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Case Report

Significance of Anti-CCP Antibody in Diagnosis of Monoarticular Rheumatoid Arthritis in Wrist: A Rare Case Report

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ABSTRACT

Introduction: Monoarticular rheumatoid arthritis (RA) is quite rare and often involves the hips and knees. Anti-cyclic citrullinated peptide (anti-CCP) antibody has been reported as a highly specific marker for the diagnosis of RA. We are reporting a very rare case report of monoarticular RA involving the wrist in a 66 years old woman.

Case Report: A 66 years old female presented with a pain in the left wrist joint since six months. Radiological findings showed multiple osteolytic lesions around articular area with circumscribed lesions of ulna & radius and destruction of articular surface of wrist. FNAC findings were negative for crystals, only few inflammatory cells were seen. Bacterial culture of the aspirate was negative, rheumatoid factor (RF) test was negative and anti-CCP was positive.

Conclusion: Any patient clinically suspicious of RA and if RF test is negative, anti-CCP test must be advised. Anti-CCP has high diagnostic accuracy, it is present early in the disease, can predict future development of RA, at presentation can predict future disease activity.

Key Words: Rheumatoid arthritis, monoarticular, anitcitrullinated protein antibodies.

INTRODUCTION

Rheumatoid arthritis (RA) is a heterogeneous disease, based on data combining genetic risk factors and autoantibodies, is subclassified into anticitrullinated protein antibodies (ACPA) – positive and ACPA negative. [1] RA occurs in 0.8-1% of the population, with a female: male ratio of 3:2. Although the disease may occur at any adult age, a peak incidence is seen around the fifth decade. The clinical course is variable. The disease begins slowly and insidiously in more than half of the affected individuals. The pattern of joint involvement varies but it is generally symmetrical and the small joints are affected before the larger ones. [2] Monoarticular RA is an infrequent clinical presentation and it usually occurs in the hips and knees. Since the early clinical presentation may not be specific, and RA may initially be indistinguishable from other forms of arthritis. It is diagnosed based on the clinical findings and laboratory investigations. When the diagnosis of RA is suspected, the rheumatoid factor (RF) test is obtained, but

this test is neither entirely sensitive nor specific. Up to 80% of persons with RA have a positive RF test. This leaves 20% of RA patients who are RF negative. On the other hand, false positive RF tests are seen in 5% of the general population. [3] Recently, a new test has become available, anti-cyclic citrullinated peptide (anti-CCP) with a superior diagnostic performance. [4]

Here we are reporting a very rare case report of monoarticular RA involving the wrist in an elderly woman which is diagnosed by anti-CCP.

CASE REPORT

A 66 years old female presented with a pain in the left wrist joint since six months. Pain was localized and continuous. Aggravated on working, decreased on giving rest. Sleep was disturbed occasionally. With analgesics she had relief for two hours and later recurred. There was no history of fever, loss of weight and loss of appetite. Family history was insignificant. The patient noticed swelling since three months, more on the dorsum, which was mild swelling. It subsided by rest and sometimes it recurred. The patient took treatment in the form of pain killers from the local doctor but couldn't find any relief. On examination there was a swelling on the left wrist joint measuring 1 X 1 cms, not associated with any sinus or scars. On palpation, there was no local rise of temperature, pain & joint tenderness was present. Swelling was fluctuant, decreased on pressure. All the movements were restricted and painful. On general physical examination – there were no palpable lymph nodes. Cardiovascular system, respiratory system and per abdominal examination were normal. Vital signs were normal. Plain X-ray of wrist revealed multiple osteolytic lesions around articular area with circumscribed lesions of ulna & radius. There was destruction of articular surface of wrist. The laboratory findings were normal as shown in table-1. Patient was subjected for fine needle aspiration cytology (FNAC). Smears showed fragments of fatty tissue with occasional inflammatory cells. There was no evidence of crystals. Features were those of subacute inflammatory lesion. Patient was put on antibiotic and anti-inflammatory drugs for 15 days. Patient was revived after 15 days, but she was not relieved from pain. She was again subjected for blood tests.

Table-1: Shows initial laboratory findings.

Laboratory Investigations: Hb%: 11.9 g/dl (normal:12.5-14.5g/dl) RBC Count: 4.0millions/cmm (normal:4.5-5.5millions/cmm) Haematocrit: 34% (normal: 35% to 45%) WBC Count: 8,300 cells/cmm (normal: 4000 to 11,000/cmm) Differential Count: Neutrophils: 44% Lymphocytes: 45% Eosinophils: 03% Monocytes: 08% Basophils: 00% Random Blood Sugar: 78mg/dl (normal: 80 to 110mg/dl) Blood Urea: 19mg/dl (normal: 5 to 25mg/dl) Serum Creatinine: 0.8mg/dl (normal: 0.8 to 1.2mg/dl) Serum Uric Acid: 5.2mg% (normal: 2.5-8mg/dl) Serum Alkaline Phosphatase: 89Iu/Lt (normal: upto 105IU/Lt) Serum Phosphorus: 4.6mgs% (normal: 2.5-4.5mg/dl) Serum Calcium: 9.6mg% (normal: 9-10.5mg%) Serum Bilirubin: Total: 0.5mg% (normal: 0.3-1.2mg%) Direct: 0.1mg% (normal: 0-0.3mg%) SGOT:23.9 IU/Lt (normal: <35IU/Lt) SGPT: 16.1 IU/Lt (normal: <35IU/Lt) Total Proteins: 7.4 g/dl (normal: 6-7.8g/dl) Serum Albumin: 4.7 g/dl (normal: 3.5-5.5g/dl) Serum Gamma GT: 22.0 IU/Lt (normal: 5-36IU/Lt)
Serological Investigations: C-Reactive Protein: negative (normal: 0-0.8mg/dl) RF Test: <10 IU/ml (normal: <40 U/ml) (Nephlometry Method)
Radiological Findings: Plain X-ray of wrist revealed multiple osteolytic lesions around articular area with circumscribed lesions of ulna & radius. There was destruction of articular surface of wrist Fine Needle Aspiration Cytology: Smears showed fragments of fatty tissue, occasional inflammatory cells and negative for crystals. Features were those of subacute inflammatory lesions. The bacterial culture of the aspirate was negative.

The values were same as table-1 except few values as shown in table-2. The important finding was anti-CCP was positive (119).Taking these parameters into considerations a diagnosis of monoarticular rheumatoid arthritis of wrist was made and

patient was started with disease modifying antirheumatoid drugs (DMARDs) with one and half months follow- up. There was regression of the swelling and the pain had come down.

Table-2: Shows laboratory findings after a course of antibiotic.

Laboratory Investigations: Hb%: 12.4 g/dl (normal:12.5-14.5g/dl) RBC Count: 4.2millions/cmm (normal:4.5-5.5millions/cmm) Haematocrit: 38% (normal: 35% to 45%) WBC Count: 8,400 cells/cmm (normal: 4000 to 11,000/cmm) Differential Count: Neutrophils: 46% Lymphocytes: 41% Eosinophils: 06% Monocytes: 06% Basophils: 01% Random Blood Sugar: 78mg/dl (normal: 80 to 110mg/dl) Blood Urea: 19mg/dl (normal: 5 to 25mg/dl) Serum Creatinine: 0.8mg/dl (normal: 0.8 to 1.2mg/dl) Serum Uric Acid: 4.5mg% (normal: 2.5-8mg%) Serum Alkaline Phosphatase: 109 IU/Lt (normal: upto 105 IU/Lt) Serum Phosphorus: 4.6mg% (normal: 2.5-4.5 mg%) Serum Calcium: 9.6mg% (normal: 9-10.5 mg%)
Serological Investigations: C-Reactive Protein: negative (normal: 0-0.8mg/dl) RF Test: <10 IU/ml (normal: <40U/ml) (Nephlometry Method) Anti-CCP: 190.9 U/ml (normal: upto 20U/ml) (CMIA-ABBOTT)
Radiological Findings: X-ray findings were similar to the initial one

Figure: 1. Plain X-ray (AP & Lateral view)s of wrist revealed multiple osteolytic lesions around articular area with circumscribed lesions of ulna & radius. There was destruction of articular surface of wrist.

DISCUSSION

Research suggests that in the joints of patients with RA citrullination takes place. It is a process by which arginine residues in a given protein are post-tranlationally modified (deiminated) in the presence of high calcium concentration by an enzyme called peptidylarginine deiminase (PAD). Citrulline as part of the process leads to inflammation of the rheumatoid joint. Antibodies are formed against citrulline and they are referred as anti-citrulline antibodies, anti-cyclic citrulinated peptide antibody(ACPA). [5] Anti-CCP or ACPA are highly specific for RA, where as RF can also be found among healthy (elderly) individuals and patients with other autoimmune diseases. The sensitivity and specificity of RF are depending on the population studied, 60% - 70% & 50% - 90% respectively. Despite this lack of specificity, presence of RF is one of seven diagnostic criteria for RA put forward by the American College of Rheumatology in 1987. [6]

In the present case a 66 years old female presented with a pain in the left wrist joint since six months. This was similar to Douraiswmi et al case. [7] A shift in the incidence towards a higher age at disease onset has been observed across the several cohorts. The incidence rate seems to increase with age upto a plateau of around 60 years. [1] The classical features of RA in the present case were absent and a thorough history and clinical examination ruled out the common causes of monoarthritis like infection, trauma, tumor, reactive arthritis, neuropathic joints, osteonecrosis, recurrent hydroarthrosis. Radiological findings showed multiple osteolytic lesions around articular area with circumscribed lesions of ulna and radius and destruction of articular surface of wrist. FNAC findings were negative for crystals with few inflammatory findings. Bacterial culture of the aspirate was negative, RF was negative and anti-CCP was positive. This was similar to the findings of B. Douraiswami et al. [7] Multiple studies have confirmed the superior diagnostic properties than RF, which is reflected by a higher sensitivity (60 to 80%)

and a high specificity (up to 98%) level. Anti-CCP is present early in the disease, can predict future development of RA in patients with undifferentiated arthritis and antibody titres at presentation may predict future disease severity. [5]

CONCLUSION

To, conclude monoarticular RA is very rare and RA should be included in the differential diagnosis of monoarticular arthritis. Any patient clinically suspicious of RA and RF test is negative, anti-CCP test must be advised. More studies are necessary, but it is possible that anti-CCP may be more helpful than RF. At present, anti-CCP is not as readily available as RF but this may change in the future.

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