

A case report of peritoneal dialysis-associated peritonitis caused by *Mycobacterium abscessus*

Dr Anup JHEETA¹, Dr David MAKANJUOLA¹, Dr Jayakeerthi RANGAIAH¹, Dr John CLARK¹, Dr Subash SOMALANKA¹

¹St. Helier Hospital, Surrey, United Kingdom

Introduction:- Peritoneal dialysis (PD)-associated peritonitis (PDaP) caused by the non-tuberculous mycobacterium species *Mycobacterium abscessus* is emerging as a severe infective complication of PD. *M. abscessus* can cause disseminated infection in immunocompromised individuals and is resistant to classical anti-tuberculous drugs as well as most antibiotics. Diagnosis of *M. abscessus* PDaP is often delayed, as it has a propensity to present as a culture-negative peritonitis and successful treatment presents a significant challenge. In the few reported cases abroad, the treatment usually required PD catheter (PDC) removal in addition to anti-microbial therapy (AMT). In the vast majority of instances, it resulted in a permanent switch to haemodialysis (HD).

Case:- A 50-year-old male, presented with fever, abdominal pain and cloudy PD fluid after returning from holiday abroad. He was systemically well with no signs of sepsis apart from a tender abdomen. The PDC exit site and tunnel appeared normal. The CRP was 80.7 mg/L (0-5 mg/L) and white cell count (WCC) was 6.0 x 10⁹/L. Empirical treatment for PDaP was commenced with intra-peritoneal Vancomycin and Gentamicin. Microscopy of the PF showed a WCC of 155/ μ L, but no organisms were seen on Gram staining. *M. abscessus* was later cultured and confirmed through whole-genome sequencing. Quadruple AMT was commenced with oral Clarithromycin and iv Amikacin, Tigecycline, and Imipenem with Cilastatin. An emergency PDC removal with a peritoneal washout was performed as he deteriorated clinically with worsening abdominal pain and haemodynamic instability. This resulted in a significant improvement in his symptoms, vital signs and inflammatory markers. He was switched to HDF. Clarithromycin was discontinued due to prolonged QTc interval on day 16. On day 26, he developed hepatic impairment that resolved following cessation of Tigecycline. Amikacin and Imipenem were continued for five months. Imipenem was later switched to oral Linezolid. Audiology assessments confirmed Amikacin-induced tinnitus in spite of close monitoring of levels. He completed 20 weeks of treatment and remained well. There is no evidence of recurrence of infection after 4 weeks of completion of treatment.

Discussion:- *M. abscessus* is an environmental mycobacterium that is found in water, soil and dust and is related to mycobacteria causing tuberculosis and leprosy. It is known to contaminate devices and medical products. In the immunocompromised, it can cause respiratory infections. Our patient had no such history. The duration between PDC insertion and this episode was two years, making this an unlikely cause of infection. The history did not reveal any reason for contracting this organism. The optimum treatment duration and selection of anti-microbial therapy in the management of *M. abscessus* related PD peritonitis is unclear, primarily due to the paucity of confirmed cases and variability of the treatment regimens. PDC removal and peritoneal washout remain the mainstay of treatment. Our case highlights *M. abscessus* as an emerging organism in PD peritonitis, of which treating physicians should be aware and is, to our knowledge, the first reported case from the United Kingdom.