BRIEF REPORT

Acute Parotitis Due to Dengue Virus

Acute bilateral parotitis is a common clinical feature of various infectious and autoimmune, metabolic, and drug-related conditions. We describe a unique case of bilateral inflammatory enlargement of the parotid glands in an immunocompetent patient with dengue fever. Evidence of dengue virus in the saliva is also provided for the first time.

A 55-year-old, previously healthy, white man presented after experiencing malaise, hyporexia, frontal headache, retro-orbital pain, and fever for 3 days. He also complained of generalized arthralgias, myalgias, and severe low backache. Bilateral symmetric preauricular swelling, which lifted the earlobe forward and obscured the mandible angle, but which was not associated with salivary hypofunction, was noticeable. The area was soft and was slightly tender on palpation. A faint macular rash covered most of the patient’s trunk and face. Small, isolated, noninflammatory lymphadenopathies were palpable in the neck, armpits, and groin.

Laboratory results showed a relative lymphocytosis of 44% (absolute lymphocyte count, 1488 cells/mm³) and thrombocytopenia (platelet count, 65,000 cells/mm³). Serum levels of amylase were normal. On ultrasonography, the parotid glands appeared to be diffusely enlarged with no evidence of focal involvement. On the following day, the patient remained febrile, the lymphocyte count increased to 60% (3120 cells/mm³), and the platelet count dropped to 55,000 cells/mm³. Multiple tender retroauricular adenomegalies developed. The results of serological tests for Epstein-Barr virus, cytomegalovirus, and Toxoplasma gondii were negative. The patient had experienced mumps during early infancy. Serum titers of complement-fixing antibodies to mumps virus, obtained from pair samples collected 14 days apart, remained stable at a 1:4 dilution. The results of serological testing for Coxsackie viruses, lymphocytic choriomeningitis, parainfluenza type 3, and influenza A virus were negative.

Results of a rapid immunochromatographic test for dengue virus antibodies (PanBio Dengue, Windsor, Australia) showed seroconversion for both IgM and IgG after a 10-day period. RNA was extracted, with the use of Trizol (Life Technologies, Gaithersburg, MD), from 200 mL of plasma and 200 mL of saliva on day 4. Dengue virus RNA was detected in both of these samples and in the supernatant of C6/36 mosquito cells inoculated with either plasma or saliva, by means of a reverse transcriptase–PCR (RT-PCR) using universal primers for dengue virus in the 3’ non-coding region (figure 1) [1]. The infecting virus was identified as serotype 1 by means of a nested RT-PCR typing assay [2]. The patient’s recovery was uneventful, and swelling of the parotid glands gradually subsided after 5 days.

Acute infections that involve the parotid glands and that are more likely to be confused with mumps because of their sudden onset and associated fever include Coxsackie viruses, influenza A viruses, and parainfluenza type 3 [3–5]. Metabolic disorders and the use of such drugs as phenylbutazone, thioruracil, iodides, and phenothiazines may also occasionally be associated with bilateral enlargement of the parotid glands, but they were all ruled out in the patient.

As seen in this case report, RT-PCR is highly sensitive and specific for the early diagnosis of dengue infection when antibodies are still low [1]. As few as 4 plaque-forming units per 100 mL of serum of dengue virus can be detected [1]. To our knowledge, dengue virus RNA has not been previously found in the saliva of patients. Nevertheless, the existence of either whole virions or viral genome in such fluid is not surprising, since both lymphocytes and macrophages may be normally present in saliva, and since microscopic hemorrhages of the gums are customary in many patients who have complicated or uncomplicated dengue fever. Dengue fever must be included in the differential diagnosis of acute parotitis. The potential clinical and diagnostic implications of detection of dengue virus in saliva during acute infection deserve further evaluation.

After completing this study, we became aware of a recent additional case of acute bilateral parotitis in a young adult

Correspondence: Dr. Jaime R. Torres, Instituto de Medicina Tropical, Apartado 47019, Caracas 1041-A, Venezuela (torresj@camelot.rect.ucv.ve).

Clinical Infectious Diseases 2000;31:28–9
© 2000 by the Infectious Diseases Society of America. All rights reserved.
1058-4838/2000/3105-00E3$03.00

Figure 1. Detection of dengue virus RNA in the patient’s serum and saliva samples by means of both reverse transcriptase–PCR (RT-PCR) using 3’-noncoding region primers (lanes 2–4) and a nested RT-PCR serotyping assay (lanes 5–12). Samples included serum (lanes 2 and 6), saliva (lanes 3 and 5), and supernatant of C6/36 mosquito cells inoculated with either plasma or saliva (lanes 7 and 8). The following amplified control viruses are shown: dengue 1 (lanes 4 and 9), dengue 2 (lane 10), dengue 3 (lane 11), and dengue 4 (lane 12). Molecular weight markers are shown in lane 1. DNA sizes of the expected PCR products obtained by use of each method are provided (in base pairs).
man with otherwise uncomplicated dengue fever (R. Istúriz, personal communication). Diagnosis was confirmed by means of specific IgM seroconversion. Clinical manifestations and evolution were similar to those described in the present case report. No attempts were made to isolate or document the presence of dengue virus in the patient’s blood or saliva.

Jaime R. Torres,1 Ferdinando Liprandi,2 and Ana P. Goncalvez2
1Instituto de Medicina Tropical, Universidad Central de Venezuela, Caracas, Venezuela; and 2Instituto Venezolano de Investigaciones Científicas, Altos de Pipe, Venezuela

References