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# Atypical Mycobacterial Infection Following Laparoscopic Inguinal Hernia Repair: Experience in Five Cases

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***Abstract:*** *Five cases of atypical mycobacterial infection were encountered following laparoscopic inguinal hernia repair in our surgical unit from 2012 to 2015. Few weeks after surgery the patient presented with erithematous indurated swelling on working port with discharge of pus and sinus formation .CECT of abdomen showed abscess formation at the site of mesh and sinus extending extraperitoneally up to the working port without intraperitoneal connection. Pus culture was sterile with positive PCR for mycobacterium tuberculosis. The cases were clinically diagnosed to be atypical mycobacterial infection .Before opting to remove the implanted mesh to control infection by reoperation we attempted a conservative approach to control infection..We treated with local irrigation of sinus with gentamicyn and oral antibiotic combination of clarithromicyn and prulifloxacin for few weeks. With this management the sinus healed and infection was controlled. Reuse of tacker after chemical sterilization was thought to be the reason of contamination with atypical mycobacteria in these cases which is a preventable by using ethylene oxide sterilization.*

***Key words****: lap inguinal hernia repair, atypical mycobacterial infection, mesh salvation*

## I. Introduction

Atypical mycobacterial infection occurring in the wounds after laparoscopic surgery causes considerable morbidity to the patients and takes a longer time period to control infection.The organisms are rapidly progressing mycobacteria known to colonize in tape water, natural water, soil and dust and can easily contaminate solution, disinfectant and instrument used in operation theatre. Reuse of tacker after chemical sterilization may harbor the organism inside the sheath ones contaminated by atypical mycobacteria and that may infect the patient during lap hernia surgery. We have encountered five cases of atypical mycobacteria infection while doing laparoscopic inguinal hernia repair. The infection was reluctant to heal with antimicrobial treatment and dressing causing considerable morbidity to the patients. Though removal of the implanted mesh is ideal method of treatment in presence of infection as mesh acts as a foreign body .Our aim was to prevent a second operation to remove the mesh which were implanted transabdominaly which carries considerable morbidity and technically difficult in some times. Combination of second line of anti tubercular drug and clarithromicyn given orally along with local instillation of aminoglycoside in the sinus and cavity can control infection and obviates the need to remove implanted mesh by second operation.

## II. Materials and methods

We have encountered five cases of atypical mycobacterial infection after laparoscopic repair of inguinal hernia in our surgical unit since 2012 to 2015. Two of them were right sided hernia, three of them were left sided hernia .The infection was reluctant to heal with normal antimicrobial therapy. All the wounds were healed initially. But after few weeks three patients presented with erithematous, indurated painful nodular swelling below the left hand working port. In right sided hernia swelling presented in he right hand working port lateral to the rectus muscle. Swelling and indurations involved the whole thickness of the anterior abdominal wall. Antibiotic therapy failed to show improvement in terms of continuing discharge and indurations. Pus from the lesion was sterile. CECT whole abdomen showed abscess cavity in the abdominal wall extending to the preperitoneal space without violating peritoneal cavity.Pus was sent for PCR and found positive for mycobacterium tuberculosis.. A clinical diagnosis of atypical mycobacterial infection was made.

Though the ideal procedure is to remove the mesh in presence of infection as mesh is a foreign body , we decided to treat these patients in a conservative manners for some time so that if possible mesh can be preserved. Because removal of a mesh which is fixed trans abdominally in the preperitoneal space is very difficult procedure and carries high morbidity.

Our approach was to introduce an infant feeding tube in all those cases through the tract and to keep the tube in place for irrigation of the wound cavities and for local installation of drugs. Irrigation was done by hydrogen peroxide and betadine solution daily. After that gentamicyn injection was installed locally through the tube in the cavities. Oral clarithromicyn was started along with oral Prulifloxacin.

## III. Results

After three weeks of therapy amount of discharge from the wound reduced and indurations subsided .After four to six weeks wounds were healed in all five cases hence we were successful to control infection without removing the mesh. Oral Clarithromicyn and Prulifloxacin were continued for another 10 weeks to prevent relapse.

## IV. Discussion:

Atypical mycobacterial infection following laparoscopic inguinal hernia repair produces significant morbidity to the patient and also lots of constraint to the surgeon.

Inguinal hernia prosthetic repair cases infected by atypical mycobacteria differs from those caused by other bacteria in terms of pathogenesis, clinical manifestation and resistance to both prophylactic and therapeutic antibiotics.[1]

The clinical presentation is unique as it appears 3-4 weeks after surgery. In the first stage erythematous nodule appears in and around the port site with tenderness and mild to moderate pain and in the second stage discharge of pus which is sterile without significant systemic infection.[2]

Atypical mycobacteria species is widely distributed in soil, water, dust and comprises an uncommon heterogeneous non tubercular group of acid fast bacteria[3]. The organism has an affinity for dermis and subcutaneous tissue and protective factors within the peritoneum destroy the mycobacteria and prevent infection within the peritoneal cavity.[4] In our cases the abscess cavity and the sinus tract extended extraperitoneally without intraperitoneal extension which were seen in CECT scan of abdomen. Presence of acid fast bacilli on Ziehl Neelsen stain of the seropurulent discharge from the lesion followed by positive culture of atypical mycobacteria help to make diagnosis[5]. Usually the diagnosis is based on culture and PCR but other clinicopathological features could be helpful in suspecting atypical mycobacteria infection[7]. Though the only method to obtain microbiological evidence of atypical mycobacterial infection through tissue culture is from the wall of the cavity which is very difficult to obtain and takes as long as 3 weeks to isolate from culture which makes clinical diagnosis the best choice[2].

Aggressive surgical debridement with removal of the mesh and prolonged antimicrobial therapy has been reported for mesh associated atypical mycobacterial infection[6,7].

Before opting to remove the mesh our attempt to resolve infection by local irrigation of the cavity by gentamicyn daily along with oral clarithromicyn and prulifloxacin was successful in all five cases . By choosing the conservative approach initially it becomes possible to avoid next surgery to remove the infected mesh which carries very high morbidity to the patient.

Much controversy persists regarding proper line of treatment for atypical mycobacterial infection as the microorganism shows limited response to first line of antitubercular drugs hence preferring a combination of second line of antitubercular drugs[2]. Most of the antibiotics regimens are based on a combination of quinolones with various antibiotics and duration of treatment ranged from 6 weeks to 4 months[8].

Failure to properly disinfect or sterilize reusable medical equipment carries risk associated with breach of the host barrier[9]. We assumed that our cases might have acquired atypical mycobacterial infection at the time of operation from reuse of the tacker. As the tacker can not be dismantled so atypical mycobacteria might be harboring inside the lumen of the shaft of the tacker which was chemically sterilized before surgery. Change to ethylene oxide gas sterilization of laparoscopic instruments instead of chemical sterilization is a remady[10].

## V. Conclusion:

Conservative management with local aminoglycoside irrigation with prolonged second line of anti tubercular drugs may be successful in controlling atypical mycobacterial infection of mesh and obviate the morbidity of removal of implanted mesh in some cases. As the number of cases in our experience is very less so it is not wise to comment that all atypical mycobacteria infection occurring with laparoscopic mesh repair would respond to conservative management. Whenever a tacker is reused in more than one case should be sterilized by ethylene oxide and that is a better option than chemical sterilisation . Where ethylene oxide sterilization facility is not available in those circumstances tacker reuse may be a point of concern in preventing atypical mycobacterial infection.

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