

Letter to the editor: There is a need to consider all respiratory viruses in suspected mumps cases

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Citation style for this article:

Shepherd SJ, MacLean AR, Aitken C, Gunson RN. Letter to the editor: There is a need to consider all respiratory viruses in suspected mumps cases. *Euro Surveill.* 2015;20(33):pii=21210. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=21210>

Article submitted on 13 August 2015 / published on 20 August 2015

To the editor: The recent paper by Thompson et al. [1] highlighted the detection of influenza A (H3N2) virus in oral fluids from children with a clinical diagnosis of mumps. They concluded that influenza A(H3N2) virus should be considered as part of the differential diagnosis for mumps-like illness, particularly during influenza outbreaks caused by drifted strains. We report here similar findings in our Scottish cohort of patients during the 2014–15 winter season.

Between October 2014 and April 2015, the West of Scotland Specialist Virology Centre in Glasgow received 610 respiratory samples, submitted specifically for mumps virus testing. Mumps outbreaks were known to be occurring within our sample catchment area during that time [2]. The samples submitted consisted of throat swabs (n = 319), buccal/mouth swabs (n=143), gargle samples (n = 132), saliva (n = 11), unspecified swabs (n = 4) and nasopharyngeal aspirate (n = 1). Of these 610 samples, 250 (41%) were real-time PCR positive for mumps [3]. The small hydrophobic gene of the mumps virus was sequenced from samples from 19 positive cases and all were genotype G, a prominent genotype in Europe [4].

We re-tested a random subset (n = 137) of the mumps-negative samples for influenza A virus, influenza B virus, parainfluenza 1 to 4 viruses, human metapneumovirus, rhinovirus, adenovirus, coronaviruses (229E, NL63, OC43), respiratory syncytial virus (RSV) and mycoplasma by an in-house real-time PCR [5].

The clinical details for the patients from whom the 137 analysed samples were obtained were as follows: 102 (74%) were described as having clinical mumps or parotitis, 26 (19%) had enlarged glands and swollen face/neck, while the remaining nine had symptoms including an erythematous rash (n=1), orchitis (n = 1), pyrexia (n = 1) and sore throat (n = 3) or were defined by the requesting clinician as a contact of a known mumps case (n = 3). The median age for the group tested was 23 years (range: 4 months to 80 years). Vaccination history was unavailable for all patients tested.

Overall, 29 (21%) of the 137 samples tested were positive for respiratory viruses. A total of 10 samples (7%) were positive for influenza A virus. Nine were subtyped as A(H3N2) one was subtyped as A(H1N1). Eight of the nine A(H3N2) viruses were sequenced: five were found to be subclade 3C.2a (A/Hong Kong/3579/2014) and the remaining three were clade 3C.3 (A/Victoria/208/2009). The five patients with 3C.2a viruses and two of the patients with 3C.3 had symptoms described as parotitis or clinical mumps by the requesting clinician. The other patient with a 3C.3 virus was a contact of a mumps case for whom no clinical details were available. It should be noted that we were unable to sequence one A(H3N2) virus (from a patient with a clinical diagnosis of mumps) and the A(H1N1) virus (from a patient whose symptoms were parotid swelling) due to low viral load. Two samples were positive for influenza B virus (one patient had enlarged glands and the other had a sore throat) and were found to be B/Yamagata lineage by real-time PCR [6].

Six patients were positive for parainfluenza 3 and all were reported to have had symptoms of parotitis or mumps. Six of eight coronavirus-positive patients also reported symptoms of parotitis or gland swelling. We detected coronavirus 229E (n = 3), NL63 (n = 1) and OC43 (n = 1); the remaining patient had a mixed infection of NL63 and RSV. Another patient with coronavirus 229E had query mumps and one with pyrexia was found to have NL63 infection. One of two patients positive for rhinovirus had parotitis while the other had testicular swelling. One patient was found to have adenovirus: the clinical presentation was described as enlarged glands.

Our work confirms the findings of Thompson et al., showing that A(H3N2) 3C.2a (A/Hong Kong/3579/2014) virus may be found in patients with mumps-like illness. We also highlight that other influenza and non-influenza viruses may also be found in patients with this clinical presentation. This suggests that laboratories and clinicians should consider testing patients who present with mumps-like illness for mumps virus and

other respiratory pathogens, as relying on clinical diagnosis alone may lead to skewed data for public health teams and surveillance.

Conflict of interest

None declared.

Authors' contributions

The study idea was conceived by RNG and CA. Work was performed by SJS and ARM. The letter was written by SJS, ARM and RNG

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