

Diagnosis of an Atypical Case of Stone in Knee Joint through Clinical Reasoning

K M Amran Hossain^{1*}, Mohammad Anwar Hossain², Md. Obaidul Haque³

¹Lecturer of Physiotherapy, Bangladesh Health Professions Institute (BHPI), Bangladesh

²Senior Consultant of Physiotherapy, Centre for the Rehabilitation of the Paralysed (CRP), Bangladesh

³Professor of Physiotherapy, Bangladesh Health Professions Institute (BHPI), Bangladesh

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*Corresponding author: K M Amran Hossain

Abstract

Case Report

Stone in the knee joint is one of the atypical conditions associated with degenerative joint disease of knee, also called synovial chondromatosis. The clinical presentations are similar to osteoarthritis in painful limitations and associated impairments. The case has been diagnosed through a systematic process of Hypothetico-deductive reasoning process with a multidisciplinary assessment protocol. The conservative management was directed to the comprehensive and patient-centered care approach. An early diagnosis through an evidence-based approach can bring improvements to the impairments and prevent associated complications in Synovial chondromatosis of the knee joint.

Keywords: Stone, Knee, Clinical reasoning.

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INTRODUCTION

Stone in the joint often called synovial chondromatosis is a non-malignant condition of a synovial joint that occurs mostly in the knee joint [1]. The condition might be asymptomatic and associated with a degenerative condition [2]. The clinical features are similar to an arthritic condition that can be manifested as impairments in pain, restricted range of motion, the sign of chronic inflammation, crepitus and limitations in daily living activities in late adulthood [3]. The condition is one of the undiagnosed and neglected cases [4] and can even fate to malignancy [5]. Osteoarthritis of the knee joint is one of the commonest cases confronting physiotherapy and a few cases [6] have been reported from the physiotherapist's perspective.

Clinical reasoning is a key component of autonomous practice that directs a practitioner to generate conclusions from clinical cues and decide with the utmost reasoning behind [7]. This paper explains the diagnosis of synovial chondromatosis of the knee joint through Hypothetico-deductive reasoning.

CASE DESCRIPTION

The patient aged 65 years, Male attended with a complaint of low back pain & left knee pain as a constant symptom that relieves with rest. There was no

incidence of trauma. Initially, the patient was diagnosed as lumbar spondylosis with left knee osteoarthritis and referred to a physiotherapist. The impairments were central low back pain in the continuous episode, more in the left side aggravates with sitting to rising, bending terminally and walking for more than 2 minutes. Also, he had left knee pain aggravates in walking difficulties in bending and stair climbing for more than 2 years. On examination, he found moderate limitations in lumbar flexion and extension.

He had poor posture in standing, sitting, with no lateral shift in the spine. As a neurological examination, he had a negative dural sign, straight leg raise (SLR) limited beyond 80 degrees in both lower limbs. Also, no neurological deficit found in lumbar dermatomes and myotomes but quadriceps found 4 out of 5 in Oxford muscle grading possibly due to knee problems. On McKenzie's assessment, his low back pain was relieving in flexion direction. His left knee found swelled, tender, inflamed, and thermal [Figure 1], and knee flexion found 80 degrees and extension found 10degree loss. The capsular pattern of the left knee found positive.



Fig-1: Knee joint in initial assessment (with patient's permission)

He has been managed in Pattern Recognition initially and managed with Maitland mobilization in L4-5, lumbar flexion exercise, POLICE management of knee, patellar mobilization and muscle setting exercise of the knee. He has been treated for 7 sessions onwards. His LBP has been improved; knee inflammation subsided but facing a challenge in improving knee flexion. Also, there found a moving piece of bone around the patella. The clinician introduced the Hypotheticodeductive reasoning process of clinical reasoning. This enhances a practitioner to track behind cues to generate a hypothesis and evaluating the clinical decision [8].

The cue questions included as to how being the knee pain introduced? He said he can't remember. Did you fall in any injury to the knee? He replied, no. Then the clinicians asked how long are you suffering from knee exactly? He replied, for more than 5 years, but notable for 2 years. Then, to find more cues clinician reviewed laboratory reports and radiological investigations. The x-ray L/S spine reported lumbar spondylosis. X-ray Left knee reported degenerative changes and calcified ligament [Figure 2] and other laboratory investigations found normal.



Fig-2: X-ray of Left Knee

The Hypothesis has been generated as firstly as a simple case of typical Knee osteoarthritis because he has positive capsular pattern and radiological evidence of knee osteoarthritis, secondly calcified

tendon or soft tissue ossification because the x-ray report saying so. There was also thought that the case can be Synovial chondromatosis, because the hard particle was traveling around the knee and can be palpable anywhere around the patella. Then the clinician reported the case to a senior colleague of a similar profession and a specialist physician of Radiology and Imaging specialty.

After a couple of days, the cue interpretation concluded. This case cannot be typical Knee osteoarthritis though he has a positive capsular pattern, he has a moving particle moving in the knee and this particle is hindering knee flexion. The case is knee osteoarthritis but with atypical presentation. The hypothesis does not contribute to the case (0). The case also can't be soft tissue ossification despite the x-ray report saying so because if it is calcification in soft tissue than the calcified hard tissue would be fixed in a site. The particle moves around the joint line. The hypothesis does not contribute (-1). And lastly, the case can be Synovial chondromatosis, because it was traveling around the knee and palpable in anywhere around the patella, these matches with clinical relevance (+1).

DISCUSSION

Several case reports found regarding the cases. Studies reveal [9] Synovial chondromatosis to be presented as osteoarthritis in the knee but there will be one or harder particle moving around that is evident in an x-ray. Similar cases in knee reported [4] and stated that it needs to be a concern to surgery. The condition can be evident in the elbow joint, TMJ and shoulder [10]. Recent studies state, in the severe case of multiple stones, joint replacement may be required [11].

The patient has been referred to an orthopedic surgeon and he advised to wait for a few years and continue conservative management because of the patients' age, health condition and size of the stone. The patient continued consultation of physiotherapy for the remission of pain, relieve inflammatory sign and low back issues. He has a better improvement in pain and associated impairments in knee alongside the enhancement of daily living activities.

CONCLUSION

Stone in the knee joint is an atypical condition and might be evident with knee osteoarthritis. The early diagnosis and comprehensive patient-centered care can bring improvements to the painful limitations and associated complications of Synovial chondromatosis of the knee joint.

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