

Parvimonas micra as a cause of Paraspinal Abscess in a Patient with Dental Caries



Kelly AM¹; Lanigan AM¹; Crawford R¹; O'Regan R^{1,2}; McNally C¹

¹ Department of Infectious Diseases Beaumont Hospital,

² Royal College of Surgeons in Ireland



Introduction:

Paraspinal abscesses are rare clinical emergencies associated with considerable morbidity and mortality. Risk factors include spinal trauma or surgery, intravenous drug use and epidural anaesthetic procedures. *Parvimonas micra* is a gram positive anaerobic organism and an innate coloniser of the oral cavity. *P. micra* is an inherently slow growing organism and frequently isolated in patients with dental caries and periodontitis and rarely causes severe infections. Despite being capable of infections outside of the oral cavity, there remains a paucity of documented cases of *Parvimonas micra* as a cause of paraspinal abscess and vertebral disease.

Case Presentation:

Mr JM is a 38 year old South East Asian male admitted to hospital with a three week history of progressive neck, left shoulder and arm pain with no significant past medical history. He reported gradual onset neck pain with radiation to the left shoulder, axilla and the ulnar aspect of his left arm to the 4th and 5th fingers. The pain was worse at night and was unabated by paracetamol and ibuprofen. Physical examination revealed weakness in abduction, adduction and digital extension of the 4th and 5th fingers of his left hand. He also had reduced left shoulder adduction but intact sensation and reflexes in all limbs. Vitals were stable but he was febrile to 38.4°C. Bloods demonstrated elevated CRP (366) and neutrophilia (8.4). Peripheral blood cultures failed to detect bacteraemia after 72 hours of growth.

MRI spine (Fig. 1) demonstrated a left sided infiltrative paraspinal process from C7 to T2 closely related to the left C8 nerve representing phlegmonous collection. CT neck confirmed an infiltrative mass in the left paravertebral soft tissue of C7-T1 with involvement of the left C7-T1 neural foramen. Patient was isolated with sputum samples retrieved for culture and sensitivity, TB culture, smear and PCR testing.

Differential Diagnosis:

Mycobacterium tuberculosis
Bulging disc with nerve root impingement
Paraspinal neoplasm
Nerve sheath sarcoma

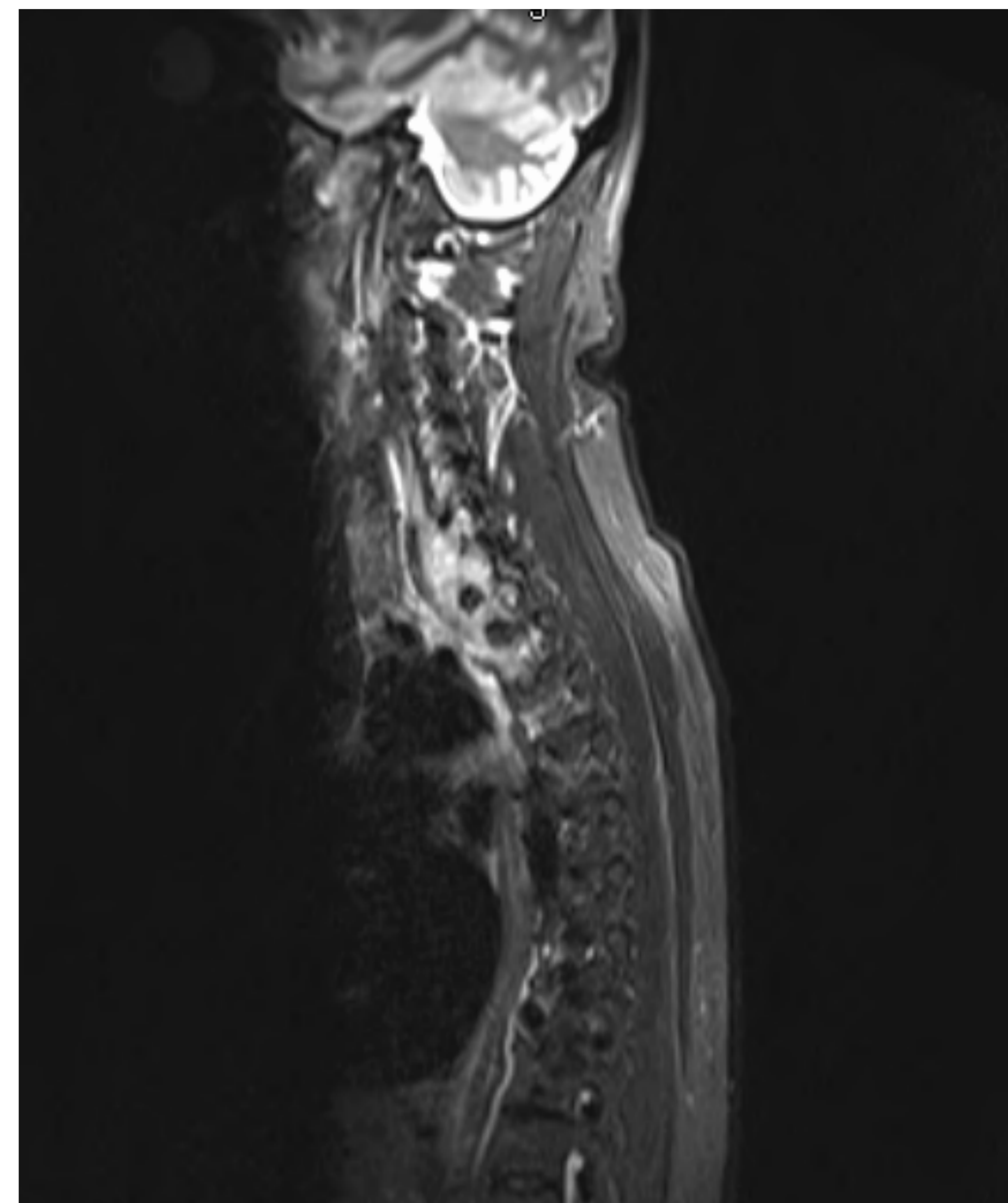
Revised History:

Patient reported 3kg unintentional weight loss. No personal history of *M.TB* or contacts and previously vaccinated with BCG. Reports ongoing "metallic taste" in mouth. Long standing history of dental infection and ongoing bleeding. Last attended dentist 6 years ago. Examination of the oral cavity revealed poor dentition with multiple dental caries and abscesses. Employed as catering assistant and lives with wife. Born in Philippines but no recent travel. 18 pack year smoking history. Never drinker or IVDU.

Investigations:

-Blood borne virus screen-HIV, Hep B & C: negative
-Quantiferon, GeneXpert and <i>Brucella</i> antibody: negative
- <i>T.pallidum</i> and urine STI screen: negative
-C3, C4 and Immunoglobulin counts: normal

Fig 1: MRI of cervical and thoracic spine:



Management:

IR guided drainage of abscess was deemed too high risk and patient taken to theatre to undergo an anterior cervical approach incision and drainage of the paraspinal collection. Patient had acute desaturation to 70% on induction of anaesthesia and hypotension requiring ICU admission with intubation and inotropic support. Subsequent CXR revealed decreased lung volumes, bilateral ground glass opacities, and trace bilateral effusions. *S.Pneumoniae* urinary antigen was positive thus confirming a multi-lobular Hospital Acquired Pneumonia.

Isolates from bone biopsy were positive for *Parvimonas micra* and *Fusobacterium nucleatum* both susceptible to metronidazole. Three separate sets of blood cultures were positive after five days incubation with *Parvimonas micra* identified on anaerobic culture. Patient initially treated with IV ceftriaxone and daptomycin and transitioned to IV meropenem and metronidazole. Patient was stepped down to ward level care after 5 days and continued to improve. He mobilised well with only mild back pain and no sensory loss or incontinence.

Patient received twelve days of IV antimicrobials with marked biochemical and clinical improvement. He was discharged home on OPAT with ceftriaxone and metronidazole and reviewed in clinic 6 weeks later. He reported no issues with resolution of back pain and complete restoration of left arm power and finger grip. Follow up imaging is arranged to assess degree of residual bone disease.

Conclusions:

- This case highlights the importance of considering *P. micra* as a potential causative organism in patients presenting with evidence of vertebral infection with known or suspected dental caries on clinical examination.
- In this case, three separate sets of blood cultures took up to 5 days to culture the causative pathogen. This demonstrates how *P. micra* may be underestimated as a causative organism in this patient subset owing to its inherently slow growth during the culturing period.
- Finally, it underscores how early recognition and prompt treatment of *P. micra* infection with appropriate antimicrobial cover can lead to favourable outcomes in this patient population.