Triquetrohamate Coalition with Lunotriquetral and Lunohamate Osteoarthritis

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Introduction

In this article a case of triquetrohamate synostosis with accompanying lunotriquetral and lunohamate osteoarthritis is presented.

Triquetrohamate synostosis is a very unusual type of carpal coalition. Generally speaking, carpal coalition is a condition in which two or more carpal bones fail to segment during development, resulting in congenital fusion. The incidence in general population is around 0.13%, however this can be almost ten times higher among black people [1]. The most common coalition is lunotriquetral, representing nearly 90% of all carpal synostosis, followed by capitolunate coalition with 5.6% of all cases [1].

In the English medical literature triquetrohamate coalition has been described associated to calcaneus-cuboid coalition [2] or to hereditary symphalangism [3, 4]. None of

those authors reported concomitant lunotriquetral and lunohamate osteoarthritis.

What makes this case also different is the absence of associated conditions particularly since coalition between the proximal and distal carpal rows is usually syndromic [5]

Moreover, lunotriquetral osteoarthritis is relatively uncommon and mainly secondary to congenitally incomplete separation of both bones [6]

Case Report

A 68 years old female patient complaining of moderate pain in the right wrist was seen in the orthopaedics department following a fall 1 week earlier.

On examination the patient had ulnar sided wrist pain with no other inflammatory signs. Range of motion was similar to that on the contralateral wrist with a flexion of 45°, extension also 45° and full pronosupination. The patient had no previous history of trauma at this level or relevant past medical history. Until the day of the accident she only had been complaining of mild wrist pain on a regular basis but well controlled with oral anti-inflammatory medication.

Radiographic examination showed a triquetrohamate coalition with lunotriquetral and lunohamate osteoarthritis. (Figs. 1, 2). Careful examination of the radiograph shows a possible fine notch at the level of the synostosis and for this reason, and according to Minnar and Villiers' classification, this would correspond to a Type 2 carpal coalition. [7]

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Fig. 1 Posteroanterior view of the wrist. Type 2 lunate. Triquetrohamate synostosis (Type 2 due to the possible and hardly visible vestigial notch noted between both bones). Lunotriquetral and lunohamate osteoarthritis

A 1 week course of non-steroidal anti-inflammatory medication was started and patient's symptoms subsided gradually to the pre-accident level a month after the fall. So far the patient has not needed further follow up for recurrence of her symptoms.

Discussion

From the findings in this case it could be inferred that triquetrohamate coalition strongly interferes with biomechanics of the carpus due to the fact that the distal carpal row and the triquetrum moves *en block* as a single structure. This kinematics modification probably increases the stress at lunotriquetral joint by means of increased forces of torque at this level, leading to overloading of the lunotriquetral ligament and articular cartilage, which eventually may cause degenerative changes and arthritis.

This case report is relevant as it has implications when a triquetrohamate arthrodesis, although seldom chosen, is carried out to treat some types of midcarpal instability [8], because this surgical technique may eventually develop lunotriquetral and lunohamate osteoarthritis in the long

Fig. 2 Lateral view of the wrist

term. Moreover, in front of such an incidental finding, patients should be warned about the increased risk of lunotriquetral and lunohamate osteoarthritis in order to avoid, when possible, excessive overload of the wrist joint

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