

**Rare Location of Osteoid Osteoma in the Capitatum of a Young Man**

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**Abstract:** Osteoid osteoma is a common tumor on long bones but exceptional in carp. The aim of this study is to evaluate the rarity of this localization and to highlight its diagnostic difficulty. This study reports a case of osteoid osteoma involving the trapezoid bone. This is a 36 year old young man with a location on the dorsal side of the capitatum. Histological examination confirmed the diagnosis and the patient underwent nidus excision and curettage associated with bone graft filling and follow-up did not deplore any recurrence. It is difficult to diagnose capitatum osteoid osteoma. Imagery is important to confirm the diagnosis and to target precisely the nidus. Excision Associated or not to filling is the necessary and sufficient condition to ameliorate pain and avoid recurrence.

**Keywords:** Osteoma, Osteoid, Capitatum.

**INTRODUCTION**

Osteoid osteomas are common benign primary bone tumors. They represent 10 to 12% of all benign bone tumors. Their initial description came back to Jaffé in 1935. They are located most often in long bones (75% of cases), especially in the tibia and femur, the hand and wrist are affected in only 6 to 13% of cases [1] where the tumor first sits in the phalanges, then the metacarpus [2], and Carpal localization is exceptional.

The osteoid osteoma can evoke other etiologies, especially when it is juxta-articular. Atypical Symptomatology, often makes the diagnosis false.

We describe an osteoid osteoma of the capitate, which illustrates the rarity and conventional diagnostic difficulties of this tumor.

**CASE REPORT**

A 36-year-old man was seen in consultation for dorsal pain of the right wrist, which had been evolving for 3 years. The patient was trader and the painful wrist was that of his dominant limb. These pains appeared gradually, without trauma, but they became almost permanent and cause nocturnal awakenings. Medical treatment, which combines analgesics and nonsteroidal anti-inflammatory drugs, has not improved.

The clinical examination shows elective pain next to the capitatum exacerbated by flexion wrist mobilization and direct shocks. A swelling was noted sitting on the mediadorsal side of the wrist.

The initial standard radiological assessment shows no bone lesions except a denser aspect of the

capitate compared to other carp bones (Fig-1) associated with a slight local pinching of the capitatotrapezoid line spacing. The exploration is completed by a scintigraphy which shows a diffuse fixation of the carp, the inflammatory assessment is normal.

Before this bone densification, an MRI was achieved and allowed to objectify the osteoma (Fig-2A, B) in the form of a "roundel" image with a peripheral sclera ring and articular margins irregularities.

The nidus was located in the dorso-central part of the capitatum and was accompanied by diffuse bone edema.

Pain persistence and medical treatment inefficacy justified excision - curettage of the nidus by dorsal direct approach next to the capitatum associated with a filling by bone graft and a postoperative immobilization of 5 weeks.

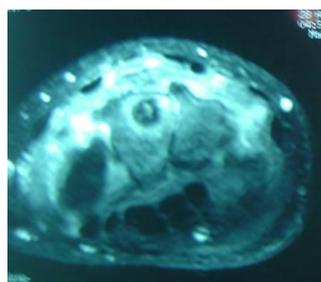
Macroscopic pathology revealed fleshy, osteoid, soft, reddish-brown tissue and the excision specimen histological study confirmed the osteoid osteoma diagnosis with a dense, richly vascularized

fibrous tissue on the nidus periphery, including Young and irregular osteoid spans delimited by a row of active and regular osteoblasts. It is associated with a polymorphic inflammatory infiltrate surrounding foci of calcification. The osteoid tissue was more mature at its center with more compact spans, poorer in cells and more calcified resulting in an osteosclerotic lesion.

The pain subsided after the operation, and the control clinical examination, 9 months after the intervention, confirms the healing, with a painless wrist, without articular amplitude restriction.



**Fig-1: Standard x-ray of the wrist showing densification of the capitulum**



**Fig-2A: MRI image in transverse section showing the nidus and bone edema surrounding it**



**Fig-2B: MRI image in sagittal section showing the nidus**

## DISCUSSION

Osteoid osteoma (OO) is a common benign primary bone tumor. It represents 2 to 3% of all bone tumors and 10 to 20% of all benign bone tumors (30, 33, 35). This places it third among benign bone tumors, with chondroma, but behind non-ossifying fibroma and exostosis [3].

Dahlin [4] traces an incidence of primary tumors in excessively low carp (0.14% of cases). Osteoid osteoma of the carp is a rare lesion and difficult diagnosis occurring preferentially in the scaphoid bone or capitate [5]. Rarer localizations, such as the triquetrum or lunatum have however been described [1]. Localization at the capitate level is exceptional only 82 cases were reported until 1996 [5].

The symptomatology is rarely typical with inflammatory pain, nocturnal recrudescence and improvement by anti-inflammatory drugs. Most often the clinical signs are misleading. One can sometimes find in the anamnesis the notion of trauma, sport or manual work that will make the diagnosis err. Initial presentation may vary, among others, from tenosynovitis of extensor tendons [6, 7], Carpal tunnel syndrome [8]. A delay of more than 18 months is frequent between the appearance of the first symptoms [9] and the definitive diagnosis.

Simple radiographic diagnosis is routinely impossible due to the absence of typical wrist [nidus] signs [10] and delayed onset. Technetium-99m CT is sensitive enough to detect the lesion [11]. Computed tomography is considered the gold standard for the diagnosis of osteoid osteoma and is particularly useful when the nidus is hidden by a complex anatomy. The nidus appears as a spherical or ovoid lucidity containing variable central mineralization. Cortical thickening or solid periosteal reactions are associated with osteoid cortical osteoma [12]. The subperiosteal osteoid osteoma is the most difficult to recognize. It presents itself either as a small cortical lucidity without significant cortical thickening, or as a focal cortical scalloping with a juxtacortical nidus. Intracapsular osteoid osteoma usually manifests as regional osteoporosis [13].

MRI shows both nidus and reactive edema of adjacent bone marrow and soft tissues with high sensitivity, and is therefore considered to be the most reliable diagnostic tool in osteoid osteoid, particularly with cancellous bone lesions [14, 15]. The combination of a circumscribed area of low to intermediate signal intensity, surrounding edema and increased amounts of joint fluid, with hypointensity caused by multiple sclerosis is characteristic [15, 16].

Computed tomography and magnetic resonance imaging are better for diagnosis and also provide information for preoperative planning [10].

The treatment of osteoid osteoma is generally considered as an excisional block, which is difficult, as is the case with the wrist and hand, curettage and excision with or without bone graft were acceptable. The main limitation of this technique is a higher recurrence rate which may be related to incomplete excision of the lesion. In addition, prolonged use of

anti-inflammatory therapy can lead to healing and CT-guided radiofrequency ablation was used with a high primary success rate (90%).

### CONCLUSION

The osteoma of the capitulum is exceptional and the diagnosis is often delayed due to a frequently misleading clinic. Appropriate imaging is required for diagnosis and includes CT, bone scans and magnetic resonance imaging. Le traitement chirurgical comprend une exérèse de la tumeur qui doit être complète pour permettre la guérison et éviter la récurrence.

### INTEREST CONFLICT

The authors do not report any conflict of interest in this study

### AUTHORS CONTRIBUTIONS

All authors contributed to this study since conception, reading, and approved the latest version.

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