DOI: 10.7860/JCDR/2017/26618.10531

Case Report

Internal Medicine Section

Mycobacterium fortuitum Infection at Umbilical Hernioplasty Site

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ABSTRACT

Non Tuberculous Mycobacteria (NTM) are a group of rapidly growing mycobacteria and are generally considered to be of low virulence. Of late, there has been an increase in incidence of infections due to these organisms. Among them, *Mycobacterium fortuitum, M. chelonae and M. abscessus* are the common species which have been identified. Though they are occasionally implicated in pulmonary infections, NTM are very commonly associated with cutaneous infections, especially surgical site infections. Identification of NTM infection at such sites should be suspected when there is delayed healing of the wound. Histopathological Examination (HPE) of the wound site may reveal a classical picture of granulomas, epithelioid cells and giant cells which may lead to a suspicion of tuberculosis. It is important to perform mycobacterial culture and sensitivity testing of the wound tissue as this helps to differentiate tuberculous and non tuberculous infections. Here, we present a case of a patient who underwent mesh hernioplasty for umbilical hernia and was diagnosed with *M. fortuitum* infection at the site of umbilical hernioplasty.

Keywords: Granuloma, Mycobacterial culture, Non-tuberculous mycobacteria

CASE REPORT

A 51-year-old male was referred to the chest Outpatient Department (OPD) from the surgical OPD with a history of purulent discharge from a wound over the abdomen for the past 15 days. He was referred in view of suspicion of tuberculosis based on the histopathology report of the excised specimen from the wound site which showed necrotising granulomas. He had been diagnosed to have umbilical hernia two months back for which hernia repair by mesh hernioplasty was done. The discharge was occurring from the mesh repair site and was of a watery nature with a yellowish colour and non blood stained. He had been on oral hypoglycemic agents for diabetes mellitus for the past six years and on anti-hypertensive medications for the past 13 years and both the diseases were well controlled. He was a non smoker and non alcoholic. There were no positive findings on general physical examination. Respiratory system examination was normal. Abdominal examination revealed purulent discharge from the surgical site of mesh hernioplasty from the umbilical area.

Haemogram showed haemoglobin of 13.2 gm/dL, total leucocyte count of 13,100/mm^3 with 52% neutrophils, 30% lymphocytes, 10% eosinophils and 8% monocytes. Erythrocyte sedimentation rate was 16 mm in the first hour. Routine urine analysis was normal. Serological testing for human immunodeficiency virus was negative. Electrocardiogram and chest roentgenograph were normal. Gram stain and aerobic culture of the pus sample from the wound site did not reveal any positive finding. Based on this, bacterial infections due to organisms such as *Staphylococcus aureus* and *Streptococcus* spp. were excluded. The HPE report of the excised specimen from the wound site revealed necrotising granulomas with few Langhans giant cells and epithelial cells, which was suspicious for tuberculosis. However, Ziehl-Neelsen (ZN) staining did not reveal any positive finding. After three weeks, pus from the wound site, which was sent for mycobacterial culture, grew NTM and the species was identified as *Mycobacterium fortuitum*. Middlebrook 7H9 medium was used for culture. Species level identification was done by GenoType Mycobacterium CM kit. Drug sensitivity testing showed sensitivity to azithromycin, ciprofloxacin and cotrimoxazole. Disc diffusion test was used to determine it.

Once the mycobacterial culture and drug sensitivity reports were available, the patient was administered a course of azithromycin, cotrimoxazole and ciprofloxacin for a period of six months. Mesh removal and anatomical hernia repair was done under general anesthesia, followed by an uneventful postoperative period. After six months of drug treatment, patient's wound completely healed. Patient has been on follow up for the past one year and is currently asymptomatic.

DISCUSSION

NTM are generally considered to be of low virulence [1]. However, the current trend shows an increase in infections due to these organisms. Since WHO does not track the NTM infections, it is difficult to get an accurate estimate of the incidence and prevalence in the current scenario [2].

NTM are occasionally implicated in pulmonary infections. They usually present with bronchiectasis in middle aged females who are otherwise healthy and with cavitatory lesions in males who are chronic smokers [3]. The more common incidence of NTM infections is noted with cutaneous sites, especially surgical site infections. Hernia repairs, laparoscopic surgeries and skin grafts are the procedures carrying a high risk of NTM infections.

M. fortuitum is a NTM, which is involved in various clinical syndromes, but is rarely implicated in pulmonary disease. It is one of the more frequently involved organisms in surgical site infections [4].

A strong clinical suspicion of NTM goes a long way in establishing the diagnosis. Chronic non healing wounds should alert the clinician of the possibility of NTM infection. A recently published case of surgical site infection by *M. fortuitum* from Puducherry, India documents a similar case in which ZN staining identified Acid Fast Bacilli (AFB) in the aspirate from the wound site. Culture of this sample yielded a diagnosis of NTM infection [5]. However, in our case, there were no AFB identifiable on ZN stain. Here, we would like to emphasize the point that ZN stain report may not always be positive in cases of NTM infection. In a study done in Guwahati, India on 25 patients with postoperative wound infections due to NTM, ZN stain was positive in only 10 patients, i.e., 40% of the patients [6]. Culture of the sample might grow NTM even if ZN stain is negative, as in our case. Hence, this underscores the utility of mycobacterial culture in such clinical setting. The importance of culture has to be emphasized here.

Tuberculous and NTM infections have a similar appearance of granulomatous inflammations on HPE [7]. Since in India, tuberculosis is a common cause for such histopathological appearance, it needs to be ruled out before starting any other disease specific treatment. Clinicians should be on the lookout for NTM infection, if the clinical scenario supports it. Starting of patient on empirical anti-tubercular treatment might not help in resolution of symptoms. Simultaneous evaluation of sample, for culture to look for NTM growth can fast-track the administration of relevant treatment in such cases.

CONCLUSION

NTM are currently being implicated in an increasing amount of infections worldwide. Though not frequently involved in pulmonary infections, *M. fortuitum* is a commonly involved pathogen in cutaneous infections. Presence of granulomas at the site of infection is a common feature of tuberculous and NTM species. Identification of NTM and hence differentiating it from tubercular infections is important, as the management of both these conditions is markedly different from one another, involving different drugs and durations. Hence, a misdiagnosis of tubercular infection in such a case of NTM infection can lead to wrong treatment being administered, thereby leading to delay in the recovery and resolution of the patient's symptoms.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Jan 07, 2017**
Date of Peer Review: **Feb 21, 2017**
Date of Acceptance: **May 30, 2017**
Date of Publishing: **Sep 01, 2017**