Case report

Unilateral total loss of auditory and vestibular function as a complication of mumps vaccination

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Abstract

A case of a young girl manifesting sudden unilateral total loss of auditory and vestibular function following administration of a mumps vaccine is reported. This is supposed to be caused by adverse reaction of the vaccination. © 1998 Elsevier Science Ireland Ltd. All rights reserved.

Keywords: Mumps; Vaccination; Unilateral deafness; Unilateral loss of vestibular function

1. Introduction

Vaccination has prevented common viral infections worldwide. However, mumps vaccination has been very rarely reported to unilateral deafness. We report a young girl manifesting sudden unilateral total loss of auditory and vestibular function following administration of a mumps vaccine.

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2. Case report

2.1. Chief complaint

Sudden hearing loss of the right ear after mumps vaccination.

2.2. Present illness

A 3-year-old girl was administered a mumps vaccine on 21 February 1995. On 10 March, 21 days after the vaccination, swelling of the right parotid gland without fever was noted. Described in her own words, ‘my right ear cried for help’. The swelling subsided 2 days later. Because she tended to turn her head to present the left side of her face to sound sources to be able to listen more clearly, her mother brought her to our institute for a hearing check.

2.3. Family history

No consanguineous marriage in the pedigree and hearing loss. She is the second child of healthy parents. Her parents and elder brother have no hearing problems.

2.4. Past history

At birth, normal delivery after 39 weeks of gestation, birth weight was 3262 g and height was 51 cm. Any particular accidents did not occur in pregnancy and perinatal period. She has been medically checked at the age of 4 months, 1 year and 6 months and 3 years in the local health center. This periodical check of child health is routinely scheduled by law.

2.5. Laboratory findings

Pure tone audiometry revealed total deafness in the right ear but normal hearing in the left ear (Fig. 1). Auditory brainstem response demonstrated no response in the right ear and normal response in the left ear. Moreover, in an ice water irrigation caloric test, no vestibular nystagmus response was detected in the right ear but was detected normal vestibular nystagmus in the left ear. A fundoscopic examination revealed no abnormality in both eyes. Temporal bone computed tomography showed no abnormality of middle and inner ear in both sides. The vaccine administered was a OK3-6 dry live vaccine which was produced at Kitasato Research Institute in Japan [1]. In a serological test, patient’s anti-mumps antibody titre was determined by ELISA to be 8X (the standard value is 2.0). Otherwise, she was normal.
Fig. 1. The pure tone audiogram of the patient demonstrated total deafness in the right ear and normal hearing in the left ear.

3. Comment

The incidence of adverse reactions of non bacterial meningitis to vaccination with OK3-6 is reported to be 1/1200 but no cases of hearing loss following vaccination with OK3-6 have been reported in Japan. However, in the literature regarding complications of mumps vaccination, very few cases of unilateral deafness following mumps vaccination with vaccines other than OK3-6 have been reported [2–4]. Therefore, as in this case it is very important to consider the complications of mumps vaccination because live mumps vaccination can cause unilateral parotitis, and labyrinthitis and result in the unilateral loss of auditory and vestibular functions.

References