

Massive serositis in a patient with rheumatoid arthritis : Case report

Kuria M, Oyoo GO, Namasaka M, Akunga O

Department of Clinical
Medicine and Therapeutics,
Faculty of Health Sciences,
University of Nairobi, P.O. Box
19676-00202, Nairobi, Kenya

Corresponding author:
Dr. Mukami Kuria. Email:
kuriaannemukami@gmail.
com

Abstract

Pleural and pericardial disease are established systemic manifestations of rheumatoid arthritis. In the following case report, we describe a patient who presented to us with large bilateral pleural effusions, massive ascites and severe pericardial effusion with impending cardiac tamponade. After extensive investigations, the serositis was suggested to be rheumatic in origin, and improved on steroids and biologic agent (rituximab).

Key words: Massive serositis, Rheumatoid arthritis

Introduction

We discuss a 56 year old male, a high school teacher from Muranga county, Kenya. He had been diagnosed with rheumatoid factor +ve rheumatoid arthritis 3 years prior to presentation at a peripheral facility and was being managed on leflunomide 10mg. He was being followed up by a general practitioner, and had not been reviewed by a specialist physician.

He presented to us with a 3-month history of a persistent dry cough, dyspnea on mild exertion and progressive, painless abdominal swelling. He was a life-long non-smoker and never used alcohol. He had lost 13% of his baseline weight in 4 months prior to presentation.

Initial treatment with anti-TBs for at a peripheral facility had yielded no clinical improvement.

Case report

Clinical exam: Revealed a middle-aged male, wasted, mildly anaemic, with no pedal edema. He had painless, soft, mobile lymph nodes in the axillary and inguinal area, about 2cm by 2cm each. He had no stigmata of chronic liver disease. Vital signs-Bp 128/76mmhg, HR 93bpm, regular rhythm, normal volume, SpO₂ 94%RA, Temp 36.6°C.

Respiratory exam was significant for oxygenation of 94% on room air, no distress at rest, and physical exam findings of bilateral pleural effusion.

Abdominal exam was significant for moderate ascites (non -tender), with no palpable abdominal masses or organomegaly.

Joint exams revealed features of chronic RA -ulnar deviation, more pronounced in the right hand, swan neck deformities of both ring fingers, Z deformity of the right thumb and bilateral reduced grip strength. There was no acute swelling of the hand joints. He also had bilateral knee effusion, with restricted flexion movement, more pronounced in the left knee. Cardiovascular and neurological exam-were unremarkable.

Table 1: Summary of investigations

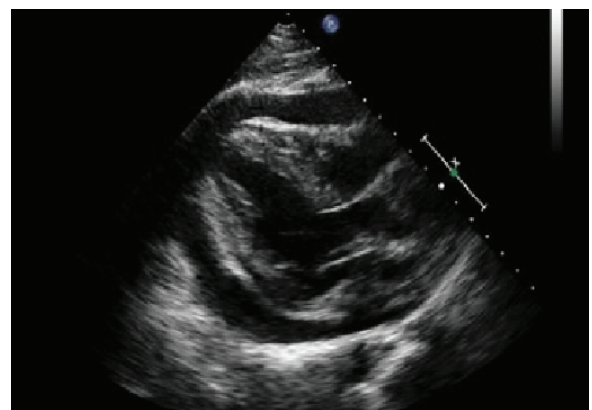
Investigation	Results
Haemogram	WBC 10, HB 13.1, Plt 460
ESR	39mm/hr
C3, C4	Normal range
Uric acid	0.609mmol/l (elevated)
Chest CT scan	Moderate bilateral pleural effusion, axillary node enlargement
CT abdomen	Moderate ascites, Mediastinal node enlargement
Anti-Ro/SSA	Negative
Anti-dsDNA	Negative
Anti-RNP	Negative

Anti-CCP	65 (elevated)
UECs	Normal, except Na=129mmol/l
Rheumatoid factor	1:180
HIV	Negative
Hep/hep C	Negative
TFTs	Normal
LFTS	Normal except Albumin 30g/l
CRP	157
Urinalysis	No abnormalities (-ve for blood, proteins & leukocytes)
2D Echo	Moderate pericardial effusion, no chamber collapse EF 63%
Pleural fluid	Proteins 55g/l, glucose 3.1mmol/l
Ascitic fluid	Protein 46g/l
Ascitic fluid analysis	Negative for atypical or malignant cells, no growth obtained on culture
Lymph node biopsy	Areas of hyperplastic follicles with prominent germinative follicles
FDG-PET	Areas of increased uptake in the axillary, mediastinal and aortic lymph nodes, SUV 7mm
BMA	No dysplasia or blastoid proliferation noted
Pleural biopsy	Negative for TB Lymphocyte pleural infiltration with some degree of pleural thickening and fibrosis Negative for malignancy

Initial management: Patient was started on oral steroids (prednisolone 60mg once daily-this decision was made after an MDT held between the rheumatologist, cardiologist and pulmonologist), in view of critical organ involvement. Allopurinol 100mg OD was started for hyperuricemia. DMARDS were continued-leflunomide 20mg, hydroxychloroquine 200mg BD.

Clinical progress: While on admission, the condition of the patient continued to deteriorate, with progressive accumulation of ascitic fluid and pleural effusion requiring continuous fluid drainage via pig-tail catheters. On Day 7 of admission, he developed persistent tachycardia, shortness of breath at rest and new oxygen requirements. Clinical exam revealed-sinus tachycardia, with distended neck veins, and distant heart sounds. Bedside ECHO done revealed-severe pericardial effusion with partial collapse of the right atrium and right ventricle (Figure 1).

Figure 1: 2D echo showing severe pericardial effusion with partial collapse of the right atrium and right ventricle



Emergency pericardiocentesis was performed, draining 500mls of straw-colored fluid, easy drain left

in situ. Pericardial drain remained active for the next 5 days, colchicine 0.5mg was added to treatment. In view of worsening clinical progress despite oral prednisolone and DMARDS, and inconclusive results thus far, an explorative laparotomy was carried out to obtain more tissue diagnosis for histology.

Omental biopsy: Non-specific chronic inflammatory process. No features of tuberculosis were noted and malignancy was negative.

Progress: Multidisciplinary team discussion was held, and a decision to start the patient on biologic treatment was made (Rituximab 1000mg).

Disposition: The patient is currently on outpatient follow up at the Rheumatology clinic. He is on scheduled twice yearly rituximab infusions, leflunomide 20mg and hydroxychloroquine 200mg BD. He remains stable with no new fluid accumulation and has resumed his teaching job.

Discussion

Rheumatoid arthritis is a chronic, destructive inflammatory synovitis, with a wide clinical presentation and complications. It affects bony structures, but can also involve vasculature, metabolic function and cognition¹.

A study published in 1999 amongst 489 patients who fulfilled the ACR criteria for RA, 37 of them manifested extra-articular manifestations of RA over a period of 4 years (cumulative incidence of 7.9%). The occurrence was independent of joint disease².

Pleuritis and pleural effusions remain the commonest pleuropulmonary presentation in systemic rheumatoid arthritis. Risk factors include male sex, presence of interstitial lung disease, presence of rheumatoid nodules and older age >40 years³.

Majority of patients will present many years after joint disease, however in about 5%, the pleural disease precedes joint involvement. Higher titers of rheumatoid factor and anti-CCP levels, HLA-B8 and DW6 are highly associated with rheumatoid arthritis pleural effusion⁴.

A similar case of a 50 year old female non-smoker on follow-up for long standing RA is described. She developed bilateral pleural effusion which failed to improve on empirical anti-TBs. She then subsequently developed massive pericardial effusion resulting in cardiac tamponade and required surgical intervention. She was treated with rituximab and improved drastically⁵.

Characteristic pleural fluid findings include; low pleural fluid glucose (<3.33mmol), low fluid pH<7.3 and high pleural fluid lactate >700iu/L⁵. RA-pleural effusions shares many biochemical and macroscopic features with empyema, and thus an infectious aetiology is an important rule out. Cytological evaluation usually reveals

characteristic findings of elongated multinucleated macrophages and necrotic background debris⁶.

Pericardial involvement has been described in 30-50% of RA patients, however, pericardial tamponade due to RA is a rare, but life-threatening complication. Risk factors include older age above 60 years and of male gender⁷. Other cardiac involvement of rheumatoid arthritis include; cardiomyopathy, amyloidosis, coronary vasculitis and valvular insufficiency⁸.

Treatment strategies for serositis in rheumatoid arthritis involve use of anti-inflammatory and immunosuppressive agents⁹. Other differential diagnosis that must be considered and excluded include; tuberculosis, malignancy, uremia and drug-induced.

Conclusions

Pleural and pericardial manifestations of rheumatoid arthritis are uncommon in clinical practice. Other important differential diagnosis that must be ruled out include: tuberculosis, empyema, malignancy, uremia and drug-induced. This patient required surgical management for the massive pericardial effusion, pleural effusion and ascites. He responded well to immunosuppressive therapy, his steroid therapy had now been tapered off, and he remains stable on DMARDS (leflunomide and hydroxychloroquine) with twice yearly scheduled rituximab infusions.

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