

## **Intraosseous Synovial Cyst of the Scaphoid about a Case with Review of the Literature**

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**Abstract:** The intraosseous synovial cyst is a benign bone tumor of the osteolytic type; it usually develops in the epiphyses of the long bones. Its location on carp bones is rare. We report here the case of a woman of 34 who consults for wrist pain and for whom the diagnosis of an intraosseous scaphoid synovial cyst has been strongly evoked. Surgical treatment was decided by anterior approach of the Scaphoid, with evacuation and trepanning by anterior approach of the Scaphoid. An anatomopathological study confirmed the diagnosis. The clinical and radiological evolution was favorable. In the literature intraosseous synovial cysts have been rarely reported. Standard radiography and CT allow the diagnosis to be made. Surgical abstention and radiological monitoring are a first alternative in cases with little or no symptoms, presenting a zero or very low fracture risk. In case of surgery, curettage of the cyst and filling with cancellous bone graft taken distal to the distal radius or iliac crest is the main treatment. The prognosis of these cysts is generally favorable and the recurrence remains exceptional.

**Keywords :** Scaphoid, synovial cyst, Intraosseous, Orthopedics.

### **INTRODUCTION**

The intraosseous synovial cyst (IOSC) is a benign bone tumor of the osteolytic type; it usually develops in the epiphyses of long bones.

Its location on carp bones is rare. However, it is a fairly common cause of wrist pain. At the present time, few cases of carpal IOSC have been reported in the literature (16 reported IOSC scaphoid cases [1] with no real consensus regarding its pathophysiology, diagnostic management, and necessary imaging tests

### **CASE REPORT**

This is a 34-year-old housewife with a history of appendicectomy at the age of 20, who consults for pain in the anteroposterior surface of the right wrist that has progressively evolved over the last 8 months. The clinical examination found a pain in the palpation of the snuffbox and the mobilization of the wrist. Standard X-rays of the F + P wrist reveal an osteolytic lesion from the anterior aspect of the scaphoid to its proximal pole.

Tomodensitometry confirms the diagnosis and allows a more precise analysis of the lesion scaphoid.

Surgical treatment was decided with an anterior approach of Scaphoid. We proceeded with a trepanning of the bone which allowed the evacuation of a gelatinous liquid typical of the synovial cyst. The contents of the cyst were cured, and then we proceeded to a cleaning of the cavity with salty serymium. Filling of the cavity was performed by cancellous bone taken from the distal radius. The synovial nature of the cyst was confirmed by an anatomopathological study of the curettage material evoking an intraosseous synovial proliferation

The clinical and radiological control after 7 months finds:

- Clinically: the patient has no pain with full recovery of wrist mobility
- Radiographically: perfect bone consolidation with no recurrence



Fig-1, 2: X-ray of the wrist face and profile revealing a lesion on the anterior surface of the scaphoid at its proximal pole



Fig-3, 4: X-ray after 7 months showing good integration of bone graft without recurrence

## DISCUSSION

In the literature intraosseous synovial cysts have been rarely reported. The most frequent locations are the epiphyses-metaphyseal regions of the femur and tibia. The pathogenesis of these cysts is controversial. There are two opposing theories:

The first "primitive or idiopathic" theory states that IOSC is derived from intramedullary aseptic necrosis, followed by mucoid metaplasia of mesenchymal cells into synovial cells, secondary to repeated micro trauma. Growing up, the cyst would break the cortex to externalize in the soft tissues (mechanism inside and out). This hypothesis is supported by Eiken [1] and Schajowicz [2].

The second is based on the fact that the cyst comes from the intrusion and penetration inside the bone of a preexisting Soft Tissue Synovial Cyst (IOSC of "secondary" penetrating type, mechanism "from outside in"). This hypothesis is supported by Jaffe [3].

The IOSC can pose the differential diagnosis with other carp tumors that cause lytic images of carp:

- Osteochondral; intraosseous chondral (scaphoid ++); and chondroblastoma which are tumors of chondroblastic origin.
- Osteoid osteoma (nocturnal pain well relieved by aspirin); which is a tumor of osteoblastic origin.
- Others: giant cell tumor, aneurysmal cyst, chondromyxoid fibroma.

The imaging assessment includes more or less standard radiographs of face, profile and 3/4, CT), MRI and scintigraphy.

The X-rays show the lytic character of the tumor, its smooth or multiloculated appearance, its size, its location and the presence of a cortical break-in. Typically the IOSC appears as a lacunar image well limited by a halo of condensation and without any sign of aggressive. Tom densitometry provides more precise information on bone density, cavity size, the cortical opening area, and the presence of joint communication.

MRI will provide information on the vascularization of the tumor, and the scintigraphy can clarify the active nature of the lesion. The pathological

fracture on intraosseous synovial cyst is the main complication. For the therapeutic management; several types of treatments have been reported and published.

Surgical abstention and radiological monitoring are the first alternative in cases with little or no symptoms, presenting a zero or very low fracture risk. Joint rest, the wearing of a wrist orthosis during painful periods and simple analgesics are the basis of the medical treatment [4].

Several surgical solutions have been described. Curettage of the cyst and cancellous bone graft removal from distal radius or iliac crest is the primary treatment. The associated or isolated use of phosphocalcic filling cement has also been described [5]. A more recently described solution associates and mixes a bone marrow graft with an autologous fibrin specimen [6].

The dorsal or palmar approach depends on the affected bone, as well as the orientation of the cortical break-in zone. Other authors have proposed in the case of fracture displaced on IOSC scaphoid the realization of a vascularized bone graft, taken from the palmar face of the radius and placed after curettage [7]. The results of these different treatment options are good and seemingly comparable, with three-month consolidation rates close to 90% [6-10]. The prognosis of these cysts is generally favorable and the recurrence remains exceptional [8].

Therapeutic indications are the same for all: any intraosseous synovial cyst with invalidating chronic wrist pain and / or in the presence of a risk of fracture requires surgical management.

## CONCLUSION

The diagnosis of intraosseous synovial cyst is based on the presence of a characteristic radiological image and an anatomic-pathological study evoking an intraosseous synovial proliferation.

Surgical treatment is indicated generally after six months of unsuccessful medical treatment or in cases of large cysts presenting a high risk of fracture, in the case of our patient the curettage associated with a bone graft was indicated in front of the non-aggressive character of the tumor (no cortical rupture or collapse of the scaphoid). The intraosseous synovial cyst is among the rare lytic lesions of carp; its confirmation is based on the histological study.

## Conflicts of interest

The authors do not declare any conflict of interest.

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