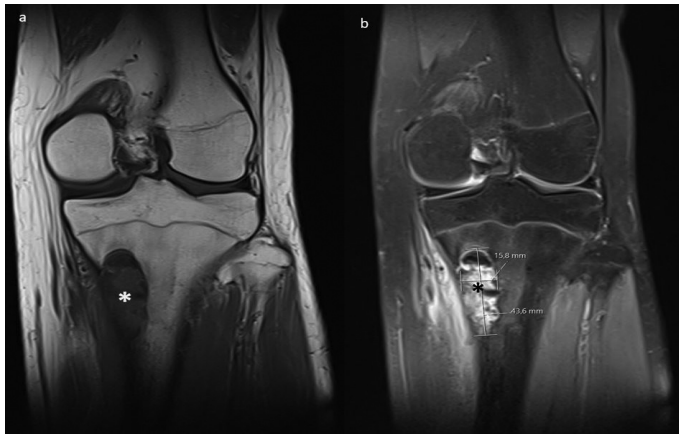

FIG. 3. MRI reveals a hypointense lesion (NOF) of the tibia on T1WI (*) (a); heterogeneous hyperintense lesion (NOF) of the tibia on PD-WI (*). Diffuse edema in the intramedullary area (b); cortical lytic lesion (osteoblastoma) containing an internal mineralized matrix was observed (blue arrow) (c).

MRI, magnetic resonance imaging; NOF, non-ossifying fibroma.

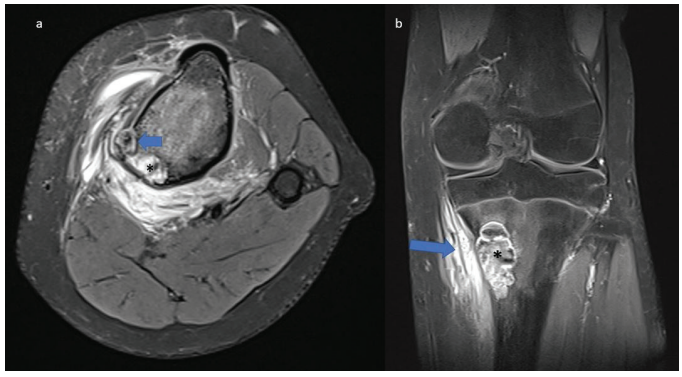

FIG. 4. MRI shows a cortically located lesion with a central hypointense area (osteoblastoma) (blue arrow) (a); heterogeneous enhancement of the tibial lesion (NOF) on the post-contrast image (*). Increased signals in the adjacent muscular structures and fascia. Reactive thickness increased in the periosteum (yellow arrow) (b).

MRI, magnetic resonance imaging; NOF, non-ossifying fibroma.

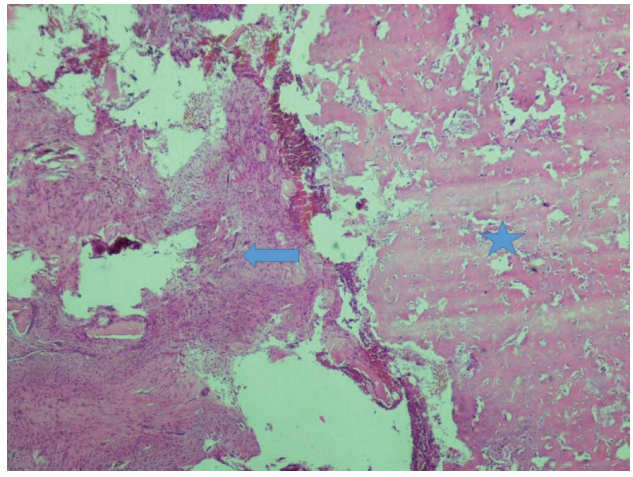

FIG. 5. Peripheral sclerotic bone of the osteoblastoma (star) and dense fibrous tissue destroying the bony trabeculale (NOF) (blue arrow) (HE x40).

NOF, non-ossifying fibroma.

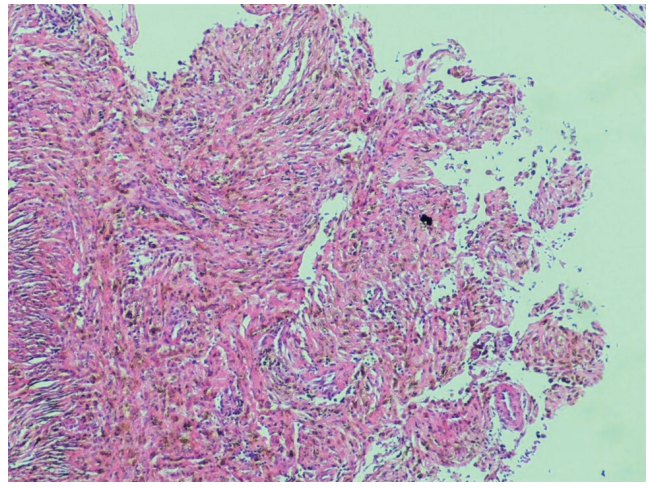

FIG. 6. Dense fibrous tissue with scattered hemosiderin pigmentation. Note the storiform arrangement of the fibroblasts (NOF) (HE x100).

NOF, non-ossifying fibroma.

Informed Consent: Written informed consent was obtained from the patient.

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Conflict of Interest: No conflict of interest was declared by the authors.

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