



Mumps in the era of vaccines

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Since November 1998 41 possible cases of mumps have been identified in Montreal, 17 of which have been confirmed by serological testing (Dr. John Carsley, Head, Infectious Disease Unit, Montreal Regional Public Health Department: personal communication, 1999). The cases have occurred in 14 schools across the island, mostly among children of recently immigrated families. These children would not have been vaccinated in their countries of origin, since the World Health Organization vaccine schedule does not include vaccination for mumps.

Classic mumps presents with bilateral or (less commonly) unilateral parotitis about 16 to 18 days after exposure.¹ The swelling and tenderness, which usually peak in 1 to 3 days, may push the ear lobe upward and outward and obscure the angle of the mandible. Edema over the sternum and upper chest may also occur.² Patients may experience symptoms of a viral illness, including fever, headache, malaise, myalgia (especially in the neck) and anorexia.^{1,2} However, 15% to 20% of cases are asymptomatic, and over 50% are associated with primarily respiratory symptoms.¹ Rarely, a maculopapular rash is seen, mostly on the trunk.²

Although mumps is usually mild and self-limited, complications can occur. Orchitis affects up to 38% of postpubertal men with mumps,¹ and although sterility is rare, impairment of fertility is estimated to occur in about 13% of these cases.² There is no evidence to suggest that oophoritis, which develops infrequently in women with mumps, has any effect on fertility.² Although 4% to 6% of patients experience mild aseptic meningitis, a far more severe sequela is mumps meningoencephalitis.¹ It occurs in about 250 of every 100 000 cases, is associated with a mortality rate of about 2% and can cause permanent damage, including paralysis, seizures, cranial nerve palsies, aqueductal stenosis and hydrocephalus.² Before vaccines became available, mumps was an important cause of sensorineural deafness in children.¹ Pancreatitis occurs rarely. Although mumps in pregnant women does not produce congenital malformations, infection during the first trimester increases the risk of fetal death.²

The RNA paramyxovirus that causes mumps is transmitted through the saliva, either by direct contact or

droplet spread.³ Transmission can occur as much as 24 hours before the onset of parotitis or up to 3 days after it has subsided. Infection confers lifelong immunity.²

In Canada and the US, where the mumps vaccine has been recommended for routine use since the late 1970s, the incidence of mumps has decreased significantly.^{1,4} In the US, 906 cases were reported in 1995, representing a 99% decrease from the 185 691 cases reported in 1968.¹ In Canada, about 470 cases on average are reported annually.⁴ However, the recent outbreak in Montreal serves as a reminder that, even in highly vaccinated populations, sporadic outbreaks of mumps and other vaccine-preventable diseases do occur.

During an epidemic, mumps can develop in people whose vaccinations are up to date (Dr. John Carsley: personal communication, 1999). The efficacy of mumps vaccine has been estimated at 95% in controlled trials, although estimates from field studies are slightly lower, ranging from 75% to 95%.¹ In the postvaccine era, outbreaks have tended to involve young adults, who become infected at postsecondary institutions, in the workplace and in recreational settings.^{1,5,6} A 1997 outbreak in Vancouver was linked to exposure at "rave" parties.⁶ Some studies suggest that primary vaccine failure and lack of immunization have been more important factors than waning immunity.^{6,7} In many countries, 2 doses of measles-mumps-rubella (MMR) vaccine are administered in an attempt to improve coverage.¹

Now that the incidence of mumps is low, parotid swelling may be due to other causes.⁸ Rarely, other viral infections, including those caused by Epstein-Barr, coxsackie, influenza A, parainfluenza and lymphocytic choriomeningitis viruses, can produce a similar clinical picture.^{2,3,8} Mumps should also be distinguished from suppurative parotitis due to bacterial infection, preauricular or anterior cervical lymphadenitis, tumours of the parotid, lymphoma and other conditions.^{2,8} During an outbreak, of course, the likelihood that parotid swelling is due to mumps increases.

To help prevent mumps and other vaccine-preventable diseases, family physicians should remember that it is never too late for vaccination. Children should receive 2 doses of the MMR vaccine: one at 12 months of age and



the second at 18 months before they start school (Dr. John Carsley: personal communication, 1999). Physicians should ensure that all patients in whom MMR vaccine is not contraindicated — children, adolescents and adults born after 1957 — have been appropriately vaccinated.^{1,4} Even today, mumps orchitis should be considered when patients present with scrotal swelling.⁹ Suspected cases of mumps should be reported to the public health authorities for serologic confirmation so that appropriate preventive strategies can be implemented.^{1,4}

Dr. Caplan is CMAJ's Editorial Fellow.

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