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# OSTEOID OSTEOMA OF THE METACARPAL AND METATARSAL BONES

*By*

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Osteoid Osteoma, a peculiar benign tumor-like lesion of bone, was first described by *Jaffe* in 1935. It is now universally accepted as a well-defined clinical and pathological entity. The condition is not rare, quite a number of cases have been reported in literature. Jaffe's own experience covered up to 1958 about 150 cases. Osteoid Osteoma strongly predilects the femur and tibia. Although it has been reported in almost every bone of the skeleton it seems to be rather rare in the metacarpals and metatarsals. *Freiberger et al.* collected 425 cases from the literature and reported 80 cases of their own. From these 505 cases only 3 were in the metacarpals and 3 in the metatarsals, because of this, and some differential diagnostic features of interest, the writer feels justified to present his two cases.

*Case 1.* Female, aged 20, complained of pain and swelling in the dorsum of the left hand for about two years. The pain was first occasional but became gradually more persistent and interfered with her sleep. She went to a doctor who X-rayed the hand and regarded the condition as tuberculosis. She was given antituberculous drugs and the hand was immobilised in plaster for eight months. No other tuberculosis foci could be found and the patient was in good health. The plaster was taken off and the antituberculous treatment was discontinued. Since the pain persisted she attended another surgeon one month later. There was a marked swelling in the dorsum of the third metacarpal of the left hand. The movements of all the joints of the hand and fingers were impaired due to the plaster immobilisation, but almost full mobility was very soon gained in most of the joints. The third metacarpophalangeal joint remained somewhat stiff and painfull to move. There was marked tenderness at the distal end of the third metacarpal and the swelling and pain persisted. The radiograph showed fusiform expansion of the shaft of the third metacarpal, which was thickened with marked sclerosis. A delimited nidus could be detected from the surrounding osseous tissue in the head of the third metacarpal bone. (Fig. 1). The clinical examination showed distinct localised tenderness at that spot. There had been no fever or redness and the blood picture was normal.

*Fig. 1.*
The radiograph shows fusiform expansion and sclerosis in the shaft of the third metacarpal. The nidus in the head of the metatarsal can be seen, although not very clearly.

The lesion was explored and a somewhat oval shaped nidus of about 1.0 cm. to 8 mm. in size was detected in the head of the metacarpal. It stood out clearly from the surrounding tissue and was reddish brown in color. The nidus was removed and histological examination revealed a typical osteoid osteoma. The pain was promptly relieved and there has been no recurrence to date. Follow-up examination ten weeks later showed full range of painless movements in the hand and fingers.

*Case 2.* Male, aged 20, complained of pain and swelling and localised tenderness in the left forefoot for about one year. It had started when he was on military duty. The pain was not severe in the beginning, but the swelling persisted in the dorsum of the foot and the tenderness became more marked. The symptoms deteriorated rapidly when he was in heavy duty. A military surgeon X-rayed the foot and noted marked bone sclerosis and thickening in the second metatarsal, extending from the base for a distance down the shaft. The doctor regarded this as a marching fracture. It was treated by rest, short wave diathermy and bandaging without success. Later the patient was referred to us, and complained of continuous pain which increased

*Fig. 2.*
Noticeable swelling in the dorsum of the left foot. This case was first regarded as a marching fracture.

*Fig. 3.*
There is reactive thickening and densification in the shaft of the second metatarsal. The nidus is totally overshadowed by bone sclerosis.

*Fig. 4.*
In the tomograhy one may suspect a nidus at the base of the second metatarsal bone.

considerably after walking. There was marked tenderness at the base of the second metatarsal, and noticeable swelling in the dorsum of the left foot. (Fig. 2). Weight-bearing, especially standing on toes, was painful. Aspirin relieved the pain and the patient had used it considerably. An ordinary radiograph showed only periosteal new-bone formation, and the thickened cortex overshadowed the partly ossified nidus even in tomography. (Fig. 3 and Fig. 4).

A tentative diagnosis of osteoid osteoma was made and the maximal tender part was explored. When the cortex was opened, a compact bright red osseous nidus, the size of a small pea was clearly seen, delimited from the neighbouring bone by a narrow zone. The histological changes were typical to osteoid osteoma. The pain and soreness disappeared, after this nidus had been removed with some amount of surrounding bone. The patient has been symptom free now for about three months.

These two cases were osteoid osteomas. The diagnosis escaped recognition for some time, probably because of lack of experience of its radiographic features. The hypertrophied cortex had obscured the primary lesion. The clinical symptoms were somewhat overshadowed by signs from the adjacent joint. Metacarpal and metatarsal bones are

probably rare spots for osteoid osteoma, since relatively few cases have been reported in literature so far. (*Carroll, Freiberger et al., Golding, Moberg*). *Bergstrand* had already described one case in 1930, although it was not entitled as osteoid osteoma at that time. The diagnosis of an old marching fracture had been suggested in one of Golding's cases. *Spence & Lloyd-Roberts* draw attention to a problem of differential diagnosis between tuberculosis of a joint and an osteoid osteoma close to a joint. They were the first to mention regional osteoporosis as a feature in osteoid osteoma.

The main lesions, which can be confused with osteoid osteoma, are solitary enostosis, localised cortical bone abscess, sclerosing osteitis, syphilis of bone, Ewing's tumor in the early stages and glomus tumour (*Barnes, Carroll, Jaffe, Purcell et al.*, and others). The diagnosis of osteoid osteoma should not produce much difficulties in most cases, if the main features of it are kept in mind. It causes pain, often not distinctly localised, and disproportionate to the size of the lesion. There is marked local tenderness which is a good guide to the central nidus. There might be some swelling and symptoms from adjacent joints. It appears usually in children or young adults. There is no fever and the blood picture is normal. Aspirin relieves the pain. The radiological changes are twofold, those of the osteoid osteoma proper the nidus, and those incited in the surrounding osseous tissue. The reactive cortical thickening and sclerosis can be very striking, so that it may be difficult to distinguish the osteoid osteoma even in a tomograph. In positive cases the operation should always bring a clearly defined nidus into view. The histopathology of the condition should not present difficulties to an experienced examiner. The removal of the nidus cures the condition. If the pain is not severe, one may wait for spontaneous clinical arrest, which is likely to occur in a few years.

## SUMMARY

The writer describes two cases of osteoid osteoma, one in the metacarpal and one in the metatarsal bones. The former escaped recognition for two years and the latter for one year. In both cases there was marked reaction in the surrounding osseous tissue, which almost obscured the nidus in the radiograph. Signs from adjacent joints confused the condition, which was first regarded as tuberculosis in the former, and marching fracture in the latter case. Surgical exposure revealed a

typical osteoid osteoma, which was confirmed by histological examination. The symptoms were relieved immediately by excising the nidus.


## RESUME

L'auteur décrit deux cas d'ostéome ostéoïde, l'un dans les métacarpiens, l'autre dans les os métatarsiens. Le premier a échappé à l'attention pendant deux ans, l'autre pendant un an. Dans les deux cas, il y avait une réaction marquée dans les tissus osseux environnants qui avait pour ainsi dire assombri le nid sur la radiographie. Des signes dans les articulations adjacentes ont semé la confusion sur ces cas considérés d'abord, chez le premier, comme une tuberculose, chez le second comme une fracture de la marche. L'opération révéla un ostéome ostéoïde typique confirmé par l'examen histologique. Les symptômes se trouvèrent immédiatement soulagés par l'excision du nid.

## ZUSAMMENFASSUNG

Der Verfasser beschreibt zwei Fälle von osteoidem Osteom, eines im Mittelhand- und das andere im Mittelfussknochen. Das erstere wurde erst nach zwei Jahren, das letztere nach einem Jahr entdeckt. In beiden Fällen fand sich eine beachtliche Reaktion im umgebenden knöchernen Gewebe, die im Röntgenbild fast den Herd verschattete. Symptome von den benachbarten Gelenken verschleierten den Zustand, der im ersteren Falle zunächst als Tuberkulose und im letzteren als Marschfraktur angesehen wurde. Die Freilegung durch den Chirurgen zeigte ein typisches osteoides Osteom, was auch durch die histologische Untersuchung bestätigt wurde. Durch die Exzision des Herdes wurden die Symptome sofort beseitigt.


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