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Case Report

Aseptic meningitis rare complication of mumps in an adult

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ABSTRACT

Mumps is endemic worldwide, with epidemics every 3-5 years in unvaccinated populations. After the introduction of the mumps vaccine in the national immunization schedule, the number of reported cases declined by >97% in 1989 until an outbreak of 6584 cases was reported in 2006 even in populations with high-level vaccination coverage and all the patients had a history of vaccination. Here we present a case of mumps with aseptic meningitis in a 42-year-old female. Although historically mumps was a disease of childhood, with most cases occurring in children 5-9 years of age, mumps now most frequently occur in older age groups. This shift in age distribution and the occurrence of mumps in the vaccinated population suggest a waning of vaccine immunity.

Keywords: Mumps, Aseptic meningitis, Waning of vaccine immunity

INTRODUCTION

While mumps viral infection is characterized by parotid swelling (31% to 65%), other clinical presentations such as aseptic meningitis (1% to 10%) and encephalitis (0.1%) are rare and such complications in adults are rare.[1] The median incubation period is 19 days, with a range of 15-25 days. Classical tender enlargement of parotid which is pathognomic of acute mumps infection [bilateral in 75%], follows a prodrome of pyrexia and headache. The CSF analysis reveals a lymphocytic pleocytosis or less commonly neutrophils. The diagnosis is usually clinical. In atypical presentation without parotitis, serology for mumps-specific IgM or IgG seroconversion (fourfold rise in IgG convalescent titer) confirms the diagnosis. The virus can also be cultured in urine, saliva, and or CSF.[2,3]

In the past few years, the re-emergence of viral mumps has been reported in different countries majorly affecting adolescents and young adults.[4] Despite the high vaccination coverage of vaccines, the outbreak continues to spread worldwide, Arkansas outbreak reported in 2016 involved a total of 4975 mumps cases which represented 78% of total cases in the USA.[5]

Here we present a case of aseptic meningitis in an adult a rare complication of mumps might be due to the waning of vaccine immunity.

CASE REPORT

42-year-old female was bought to a casualty with loss of consciousness since morning, patient attender gives a history of bilateral parotid swelling initially developed right side followed by a left side and fever for 10 days. The patient also has had anorexia, eye pain, and severe headache for 1 week. No other complaints with no significant past history and family history. Vaccination for mumps was done. Vitals are normal except for temperature was 101 F, and blood sugars are normal. On examination, bilateral parotid swelling was present. (Figure 1) The patient also had signs of meningeal irritation, neck stiffness was present and the Budzinski sign was positive, and the fundoscopy was normal.

Figure 1 Bilateral parotid swelling.

The complete blood count test was normal, and C-reactive protein, serum amylase, and aminotransferases were normal. An enzyme immunoassay (EIA) specific for serum Mumps IgM was 0.21 (positive >0.8) while the serum Mumps IgG antibody revealed fourfold raise of 92.7 (positive >11). On day 1 lumbar puncture was done for cerebrospinal fluid analysis (CSF) which revealed a total cell count of 2 cells/mm^3 (lymphocytes-100%), CSF for protein is 134 elevated (normal 20-50 mg/dl), glucose levels are normal, ADA is 22.6 U/l. Neuroimaging revealed no abnormality.

CSF fluid culture and PCR for tuberculosis were negative, and also HSV specific IgG antibody and PCR were negative. CSF for mumps PCR and EIA specific for mumps IgG were positive.

We made a final diagnosis of mumps complicated with meningitis. She was treated conservatively with intravenous acyclovir 500 mg TDS, intravenous dexamethasone 8 mg BD and intravenous ceftriaxine 1 gm BD. After treatment consciousness improved within 1 week. The patient made a complete recovery from bilateral parotitis in 2 weeks. Following this steroids were tapered and stopped and the patient was discharged.

DISCUSSION

During a mumps outbreak diagnosis can be made easily with parotitis and with a history of recent exposure, now when the disease incidence is low, other causes of parotitis should be ruled out. Mumps with aseptic meningoencephalitis in adults is a very rare presentation, most of the cases or outbreaks are seen around the age group 1-15 years.

A similar case of mumps with meningitis has been reported in Japan in 2017 where the patient presented with fever, vomiting, headache, fever, and chills but there was no parotid swelling and CSF for mumps RNA was positive.[1] Epidemiological studies have been able to determine the risk associated with vaccination, which is increased nine-fold in the past 13 years after the last dose of vaccination.[6] Viral mumps is majorly caused by the RNA virus comprising a lipid envelope that is transmitted on contact, with an incubation period of 15 to 24 days. In addition, neurological involvement can be seen such as sensory-neural hearing loss (4%), meningitis (10%), or encephalitis (1 in 400 to 6,000 cases), and rarely the prevalence of Guillain Barre syndrome.[7]

Patients diagnosed with mumps should be isolated for five days from the onset of symptoms to minimize the risk of infecting others. Most cases see a full recovery. About one in 1,000 people with mumps meningitis develop encephalitis, of whom 1.5% of cases are fatal.

The current case reports signify the importance of rare complications of aseptic meningitis and mumps in an adult patient due to the waning of the vaccine immunity. A similar case report was reported by Fica et al for viral mumps with aseptic meningitis in two middle-aged women including; a 34-year-old woman with hypothyroidism presented with aseptic meningitis and viral mumps and a 32-year-old woman with 33 weeks of pregnancy accompanied by fever, anorexia, and malaise.[8] The prevalence of parotitis was also reported by Takeshima et.al, in 8 cases of viral mumps out of 13 meningitis patients, with one case of the waning of vaccination and similar clinical symptoms as the current study.[7] The waning of vaccination is one of the major risk factors for the development of viral mumps which was also reported by Jorquera et al in an older infant diagnosed with aseptic meningitis and viral mumps after 3 weeks of receiving the MMR vaccination.[9]

Such rare cases reflect the importance of waning vaccination for viral mumps and propose a need for future research and studies to evaluate the factors responsible for waning and to develop preventative methods for such outbreaks.

CONCLUSION

Here we present case of aseptic meningitis rare complication of mumps in an adult, probably due to

waning vaccine immunity. However, optimal dosing and vaccination timing have not been established, thus outbreaks still occur among children as well as young adults in Western countries. Further studies are required on vaccine doses and possible factors causing waning and avoiding those to prevent outbreaks.

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