Bilateral Primary Elbow Osteoarthritis with Metabolic Syndrome in a Middle Aged Indian Woman: A Rare Case Report.

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ABSTRACT

Elbow Arthritis is a rare condition characterized by loss of articular cartilage in the ulnotrochlear and radiocapitellar articulations. The symptoms include pain, stiffness and loss of motion while radiographic manifestations may include osteophytes, loss of joint space and subchondral cysts. Recently it has been suggested that there is chronic low grade systemic inflammation in osteoarthritis occurring as a part of greater inflammatory metabolic syndrome. Primary OA mainly affects weight bearing joints of the lower extremity. The common assertion that the elbow is not a weight-bearing joint should not suggest that the elbow does not bear load. Elbow osteoarthritis commonly affects middle aged men who indulge in strenuous activity. We present a case report of a middle aged Indian Woman having primary elbow osteoarthritis with metabolic syndrome.

Keywords: Elbow Osteoarthritis, Metabolic Syndrome.

INTRODUCTION

Elbow is a modified hinged joint consisting of one synovial lining, 2 degrees of freedom (flexion-extension, pronation-supination) and 3 articulating surfaces. Despite being a non-weight bearing joint, elbow is subjected to high degree of mechanical pressures with various activities of daily living as all high stresses are transmitted through a small surface area. Therefore though rarely, but elbow pain can be due to arthritis (like Rheumatoid, post-traumatic OA, primary OA, septic, crystal arthropathy etc). Out of this, primary elbow OA consists of only 1-2% of all arthritis cases making it a rare case of elbow pain.¹ Earlier it was postulated that obesity leads to osteoarthritis through excessive static and dynamic loading which leads to cartilage destruction.² However this can't explain the increased incidence of OA in non-weight bearing joints.³ Therefore more than just mechanical stress, metabolic syndrome (a syndrome comprising of number of conditions, including central obesity, atherogenic dyslipidemia, impaired fasting glucose and hypertension) has been recognized as one of the important causes of OA.⁴

Primary Osteoarthritis of elbow affects men 4 times as compared to women. It mainly affects manual workers, overhead throwing athletes, weight lifters and those on crutches and wheelchairs. Mean age of onset being 50 years. The novelty of this case report is that it is a case of middle-aged Indian women who works as a tea-seller and suffering from bilateral primary osteoarthritis of elbow with metabolic syndrome. We hereby present this rare case report and discuss its various clinical and radiological manifestations along with treatment options.

CASE REPORT

A 49 year old lady visited our outpatients department with the chief complaint of pain in both elbows since last one year. Right elbow was affected initially and 2-3 months later left elbow also had pain which was insidious on onset, gradually progressive in nature and aching, dull and diffuse in character. The pain aggravated on movement and activity and was relieved by rest. Pain was associated with stiffness of both elbows and that hampered her basic and instrumental activities of daily living. There was no diurnal variation or any other joint pain. Patient is diabetic, hyperlipidemic and has a waist circumference of 105 cm. On examination there was tenderness on deep palpation of both elbows. There was restriction of active range of motion of both elbows. However passive range of motion is painful but complete.

On standard antero-posterior and lateral radiographs, it showed diminished bilateral elbow joint space with osteophytes and subchondral cysts. Musculoskeletal Ultrasonography of both elbows showed intra-articular and peri-articular mild fluid collection and osteophytes at anterior margin. CT
Scan was also done which showed reduced joint space with irregularity of articular margin, osteophytes and subchondral cysts.

Blood parameters showed raised ESR (35 mm at first hour), CRP (10.1), Fasting Blood Sugar (146 mg/dL), Low Density Lipoproteins (145 mg/dL), triglycerides (175 mg/dL) with normal rheumatoid factor, anti CCP antibody, uric acid, serum TSH, Total leucocyte count, Bleeding time/clotting time, Serum Urea, Serum Creatinine and Urine examination.

Considering clinical and radiological findings, a diagnosis of bilateral primary osteoarthritis of elbows with metabolic syndrome was made. All the pharmacological, non-pharmacological and surgical treatment options were discussed along with referrals to general physician (for metabolic syndrome) and orthopedic surgeon (for surgical options). Patient opted for non-operative management.

Patient was prescribed Tramadol (37.5mg) and Paracetamol combination on SOS basis, along with Diacerein 50mg and Oxaceprol 200mg twice a day. Her antidiabetic medications were continued. Non-Pharmacological management included counselling and re-assurance, activity limitation, Joint protection techniques, range of motion and isometric exercises and elbow orthoses. She was asked to review after one month.

On her second visit after one month, she reported 50% reduction in VAS. She was asked to continue the same treatment. A telephonic conversation at three months was done in which patient reported further reduction in pain and improvement in range of motion.

**DISCUSSION & CONCLUSION**

Though elbow is not a weight bearing joint and thus osteoarthritis in elbow joint is quite rare. But elbow does bear load. According to Chadwick et al, elbow bears about twice the body weight during strenuous activities like lifting and moving weights of as less as 2 kg 5. Throwing and other dynamic loading states produce enormous forces even rising to six times the body weight.6

Elbow joint is one of the rare joints getting affected by osteoarthritis, which is essentially a degenerative disease due to wear and tear of the joint. Since ligaments in the elbow are strong enough to stabilize the joint so that it can withstand blows and damage better than some other joints in the body can, thus primary elbow osteoarthritis is mostly seen in the dominant arm of those who take part in excessive sport or manual work.

It has been recently suggested that there is a chronic low grade systemic inflammation in OA knee which has led some authors to consider osteoarthritis to be part of a greater inflammatory metabolic syndrome.7 Metabolic Syndrome (MetS) comprises a number of conditions, including central obesity, atherogenic dyslipidemia, impaired fasting glucose and hypertension (HTN). It is prevalent in 33.5% Indians (24.9% males and 42.3% females).8 Obesity, besides causing higher mechanical load on knee joint, is also thought to be related to excessive proinflammatory cytokine production which could play a pathophysiologic role in OA.9 The atherogenic effects related to hypertension can also change the microvasculature of sub-chondral bone, thus leading to development of OA changes.10

Patient initially complains of pain at the end of the range of motion for both flexion and extension. During this time, the degenerative changes are limited to the olecranon and coronoid processes and respective articular surface whereas the central surfaces remain intact. Later disease manifests as pain through the entire range of motion or decreased range due to enlarged osteophytes or loss of joint space. OA elbow can be secondary to trauma, osteochondritis dissecans, synovial chondromatosis,11 valgus extension overload and coronoid fracture.12

On examination, primary OA elbow generally has tenderness on Palpation in the lateral soft spot, which is located in the center of a triangle on the lateral aspect of the elbow and is bordered by the tip of the olecranon, the lateral epicondyle, and the radial head. Crepitus is often present. Loss of motion in all planes is common. Ulnar neuropathy must be kept in mind while examining. Imaging essentially involves Standard anteroposterior and lateral radiographs of the elbow initially. Additional imaging studies like CT, USG are done to rule out other pathology.
Treatment includes conservative or operative. Conservative treatment essentially involves Rest, medications and long-term activity modification. Orthosis and physiotherapy are often beneficial for such patients. Operative treatment includes Joint débridement, capsular release, and removal of osteophytes (also callled ulnohumeral arthroplasty). Arthroscopic Osteocapsular Arthroplasty and Total Elbow Arthroplasty.

Our patient was given conservative treatment with which she has reported reduction in pain and improvement in range of motion. Primary elbow osteoarthritis complicated by metabolic syndrome is an extremely rare case which requires a multidisciplinary approach. However we describe a single case report and have a limited observation to this pathology, our case might suggest a possible diagnostic and therapeutic approach to primary elbow OA with metabolic syndrome. Further studies of larger sample size are required to confirm our limited observation.

REFERENCES