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Epidemic keratoconjunctivitis (EKC) is one of the most common eye infections occurring in various healthcare settings and in the community. Typically, EKC outbreaks last weeks to months and are characterized by a combination of healthcare-associated and community transmission. Conjunctivitis caused by Adenoviruses may manifest as pharyngoconjunctival fever (serotypes 3 and 7), EKC (serotypes 4, 8, 9, 19a and 37) or acute haemorrhagic conjunctivitis (serotypes 7, 11, 21 and 35). Though the diseases are self-limiting, they cause a very significant amount of morbidity in preventing people attending work and spread rapidly to the susceptible populations resulting in outbreaks and epidemics in a given geographical area. Symptoms usually appear within 14 days after exposure and commonly include a gritty feeling in the eyes, watery discharge, photophobia and redness. Corneal involvement, including keratitis and subepithelial infiltrates, often develops in patients within days and can persist for months, affecting visual acuity. Transmission is predominately through contact with infected eye secretions via contaminated surfaces, instruments, eye drops or hands.

Outbreak of epidemic conjunctivitis is encountered every year in Chennai, India, during the rainy season, i.e. during the months of August–November. The outpatient clinic of Sankara Nethralaya at Chennai, India, is generally filled with patients diagnosed to have acute conjunctivitis during this period. Our earlier investigations and research work during some of these epidemics identified Adenovirus serotype 4 in the year 1991 and serotype 3 in 1992–1993. The identification on the causative agent—Adenovirus—was possible by application of virus isolation using tissue culture facility. Furthermore, the Adenovirus could be identified as Adenovirus serotype 3 by using anti-adenoviral serum types 1, 2, 3, 4, 5, 6, 7a and 14 (NIAID Antisera, ATCC, Rockville, MD, USA). Later in the year 1996, viruses from clinical specimens were isolated in HEP-2 cell line, and PCR-RFLP technique confirmed them to be Adenovirus serotype 7a. Based on the publication, a commercial kit for detection of Adenovirus was developed and is commercially available in the market as a rapid diagnostic test for detection of Adenovirus (Figure 1). The epidemic of the year 1998 continued to December and January 1999 and was due to Coxsackie A24 virus. A variant of “HAdV” was isolated during the epidemic of acute keratoconjunctivitis in 2010 based on phylogenetic analysis that was responsible for the epidemic which commenced in August, reached its peak in September, and declined slowly in October. Recently, HAdV type 2 was isolated from patients (Figures 2, 3, 4) attending outpatient...
department during October 2014 by PCR-based DNA sequencing. Thus, PCR-based DNA sequencing was found to be an appropriate diagnostic tool for rapid detection of HAdV genotypes and variants.

References


