

## Case Report

# Manubriosternal tuberculous osteoarthritis in a patient living with HIV

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**Tuberculous Osteoarthritis can affect the manubriosternal joint. It is usually associated with an immunosuppressive state. Our aim of reporting this case is to bring the relatively rare condition in Nigeria to awareness, thereby calling for attention whenever it occurs. A 35-year old man with a left chest swelling of 5months duration. There was associated chest pain, weight loss, cough and night sweat. Examination revealed a fluctuant and diffuse left manubriosternal mass. Blood test revealed leucocyte count of 4000cells/mm<sup>3</sup> with relative lymphocytosis, Erythrocyte Sedimentation Rate (ESR) of 129mm/hr (Westergreen) and positive retroviral screening. Chest radiographs revealed features suggestive of left milliary tuberculosis. Imaging plays a useful role in the evaluation of patients with osteoarticular tuberculosis and this should be analyzed side by side with relevant clinical and laboratory findings. Mycobacterial confirmation is needed to establish the diagnosis of osteoarticular TB.**

**Keywords:** Manubriosternal Joint, Tuberculosis, Osteoarthritis.

## INTRODUCTION

The Human Immunodeficiency Virus (HIV) pandemic coupled with the increased frequency of pulmonary tuberculosis (PTB) has led to an increase in the incidence of osteoarticular tuberculosis (Sara et al., 2003). Osteoarticular tuberculosis affects males more than females and it has a high incidence among those between ages of 25 and 44 years (McLellan et al., 2000).

Tuberculosis (TB) can affect any organ system but infection of bones and joints are less common (Kotsman et al., 1995). Usually, when it involves the musculoskeletal system, the major joints of the body are more commonly affected. These joints include the hip, knee, ankle, shoulder, elbow, and wrist (McLellan et al., 2000, Peter, 2006). Affection of the manubriosternal joint is rare (Kotsman et al., 1995).

Disease conditions such as rheumatoid and gouty arthritis may have similar features as osteoarticular TB,

they are unlikely in the manubriosternal joint (Agarwal et al., 19990, Chapman et al., 1978). Pyogenic infection may show similar features as described above, though these features may appear earlier because of proteolytic enzymes which are present in exudates of pyogenic infection (Agarwal et al., 19990). Computerized Axial Tomography (CAT) may be necessary if plain radiograph does not provide sufficient information about osseous or soft tissue involvement. Magnetic Resonance Imaging (MRI) and radionuclide bone scan are particularly useful in detecting early inflammatory changes (Sara et al., 2003, Kotsman et al., 1995).

This report is to highlight this rare but devastating condition in a patient living with HIV in Nigeria.

## CASE REPORT

Mr. N G is a 35-year old commercial motorcyclist who presented in the Orthopaedic Out Patient Department of the Jos University Teaching Hospital (JUTH) with a 5-month history of left chest swelling and 3-month history of

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chest pain. The patient noticed the swelling at the lower left chest following a head on collision with another motorcycle. He was admitted and managed conservatively with analgesics and antibiotics in a secondary health centre for three months. Despite the treatment he received in the health centre, the swelling did not subside, though there was a relief in intensity of the pain. There was cough and drenching night sweats shortly after he was discharged from the hospital. Previous immunization history could not be ascertained.

On examination, he was chronically ill-looking, wasted, afebrile, not pale, not dehydrated and no peripheral lymphadenopathy. Chest examination revealed a mass in the left part of manubriosternal joint extending to the region adjoining the left 2nd and 3rd intercostal spaces. It measured 6 x 8 x 8cm. The mass was fluctuant, with diffused margin and not translucent. No bruit or transmitted sound heard over the mass. The cardiovascular and musculoskeletal systems were essentially normal. Abdominal examination was also normal.

A tentative diagnosis of sternal abscess with associated pulmonary TB was made. He was admitted in the Isolation Ward. Full Blood Count (FBC), Electrolyte/Urea/Creatinine, Urinalysis, Mantoux test, ultrasonographic and radiographic investigations ordered.

The patient's full blood count showed a Packed Cell Volume (PCV) of 25% and White Cell Count (WBC) of 4000 per cubic millimeter with differential count of Neutrophils 68%, Lymphocytes 28%, Monocytes 3% and Eosinophils 0%. Erythrocyte Sedimentation Rate (ESR) was 129 mm/hr (Westergreen). Mantoux test was negative and urinalysis revealed no abnormality. C-reactive protein assay was not done. Retroviral test using Western Blot was positive for HIV 1 and 2.

Abdominal ultrasound scan was normal. Plain chest radiograph showed extensive milliary shadows (See figure 1). Tangential sternal radiograph showed widening of the space between the body of sternum and the manubrium with associated lytic destruction of the juxta-articular areas. A linear calcific density was noted over the joint. There was an overlying soft tissue swelling (figure 2). Plain radiographs of the spine were normal.

Antiretroviral drugs (Zidovudine, Lamivudine and Nevirapine) were commenced. A fine needle aspiration produced foul smelling pus and microscopy confirmed *Mycobacterium tuberculosis*.

The patient was placed on a 9-month course of anti-Koch's disease (Isoniazid, Streptomycin, Rifampicin and Pyrazinamide) and prepared for incision and drainage (I and D). While preparing for the procedure, having spent 5 days on admission, the patient took his leave against medical advice (LAMA), despite hospital's assistance and counseling. From our inquisition, through a junior healthcare worker, we ascertained that he went to an alternate practitioner's home thereafter.

## DISCUSSION

Involvement of the osteoarticular site is a rare extrapulmonary complication of *Mycobacterium tuberculosis hominis* or *bovis*. Extrapulmonary tuberculosis accounts for 15% of (TB infection in) non-retroviral positive patients. Bone and joint TB accounts for 10% of all extrapulmonary TB (Kotsman et al., 1995). Despite extensive search in the literature and the web, osteoarticular TB of the manubriosternum is indeed rare (Kotsman et al., 1995, Chapman et al 1978). HIV infection is a very prominent risk factor in our patient, thereby keeping in touch with the current trend of osteoarticular TB (Ross 1992, Hanza, 1994). Other risk factors include Diabetes Mellitus, long term corticosteroid use, chronic renal failure, blood dyscrasias, Paget disease, Chron's disease and rheumatoid arthritis: these are absent in our patient.

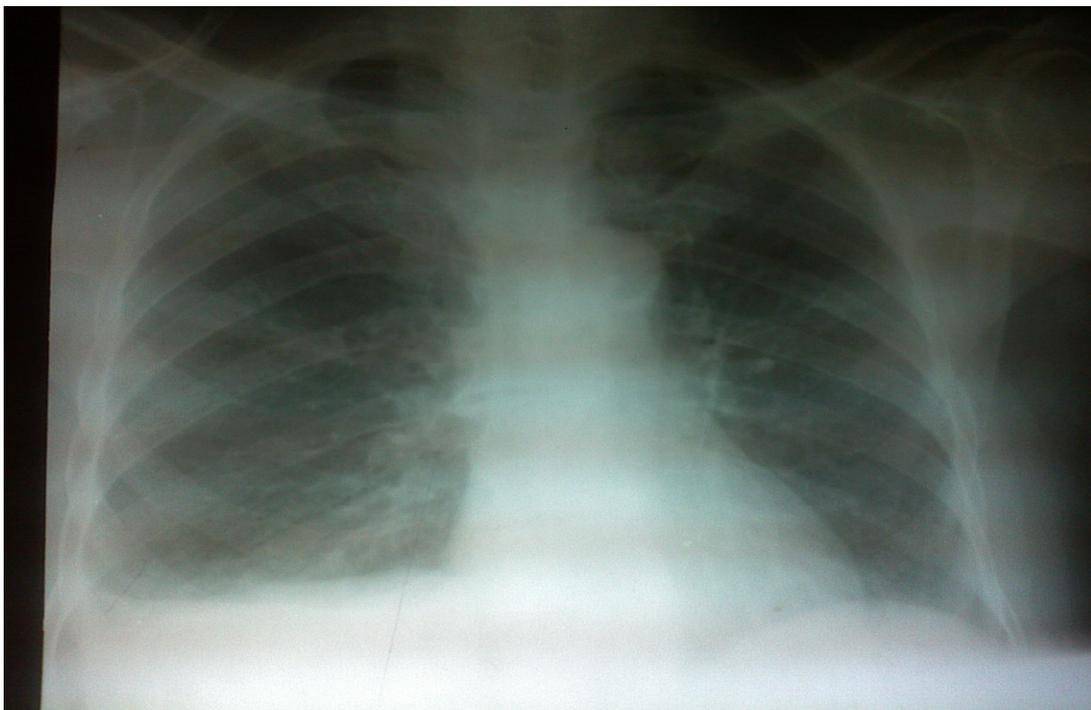
Our patient had an antecedent history of road traffic crash in line with local trauma as a known preceding factor of tuberculous osteoarthritis (Alvarez and McCabe, 1984, BlackLock and Williams, 1957). The most popular explanation regarding TB osteoarthritis is the direct inoculation from a primary reactivated site or a spread by haematogenous or lymphatic route (Bocanegra, 1999). Nevertheless, with subsequent cough and chest pain after the swelling, it is most unlikely, our patient developed this condition as a result of inoculation of pulmonary TB. The onset of osteoarticular TB is usually insidious and the infection is known to remain latent for years before it becomes active (Kotsman et al., 1995). In this report, it was a matter of months suggesting a rapid activation by the debility of HIV infection.

The classical symptoms of night sweats, weight loss and fever that are known to be associated with TB may or may not be present (Kotsman et al., 1995, Goldenberg and Cohen, 1978). Our patient presentation was in keeping with these symptoms except that fever might have been suppressed by self-medication. Local symptoms may include pain, limitation of movement and regional muscle wasting while in other cases; painless cold abscess may be the only presenting clinical feature (Haken et al., 2005). This patient presented with local swelling and pain. According to the literature, involvement of multiple sites is seen in about 30% of cases of osteoarticular TB and in 50% of cases, there may be active pulmonary TB (Ross, 1992). The patient had only pulmonary TB and there was no other site of involvement apart from the osteoarticular site.

Radiological evaluation of patient with osteoarticular TB involves the use of plain radiographs, Computerized Axial Tomography (CAT), Magnetic Resonance Imaging (MRI) and Radioisotope scanning (Peter, 2006). For most patients, conventional radiographs are not sufficiently reliable for the detection and follow up of osteoarticular TB (Kotsman et al., 1995). In this report, plain radiographs were adequate. Plain radiographs may be



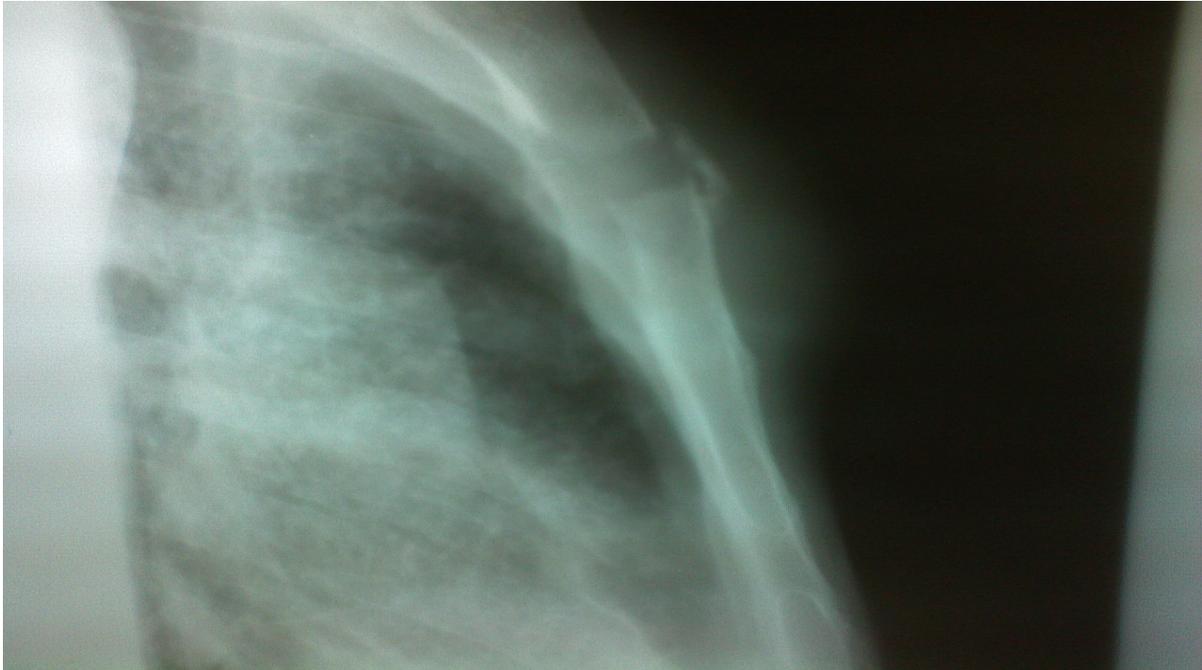
**Figure 1.** Ultrasound of sternal mass shows fluid with internal echoes in keeping with an abscess.



**Figure 2.** Plain chest radiograph showing right sided pleural effusion. Subtle nodular shadows are seen in both lungs.

normal in the early stage but the late stage findings (as discovered in this report) included blurring of the subarticular cortical outline, secondary marginal erosion and in due course destruction of the joint space

(Harisighani et al.,2000). This patient's plain radiograph showed widening of the joint space and lytic destruction of the juxta-articular margin.



**Figure 3.** Tangential view of the manubriosternal area showing the mass with associated destruction of the manubriosternal joint.  
Note: The streaky and nodular shadows in the lungs.

## CONCLUSION

It must be pointed out that though, imaging plays a useful role in the evaluation of patients with osteoarticular TB, imaging findings must be analyzed side by side with relevant clinical and laboratory findings. Mycobacterial confirmation is needed to establish the diagnosis of osteoarticular TB.

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