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Full Length Research Paper

A Rare Case of Tuberculosis of the Wrist and Colon with Concurrent Trichuris Trichiura Infection in a 14 year-old Girl

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Co-infection of helminthiasis and pulmonary tuberculosis have been widely reported in literature, but co-infection of trichuriasis and extra-pulmonary tuberculosis is rare. We report a case of a 14 year-old girl who first came to medical attention due to swelling over her left wrist. She subsequently developed gastrointestinal symptoms which did not resolve, leading to referral to a tertiary centre. Numerous investigations were carried out and the diagnosis of tuberculosis of the wrist and colon with concurrent trichuriasis was made. She was treated successfully with a combination of medical and surgical therapy.

Keywords: Tuberculosis, wrist, Trichuris Trichiura, co-infection

INTRODUCTION

Mycobacterium tuberculosis is a well-known organism affecting many especially those in developing countries. Since the 1990s, there has been a resurgence in the rate of tuberculosis worldwide due to the human immunodeficiency virus (HIV) epidemic, where before, with measures improving sanitation, housing and treatment, there had been a steady decline. Pulmonary tuberculosis still accounts for the majority of cases (90%) while extra-pulmonary tuberculosis constitutes the rest (Lawn and Zumla, 2011). A growing problem, extra-pulmonary tuberculosis is known to occur more commonly in the immuno suppressed and young (Golden and Vikram, 2005).This can be seen in more than 50% of those with concurrent HIV infection (Shafer et al., 1991). The diagnosis of extra-pulmonary tuberculosis is often difficult and requires a high index of suspicion. As a result, it is often missed and treatment started late. Along with other diseases affecting the developing world, helminthiasis is another significant health problem which often leads to malnutrition and reduced cognitive ability in children. Immune responses resulting from helminthiasis can lead to an immuno compromised state which increases susceptibility to other infections such as tuberculosis, HIV and malaria (Van Riet et al., 2007). Co-infection of helminthiasis and pulmonary tuberculosis have been widely reported in literature, and were shown to be risk factors for each other (Elias et al., 2006). On the other hand, co-infection of the helminth known as Trichuris trichiura and extra-pulmonary tuberculosis of the wrist and colon is rare and to our knowledge, such cases have not been reported.

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CASE REPORT

A 14 year-old girl, who was previously healthy, first presented to a district hospital with two weeks history of painless swelling over the volar aspect of her left wrist, associated with minimal purulent discharge. There was no preceding trauma or injury. Treating for an abscess, she was started on intravenous cloxacillin and underwent an incision and drainage. Samples sent for culture yielded no growth whilst acid-fast bacilli (AFB) staining was negative. The wound subsequently healed. One week after the onset of the wrist swelling, the patient started having diarrhoea with intermittent rectal bleeding for six weeks duration, which was associated with on and off low-grade fever. She was suspected to have inflammatory bowel disease and was thus referred to our centre for further management.

On arrival at our centre, there was evidence of failure to thrive with both her weight and height at the third centile of her growth chart. Blood investigations revealed iron deficiency anaemia, eosinophilia as well as a raised erythrocyte sedimentation rate (ESR). Other blood parameters were normal. She was negative for HIV. Stool examination for ova and cyst were negative as well. Colonoscopy was performed and she was found to have heavy worm infestation from the rectum up to the colon. A biopsy of the colon was taken for histopathological examination (HPE) and she was started on anti-helminthic treatment. The helminth involved was identified as Trichuris trichiura (Figure 1).

During this time, the swelling over her left wrist recurred and slowly increased in size. A sinus then developed, with minimal seropurulent discharge. At this point, she was referred to our unit (hand and microsurgery) for further management. On examination, a swelling measuring 2.5 cm x 2.5 cm was seen over the hypothenar region of her left wrist from the distal crease till the mid-palm. There was minimal erythema over the centre of the lesion with mild tenderness. Range of motion of the involved wrist and digits were normal. Radiograph of the left wrist (Figure 2) showed a soft tissue shadow over the ulnar aspect without any bony involvement. Surgical debridement was then performed and the swelling was found to be subcutaneous and contained cheesy material (Figure 3) while the underlying tendon sheaths were not involved. Samples were sent for fungal and AFB staining, which were negative, as well as culture, which grew Mycobacterium Tuberculosis complex. In addition, HPE from the colonic biopsy showed granulomatous inflammation suggestive of tuberculosis. She had otherwise no evidence of pulmonary tuberculosis.

Treatment with anti-tuberculous drugs was initiated after the diagnosis of extra-pulmonary tuberculosis was made. Together with the anti-helminthic drugs, the diarrhoea resolved, and the patient improved clinically and started to gain weight within three to six months of treatment. The wrist swelling also resolved after two months and repeated radiographs during the third and sixth month follow-up showed no evidence of recurrence or bony involvement.

RESULTS AND DISCUSSION

The whipworm trichiura trichiura is an important helminth infecting an estimated 1 billion humans (deSilva et al., 2003), mainly in the tropics and in children. Those with heavy infestation commonly present with gastrointestinal symptoms and signs of chronic infection such as anaemia and malnutrition while those with light infection may be asymptomatic. Diagnosis is usually straightforward – examination of stool for ova. However, in cases where there is limited egg production and shedding, stool samples can be negative. Often, at this point, other diagnoses will then be presumed such as in this patient, where she was thought to have inflammatory bowel disease. Colonoscopy was subsequently performed and the diagnosis was then ascertained. Trichuriasis diagnosed by colonoscopy is not new and have been used in the past in patients who have non-specific abdominal symptoms, albeit the need for it is uncommon (Wang et al., 2013).

When the right diagnosis is made, and the appropriate treatment is started, clinicians may overlook other problems affecting the patient. It is unusual for a person to have two different infections (trichuriasis and tuberculosis) with infection at two different sites (tuberculosis of the wrist and colon). For the clinician to suspect it, especially when our patient was not thought to be immuno compromised, he or she must have a high index of suspicion. In this case, the physicians in charge could have been blindsided by the parasitic infection if not for the recurrent wrist swelling experienced by this young girl. She was rightly referred to our unit for further management. In chronic soft tissue and bony infections not responding to conventional antibiotics, tuberculosis must be excluded especially in endemic countries. The diagnosis of tuberculosis may not be evident from history and examination and can be overlooked in the presence of other diseases, as in this case.

Tuberculosis is also known as one of the great imitators and its diagnosis sometimes elusive. Tuberculosis of the wrist is a rare form of extra-pulmonary tuberculosis and its diagnosis is usually not suspected at presentation. As such, a considerable lapse of time often ensues before the correct diagnosis is made and appropriate treatment started. Not uncommonly, the infection has progressed to a late stage before treatment is initiated. If left untreated, this can cause serious joint and tendon damage as well as surrounding soft tissue damage which can lead to, among others, wrist stiffness resulting in significant functional disability. This can be prevented by early diagnosis and intervention, be it chemotherapy or surgical debridement.

Figure 1. 400x magnification HPE showing egg of Trichuris trichiura

Figure 2. AP & Lateral view of Left Wrist

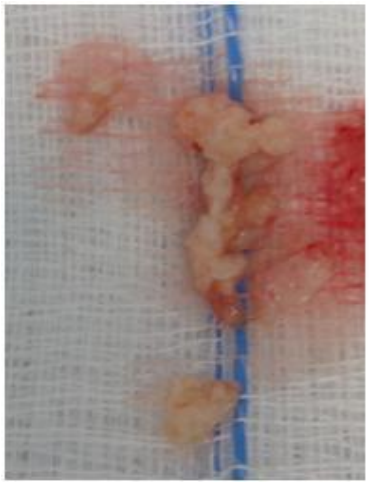

Figure 3. Intra-operative finding

In this patient, it is difficult to determine which infection preceded the other. Studies by Elias et al. (2007) and Mkhize-Kwitshana et al (2012) have shown that helminth infections do affect the immune system and may cause an immuno compromised state leading to co-infection with other diseases such as HIV and tuberculosis. We postulate that in this patient, she may have had undetected trichuriasis leading to a depressed immune system rendering her susceptible to tuberculosis. It is fortunate that the tuberculosis was diagnosed fairly early, and appropriate treatment carried out, before development of radiological evidence of joint destruction and functional impairment of the wrist.

CONCLUSION

A high index of suspicion for tuberculosis is needed in chronic soft tissue or bony infections which do not resolve with conventional antibiotics despite another pathology having been identified, especially if a helminth is involved.

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