Full Length Research Article

ARE WE DIAGNOSING TB SPINE CORRECTLY? - THE WAY FORWARD

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ABSTRACT

Almost half a million people fell ill with multidrug-resistant tuberculosis (MDR-TB) in this world,in 2012, yet less than one in 4 of these people was diagnosed, mainly due to a lack of access to quality diagnostic services.The results of treatment of tuberculosis are satisfactory if started early in the disease process.Early diagnosis is thus very important.Late start of treatment due to late diagnosis is a problem threatening the world today.The conventional teaching is to diagnose TB spine if the triad of constitutional symptoms ,raised ESR and spondylodiskitis on imaging is present.But other morbid conditions may mimic these features. A study of such non responders of TB Spine to standard ATT was done by further investigation to come the actual diagnosis.It was found that out of 21 such cases 15 were of anaplastic conditions, 3 of multidrug resistant tuberculosis and 3 of other miscellaneous causes. In such a scenario it becomes more so important to go for a biopsy and/or gene testing wherever feasible for the early correct diagnosis and thus the timely start of correct treatment.A review of the available literature on this subject was also done.

INTRODUCTION

As per the world health organisation Almost half a million people fell ill with multidrug-resistant tuberculosis (MDR-TB) in 2012, yet less than one in 4 of these people was diagnosed, mainly due to a lack of access to quality diagnostic services (World Health Organisation www.who.int, 2014) Conventionally we believe that, If osteoarticular tuberculosis is diagnosed and treated at an early stage, approximately 90% to 95% of patients would achieve healing with near normal function (Tuli, 2002). For the diagnosis we look at the triad of 1.constitutional symptoms, 2.a raised ESR and 3. Spondy lidiscitis features on an XRAY or a MRI. But, About 30% bony destuction should be present to be visible on Xray. The serology alone is not diagnostic of tuberculosis and an MRI shows a sensitivity of 100% but a specificity of 88% (Jain, 2010 and Jain *et al*., 2008). Are we getting too late with the diagnosis? MRC Trials on spinal tuberculosis and clinical practice over several decades have confirmed that in the regions where tuberculosis is prevalent, a clinical diagnosis supported by radiographs is adequate for starting the treatment. However, in early cases, patients with atypical presentation and for cases not responding to chemotherapy, a biopsy may be required (Shanmugasundaram, 2005). Aim- To underline the importance of early correct diagnosis of tb spine.

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MATERIALS AND METHODS

With the above understanding A retrospective study of the case records of 21 "*non responders*" was done. A *non responder* was defined as one who was diagnosed as a case of TB spine on the classical triad of diagnosis and has received atleast 1 month of AKT. After one month of AKT showed either no improvement or showed deterioration. A histopathological examination was done and the result was analysed. A review of available relevant literature was done.

RESULTS AND DISCUSSION

Out of the 21 such cases of non responders, 15 cases turned out to be anaplastic, 3 cases turned out to be cases of MDR tuberculosis and 3 cases were classified as others. Review of literature has shown that cases of myeloma, fungal infections and even insufficiency fractures of the spine have been erroneously been diagnosed as tuberculosis and started on AKT. There is no pathognomonic finding on MRI that reliably distinguishes tuberculosis from other spinal infections or from a possible neoplasm (Griffith, 2012). Differentiating spinal TB from pyogenic and fungal vertebral osteomyelitis as well as primary and metastatic spinal tumors may be difficult when only clinical and radiographic findings are considered. (Mohammad, 2012 and Nussbaum, 1995). There have been many technical Problems in distinguishing spinal tuberculosis from neoplasia on an MRI.

In the absence of an abscess or bone fragments, image-guided biopsy is essential to establish the diagnosis (Gupta *et al.,* 1996).

Correct diagnosis of different non responders on AKT

different non responders on AKT drug trial

- Anaplastic 15
- MDR 3
- Others 3
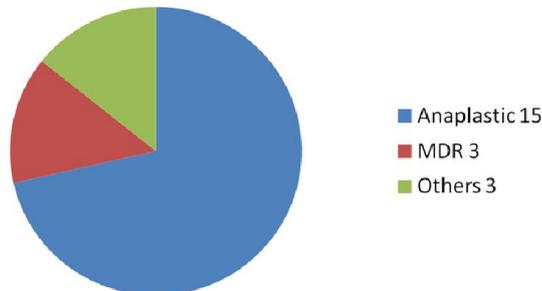
MDR TB and XDR TB
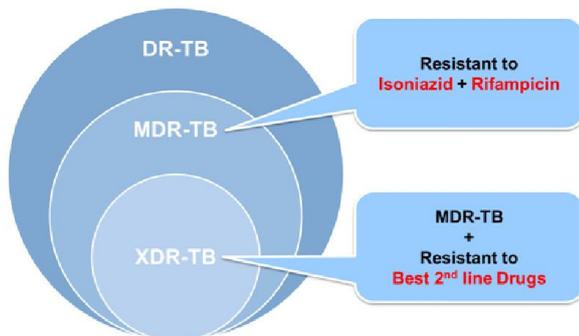
Considering these drawbacks, scoring systems in MRI findings have been devised to see their usefulness in the diagnosis of spinal tuberculosis. A novel eight point MRI criteria of the vertebral lesions are likely to enhance the diagnostic ability of tuberculous and non tuberculous pathologies thereby reducing the dependency on histopathologic diagnosis or invasive method for early initiation of therapy (Chandrasekhar, 2013). By the time radiological diagnosis is made, few months of pathogenesis of disease has already set in, hence, spinal deformity starts appearing. Obtaining a tissue requires an invasive procedure. The tissue obtained by percutaneous methods may not be sufficient for conclusive diagnosis.

The absolute need for histological diagnosis in areas where the disease is endemic and facilities for biopsy and histopathology are scarce is still controversial. (Jain, 2012) Compounding these problems is the emergence of MDR TB. The imaging appearance has become more complex with the onset of multidrug-resistant tuberculosis (Patkar, 2012) A study of twenty-five culture proven multidrug-resistant tuberculosis spine patients has asked the question "Multidrug-resistant tuberculosis of the spine--is it the beginning of the end?" and states that MDR TB of the spine is a different disease and is here to stay. (Pawar, 1976). The way forward seems to be the polymerase chain reaction (PCR) gene expert test. The GeneXpert test showed a sensitivity of 95.6% and specificity of 96.2% for spinal TB. this specificity is higher than an MRI. The results of the GeneXpert test were available within 48 hours compared with a median of 35 days (IQR: 15 to 43) for cultures. All cases of multi-drug resistant TB (MDR TB) were diagnosed accurately with the GeneXpert test (Held, 2014). In a review with respect to pulmonary tuberculosis, Xpert (Xpert MTB/RIF assay) used as an initial diagnostic test for TB detection and rifampicin resistance detection in patients suspected of having TB, MDR-TB, or HIV-associated TB is sensitive and specific (Steingart, 2013)

Conclusion

The way forward seems to be biopsy for the diagnosis of tuberculosis as we should not treat everything as TB. Literature also recommends the use of biopsy. It helps us to be medicolegally safe and it is a Safe, easy, reproducible procedure for diagnosis and has a high diagnostic yield. Rifampicin resistance discovered in 1976.1990s saw PCR smear and the 1990s saw XDR TB. In 2015, Is it time to move on to the PCR gene Xpert test with time?

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