

Synovial Chondromatosis of the Pisotriquetral Joint with Secondary Osteoarthritis: Case Report

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ABSTRACT

There are only a few reported cases of synovial chondromatosis affecting pisotriquetral joint (PT). Osteoarthritis of the PT is also rare and can be as disabling as osteoarthritis of any other joint. We report this to be the unique case of synovial chondromatosis of the PT joint with secondary osteoarthritis.

Key words: *synovial chondromatosis, pisotriquetral, osteoarthritis, surgical treatment*

Introduction

Synovial chondromatosis is a metaplastic condition involving articular, bursal or tendon synovial membranes in which multiple nodules of cartilage are produced¹. This condition is almost universally monoarticular and it usually affects large joints as the knee, hip, elbow and shoulder. It is rarely observed on the hand and wrist with only a few reported cases of synovial chondromatosis affecting pisotriquetral joint²⁻⁴. Osteoarthritis of the pisotriquetral (PT) joint is also rare and can be as disabling as osteoarthritis of any other joint^{2,5}. We report this to be the unique case of synovial chondromatosis of the PT joint with secondary osteoarthritis.

Case Report

A 52-year-old man developed over a one-year period gradually progressive swelling of the ulno-palmar aspect of the right wrist accompanied by weakness of the right hand and restricted motion in the right radiocarpal (RC) joint. The onset was observed few months after an uncured minor trauma of the same region.

Physical examination revealed hard painful tumor in the ulnar region of the right wrist. The skin over the affected area was normally colored and eutermic. Vascular and neurological parameters were normal, with no

apparent peripheral sensory or motor loss. Clinical diagnosis was of a wrist ganglion. Plain radiographs of the right wrist revealed indistinct abnormality on PA projection, and round bone structure on lateral view (Figure 1). Oblique (ball catcher's) view allowed evaluation of the pisotriquetral joint suggesting diagnosis of chondromatosis with secondary osteoarthritis (Figure 2).

Magnetic resonance imaging showed liquid collection extending from the pisotriquetral joint toward radioulnocarpal complex representing joint effusion and osseous bodies adjacent to the flexor carpi ulnaris tendon (Figure 3).

Surgery was indicated and during surgical exploration through a volar approach to the distal forearm, synovial chondromatosis arising from the pisotriquetral joint was seen. Treatment consisted of synovectomy and removal of loose bodies.

Histopathological report of loose bodies and resected synovium revealed primary synovial chondromatosis (Figure 4).

Discussion

Synovial chondromatosis is described as metaplastic condition of the synovial cells giving rise to multiple



Fig. 1. Standard PA and lateral radiographs of the right wrist show round bone structure at the unusual palmar position that was suspected on pisotriquetral luxation.



Fig. 2. Ball-catcher's view of the wrists and hands reveals multiple radiodense shadows representing ossified loose body formations (arrow) with secondary osteoarthritis of the pisotriquetral joint (arrowhead).

intra-articular osteocartilaginous loose bodies⁶. Men are affected twice as often as women^{2,3}. Patients are usually presented in the 3rd and 4th decades of life³. The role of trauma in the pathogenesis of the synovial chondromatosis is in the general opinion coincidental^{7–9}. Clinical features of this condition include gradual onset of pain, stiffness, crepitus and locking due to loose bodies. The differential diagnosis of synovial osteochondromatosis includes calcium crystal deposition disease, degenerative joint disease, osteochondritis dissecans, pigmented villonodular synovitis, chondroma and synovial chondrosarcoma⁶. Usually, standard plain radiographs are very insufficient imaging method and it is reported that can be as normal in later proven cases of synovial chondromatosis⁴. In our case osseous formation on the palmar side was shown and pisotriquetral luxation was suspected. Additional X-ray investigation (ball catcher's view)



Fig. 3. Sagittal spin-echo T1-weighted MR of the wrist shows hypointense formation extending from the pisotriquetral joint toward radioulnocarpal complex (arrow) representing joint effusion and osseous bodies adjacent to the extensor carpi ulnaris tendon (arrowhead).

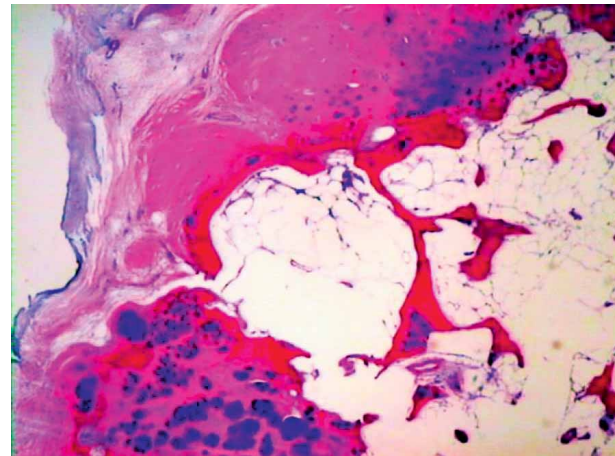


Fig. 4. Enchondral ossification in metaplastic hyaline cartilage nodules in synovium.

suggested the diagnosis of osteochondromatosis and pisotriquetral joint as the origin of pathology. Secondary pisotriquetral osteoarthritis was also suggested on ball catcher's projections due to unilateral involvement.

MRI demonstrated true extent of a lesion with characteristic findings on T1-weighted images showing hypointense formation extending from the pisotriquetral joint with osseous bodies. T2-weighted images differentiated joint effusion with ossified chondromatous loose bodies in the pisotriquetral articular recess. These findings suggested the benign nature of the process, allowing conservative surgical approach. Histological report, done after operation, confirmed primary synovial osteochondro-

matosis. Three histological phases of synovial chondromatosis have been defined according to Milgrams classification¹⁰. In the first phase, active synovial proliferation is found. In the second phase, synovial proliferation is accompanied by loose body formation. In the third phase, there is no active synovial proliferation but multiple loose osteochondral bodies are presented within the synovial cavity. In our case, the disease in the second and the third phase was detected.

The loose bodies may cause secondary osteoarthritis of PT joint and disabled wrist as well^{2,5}. It is generally accepted that presence of intrarticular bodies can lead to degenerative osteoarthritis of any joint with accompanied pain and malfunction that were also detected in our patient⁶.

The surgical treatment of synovial chondromatosis usually includes excision of loose bodies and synovectomy¹⁰. In addition, pisotriquetral synovial chondromatosis can be treated by complete excision of pisiform

bone^{2,4}. The treatment of pisotriquetral osteoarthritis itself may be conservative or consists of pisiformectomy and removal of loose bodies^{11,12}. In our case of synovial chondromatosis of the pisotriquetral joint with secondary osteoarthritis we have estimated that presence of mild joint degeneration would not affect wrist ability in the future.

Although our surgical treatment did not include pisiformectomy, a patient has been pain free for one year following up monitoring. He returned to work and sport activities six months after the operation. According to the described patient case and a previous report³, our opinion is that synovectomy and removal of loose bodies, without the excision of pisiform bone, is sufficient procedure for optimal surgical treatment of pisotriquetral synovial chondromatosis in the absence of advanced secondary osteoarthritis. This conservative surgical approach provided our patient with excellent relief of symptoms.

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SINOVIJALNA HONDROMATOZA PISOTRIKVIETRALNOG ZGLOBA SA SEKUNDARNIM OSTEOARTRITISOM: PRIKAZ SLUČAJA

SAŽETAK

U literaturi postoji tek nekoliko objavljenih slučajeva hondromatoze pisotriquetralnog zgloba (PT). Osteoarthritis PT je također rijedak i može biti onesposobljavajući kao i osteoarthritis bilo kojeg zgloba. Ovo je prikaz jedinstvenog slučaja sinovijalne hondromatoze PT zgloba sa sekundarnim osteoartritisom.