Case report

Peripheral facial paralysis in a child with Crimean-Congo hemorrhagic fever

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O S T E R N  G A L S

Crimean-Congo hemorrhagic fever (CCHF) is a tick-borne zoonotic disease caused by the Nairovirus of the Bunyaviridae family. The virus is transmitted to humans via a bite from the ixodid ticks or by direct contact with blood or tissues of infected humans or viremic livestock. CCHF is a severe disease in humans, with a high mortality rate (2.8–20%) [1,2]. In humans, ticks infest both hairy and non-hairy parts of the body and have also been found in the ear canal [3,4]. Insects and arachnid foreign bodies in the external auditory canal can make patients feel great distress as a result of otalgia, tinnitus, and hearing loss [5].

Unilateral acute peripheral facial paralysis is a frequent, benign, neurologic disorder, which has a population incidence of 20–25/100,000, and its etiology remains unknown and many factors are thought to be responsible [6]. We present the case of a 10-year-old boy with a tick found in the external auditory canal who was treated for CCHF. He was also diagnosed as having unilateral peripheral facial paralysis on the 5th day of hospitalization.

1. Case report

A 10-year-old boy who lives in a northeastern Anatolian city was admitted to the local emergency service during the second week of June with a 1-day history of fever, frontal headache, fatigue, nausea, vomiting, malaise, arthralgia and myalgia and he was then referred to our emergency department. He was the son of a farmer in a rural area. We made the diagnosis of CCHF and hospitalised him for further study and began treating him with oral ribavirin and ceftriaxone along with additional supportive medical therapy. Real-time PCR confirmed our diagnosis. We asked for a consult with the otorhinolaryngology clinic on the fifth day of his hospitalisation when we noticed his facial asymmetry. His left eye was partially closes (Fig. 1a), his mouth was asymmetric (Fig. 1b), and he was lisp ing though we described him as grade IV based on the House-Brackman classification. Otherwise, his neurologic examination was normal. We found a tick occluding the external auditory canal during the otological examination. The right tympanic membrane was perforated at the postero-inferior quadrant.

2. Discussion

Many different species of insects and arachnids may present as foreign bodies in the external auditory canal. Ticks are found relatively rarely in the external auditory canal [7]. Ticks are the second-most important vectors, after mosquitoes, of viral, bacterial, and protozoal diseases, such as rickettsiosis, borreliosis, babesiosis, ehrlichiosis, tularemia and Crimean-Congo haemor-
rhagic fever in humans all over the world [8,9]. CCHF epidemics have been reported in Central Asia, Africa, and Eastern Europe [10–14]. CCHF is an acute, infectious illness that can cause multi-organ failure and death. CCHF is a haemorrhagic syndrome presenting with fever, nausea, vomiting, myalgia, and bleeding from various sites. Leucopenia, thrombocytopenia, high levels of alanine aminotransferase, aspartate aminotransferase and lactate dehydrogenase are commonly detected [15,16]. A tick bite may cause isolated facial nerve paralysis by infestation of the ear canal. A very small number of cases of isolated facial nerve paralysis by tick infestation were reported in the literature [17–19]. Some theories were posited for the pathogenesis. Toxin, secreted from the salivary glands of the arthropode, may reach the facial nerve via perforation of the tympanic membrane and natural desiccation of the Fallopian canal [4]. This toxin is found to interfere with the liberation or synthesis of acetylcholine at the motor end plate of muscle fibre [20]. In cases that the tympanic membrane is intact, direct extension of the inflammatory process to the fallopian canal is via persistent desiccation or direct invasion of the infectious organisms into the facial canal through the middle ear which results in edema of the inflamed nerve within the canal [19]. Using computerized tomography, we found perforation of the tympanic membrane but no dehiscence of the Fallopian canal. We think the toxin reached the facial nerve via the perforation of the middle ear and affected the facial nerve via a dehiscence of an unknown origin. In conclusion, a tick bite might cause peripheral facial paralysis in the endemic regions of CCHF so a careful otologic examination should be performed in addition to the routine examination.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.pedex.2010.08.009.

References


Fig. 1. (a and b) Pretreatment facial examination.

Fig. 2. Otoendoscopic view: the perforation at the postero-inferior quadrant of right tympanic membrane.