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CASE REPORT

Mycobacterium Fortuitum causing Isolated Parotid Abscess in an Immunocompetent Adult Female: A Case Report and Review of Literature

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ABSTRACT

Introduction: We report a rare case of isolated parotid abscess due to *Mycobacterium fortuitum* in an immunocompetent adult female, which to the best of our knowledge (on internet search) is the first case of its type.

Methodology: Diagnosis was based on MTBDR CM assay (Hain's) culture, followed by a positive TBAg MPT64 culture for MOTT. The patient was treated with abscess drainage and antibiotics with good results. A parotidectomy was not required in our patient.

Conclusion: *Mycobacterium fortuitum* parotid abscess is very rare. A knowledge of the pathogenicity of this organism and careful culture methods seem to be the key of accurate diagnosis. Treatment protocols are still subject to research.

Keywords: MTBDR CM assay (Hain's) culture, *Mycobacterium fortuitum*, Parotid abscess, Parotitis, TBAg MPT64 culture.

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INTRODUCTION

Mycobacterium other than tuberculosis (MOTT) are diagnostic dilemmas due to the rarity of cases and lack of clinical suspicion. *Mycobacterium fortuitum* parotitis is even rarer and treatment protocols are yet to be formed. An internet search did not reveal any case of *M. fortuitum* solitary parotid abscess in an immunocompetent adult though several reports of *M. fortuitum* cervical lymphadenitis and parotitis in children exist. *Mycobacterium fortuitum* causes nosocomial infections following breast implants and endoscopic surgery. Classed as Runyon's group IV, it is a 'fast grower' and careful cultures are necessary for diagnosis. We report an interesting, rare case treated only with abscess drainage and antibiotics without recourse to parotidectomy.

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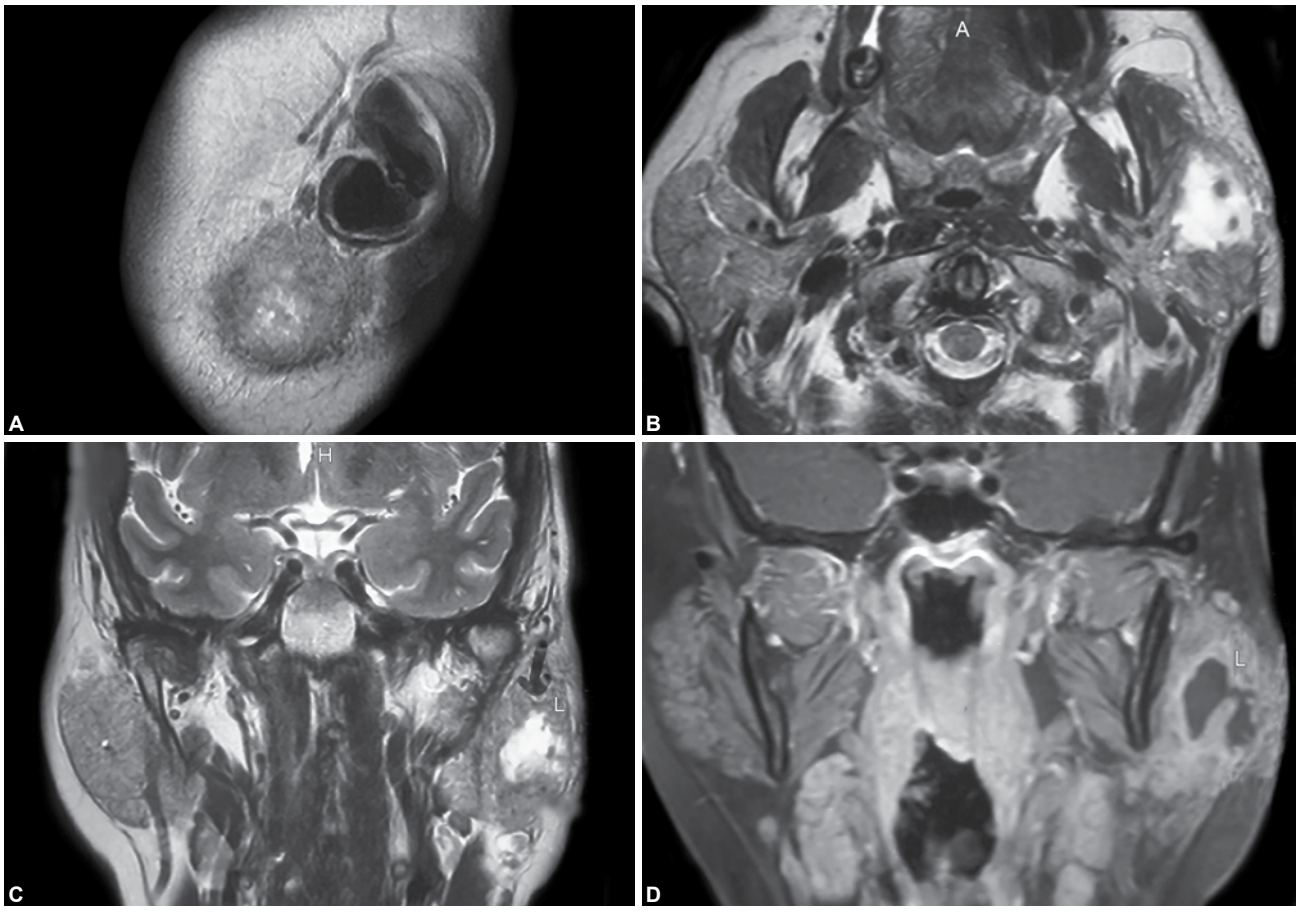
CASE REPORT

A 43-year-old female presented to us with a left-sided, fluctuant parotid swelling of about 10 days duration. There was an absence of systemic signs and the overlying skin was only minimally inflamed. Chest X-rays were normal. She was treated at another center as 'mumps'. Needle aspiration of the swelling revealed pus, which proved sterile on culture. Fine needle aspiration cytology (FNAC) was reported as an acute inflammatory lesion. Magnetic resonance imaging (MRI) showed a 2.0 × 2.2 cm sized cystic mass in the superficial lobe of the left parotid gland with image morphology compatible with intraparotid abscess (Figs 1A to D). The patient had no comorbid conditions or relevant medical or surgical history and was immunocompetent. The abscess was drained and pus culture by MTBDR CM assay (Hain's) grew MF. At 3 weeks, culture by TBAg MPT64 kit grew MOTT. Gamma interferon detection test was positive. Minimum inhibitory concentration (MIC) broth dilution showed susceptibility to cefoxitin, ciprofloxacin, amikacin, linezolid, moxifloxacin, tigecyclin and trimethoprim. Accordingly, she was treated with levofloxacin (500 mg) once a day and trimethoprim (800 mg) + sulfamoxole (160 mg) combination twice a day for 4 months and, needed no further surgical intervention. Patient is asymptomatic since last 1 year.

DISCUSSION

First isolated from the syringe abscess of a 25-year-old patient in Rio de Janeiro in 1938, *M. fortuitum* has since then been implicated in infections of various parts of the body. The first case of *M. fortuitum* parotitis was reported by Chen et al in 2007.[1] However, primary parotitis due to *M. fortuitum* remains rare. It may present as an acute inflammatory lesion or a chronic tumorous one, devoid of pain or tenderness though the overlying skin may be discolored.[2-5] Systemic manifestations like weight loss



Figs 1A to D: Magnetic resonance imaging showing a 2.0 × 2.2 cm sized cystic mass in the superficial lobe of the left parotid gland with image morphology compatible with intraparotid abscess

or fever are often absent and chest radiographs may be normal.[3]

Mycobacterium fortuitum is a nontuberculous, Gram-positive actinobacterium (genus *mycobacteria*) with a high quantity of guanine and cytocine.[6] It is opportunistic, of low virulence and inhabits soil and water. Runyon in 1959 classed it as group IV, 'rapid growing' mycobacterium. Nonpigmented colonies appear within 3 to 7 days of incubation at 37 or 25ºC on Lowenstein-Jensen medium.[7] It is an acid fast, immotile rod with occasional beaded, non acid fast ovoid bodies at one end. With a special ability to utilize L-glutamate, it shares an identical 5'-16S rDNA sequence with subspecies acetamidolyticum. The ITS sequences, however, vary.[6]

Mycobacterium fortuitum is a human skin commensal.[8] Contaminated tap water and endoscopes cause nosocomial infections of surgical wounds. Human to human spread is unsubstantiated.[9] *Mycobacterium fortuitum* infects various areas, e.g. eye,[10] joints,[11] urinary tract[12] and breast implants. However, neck abscesses due to *M. fortuitum* are rare[13,14] with children[1,15] and immunocompromised patients showing greater susceptibility.[8,16] *Mycobacterium fortuitum* parotitis in adults is rarer still, most cases being caused by *Mycobacterium avium*.[16,17]

Mycobacterium fortuitum parotitis is a diagnostic and therapeutic problem due to lack of clinical suspicion and often confused with bacterial parotitis and mumps.[16,18] If cultures are discarded before 48 hours, the diagnosis may be missed. Primary isolation of the organism takes 3 to 6 weeks.[19] Intradermal skin test using purified proteins for *Mycobacterium* may aid in diagnosis.[20] Ascending infection via the parotid duct may be the route of infection to the parotid with reduced salivary secretions adding to the infective process.[21]

The paucity of established treatment protocols for *M. fortuitum* parotitis bears testimony to the rarity of this disease. Antituberculous drugs are not very effective here.[22] Complete or partial parotidectomy with concomitant antibiotic therapy is advocated by various authors.[3,14,23,24] Others have claimed efficacy with clarithromycin, amikacin, cefotoxin, ciprofoxacin, imipenem, doxycycline and sulphonamides.[25,26] This is also borne out by the American Thoracic Society and Infectious Diseases Society of America (2007 guidelines). The duration of therapy remains somewhat in question with periods ranging from 4 to 9 months.

Our case was remarkable in that she had an isolated *M. fortuitum* parotid abscess. There were no associated

medical co-morbidities, relevant surgical history or immunocompromisation. The diagnosis was made on culture of the parotid pus. She responded completely to treatment by pus drainage and medical therapy with levofloxacin (500 mg) once per day and trimethoprim (800 mg) + sulfamoxole (160 mg) combination twice a day for 4 months. She did not need parotidectomy.

CONCLUSION

Though tuberculosis remains the dominant mycobacterial infection in developing countries, atypical mycobacteria are increasingly seen to infect almost every part of the body. *Mycobacterium fortuitum* causes mostly nosocomial infections but remains a rare cause of parotitis. Because of colony similarities with *M. fortuitum* and clinical overlap with other bacterial parotitis, is easily missed unless carefully sought. The patient may then receive unnecessary antituberculous drugs, inappropriate antibiotics or parotid excision. Meticulous cultures and antibiotic sensitivity tests are the basis of management. A combination of antibiotics depending on the culture report for a period of 4 to 9 months, along with minimal surgical intervention where required, seems a good treatment option. Further studies are warranted to arrive at a universal consensus for treatment.

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