Chapter 32
Intraosseous and Subchondral Cysts

Horacio A. Caviglia, Gustavo Galatro and Pablo Nuova

Introduction

Intraosseous and subchondral cysts have different pathophysiology.

Subchondral cysts are related to arthropathy. The first sign of arthropathy on X-ray is narrowing of the joint space and small abnormalities in the subchondral bone. The subchondral cysts appear later, and are multiple, irregularly distributed, and larger than others that appear in children or adolescents. These cysts are connected and exposed in the joint, and accompanied by disintegration of the subchondral bone [1–4]. Sometimes the cyst progression results in an osteolytic lesion that may lead to a pathological fracture (Fig. 32.1).

Intraosseous cysts are caused by intraosseous bleeding; this is generally located in the bone metaphysis and is not related to arthropathy (Fig. 32.2).

In both types of cyst, front and lateral views of the affected region are used for diagnosis.

Fig. 32.1 Subchondral cyst of the proximal tibia
Treatment

Surgery is indicated for subchondral cysts when:
• The size of the cysts is greater than 15% of the area of the joint, particularly if they include the load articulations. In the knee and elbow, each medial and lateral compartment is considered to be separate and should therefore be evaluated separately.
• A control X-ray shows that the cyst size has progressed, even if its subchondral extension is less than 15%.

The purpose of treatment is to avoid crumbling of the joint and to reconstruct bone stock when necessary to carry out definitive arthroplasty.

Intraosseous cysts require surgical treatment when they have not responded to replacement therapy of 6 weeks’ duration.

In both subchondral and intraosseous cysts, the joint must be studied by computed tomography (CT) and magnetic resonance imaging (MRI), which allow appropriate pre-operative planning.

The CT scan (Fig. 32.3) gives information about:
• The three-dimensional location of the cyst.
• The number of cavities it possesses.
• The thickness of its walls and the presence of fractures that are not visible on X-rays when the walls are very thin.
• Communication between the cavities.

The MRI (Fig. 32.4) shows:
• The contents of the cyst.