A 15-MONTH-OLD girl developed a right facial nerve palsy (Figure 1) while receiving oral treatment with amoxicillin for a sore throat and bilateral otitis media of one week’s duration. On physical examination, bilateral otomastoiditis, perforation of the left tympanic membrane, and right-sided cervical lymphadenopathy were found. Bilateral mastoidectomy/antrotomy was performed: on gross inspection, the mucosa appeared dark red, swollen, and polypoid. The diagnostic histological findings of the biopsy specimens are shown in Figure 2 and Figure 3. Oral steroids were given for 5 days, and amoxicillin–clavulanic acid was administered intravenously for 14 days. At follow-up 4 months later there was complete recovery including resolution of the nerve deficit.

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Diagnosis and Discussion

**Epstein-Barr Virus Otomastoiditis Associated With Peripheral Facial Nerve Palsy**

Upper respiratory tract viral infection is one of the most common illnesses in both children and adults. The upper respiratory tract epithelium is also the portal of entry for Epstein-Barr virus (EBV), where it is replicated. The clinical correlate of systemic EBV infection, infectious mononucleosis, is a common disorder in both children and adolescents. Although the middle ear communicates with the oropharyngeal cavity, there is only one report presenting morphological findings suggestive of EBV-associated otitis media with facial nerve palsy. Central nervous system complications in EBV infection, on the other hand, are well known but their morphological correlates are ill defined. The pathogenesis of EBV-associated neurological complications is unknown, and their morphological correlates are ill defined.

Unlike the neurotropic human herpesviruses (HHV) types 1, 2 and 3, EBV (HHV-4) is lymphotropic, resulting in a self-limiting lymphoproliferative reaction in the immunocompetent host. The specific binding site of the virion envelope glycoprotein is found on the C3d component of the complement system, and displayed on nearly all B cells. Since the diagnosis of acute EBV infection mainly relies on clinical and serological findings, biopsy is not commonly performed unless the presentation is atypical. Histologically, the immune response in tonsils and lymph nodes is characterized by proliferation and blastic transformation of lymphocytes in the paracortex, which may result in partial effacement of the normal nodal hioarchitecture, thus simulating malignant lymphoma. In EBV-associated lymphadenopathy, however, atypical lymphoid cells are found in clusters: they lack the cytological uniformity usually found in high-grade malignant lymphomas, and there are other cells interspersed including Marschalko-type plasma cells. In the present case, a similar infiltrate outside the lymphoreticular organs is seen in the biopsy specimen taken from the mastoid mucosa (Figure 2). Immunohistochemistry for light chain immunoglobulins confirmed a polyclonal B cell population.

In the present biopsy specimen, amplification by polymerase chain reaction for bacterial genomic DNA was negative. However, the majority of blastic-transformed lymphocytes and a minor fraction of small lymphocytes were reactive for the latent membrane protein of EBV (EBV-LMP), and in situ hybridization reflected the presence of EBV-mRNA in the majority of lymphocytes (Figure 3). To our knowledge, this is the first case to disclose the intrallesional presence of the putative pathogenic infectious agent by in situ hybridization for EBV-encoded RNA in lymphoplasmacytic otomastoiditis.

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REFERENCES


The Editor is seeking submissions for a new feature, Clinical Problem Solving, which will combine Picture of the Month, Radiological Case of the Month, and Pathological Case of the Month. Our aim is to demonstrate the thinking process of a master clinician involved in approaching a patient with an unknown disease. The discussion of such cases should place the clinician's expertise into the context of the prevailing medical literature on the topic. Manuscripts should be between 3000 and 4000 words and may include photographs and radiographs.

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