· Case report ·

Adenoviral conjunctivo-corneal epithelitis: an unusual clinical presentation of epidemic keratoconjunctivitis study

Sudesh Kumar Arya [1], *Badri Prasad Badhu* [2], *Ritu Amatya* [2], *V G Ramachandran* [2], *Poonam Lavaju* [2]

[1]Department of Ophthalmology, Government Medical College and Hospital, Chandigarh, India
[2]Department of Ophthalmology, B. P. Koirala Institute of Health Sciences, Dharan, Nepal

Correspondence to: Sudesh Kumar Arya. Department of Ophthalmology, Government Medical College and Hospital, Chandigarh, India. aryasudesh@yahoo.co.in

Received:2009-06-11 Accepted:2009-08-03

Abstarct

• Adenoviral keratoconjunctivitis is caused by adenovirus serotypes 8, 19, 37. Typical signs of adenoviral conjunctivitis include preauricular lymphadenopathy, conjunctival hyperemia, chemosis, subconjunctival hemorrhage and follicular conjunctival reaction. Corneal involvement in adenoviral keratoconjunctivitis is variable. Most patients have a diffuse, fine, superficial keratitis with focal, elevated, punctate epithelial lesions which become subepithelial opacities later. We had a 35 years old male who had unusual clinical presentation of adenoviral conjunctivitis in the form of conjunctivo-corneal epithelitis which has not been described in the literature. Patient was managed successfully by conserva-tive treatment alone. Conjunctivo-corneal epithelitis can be unusual clinical presentation of adenoviral kerato-conjunctivitis.

• KEYWORDS: conjunctivitis; epidemic keratoconjunctivit-is; adenoviral keratoconjunctivitis; conjunctivo-corneal epithelitis
DOI:10.3969/j.issn.1672-5123.2009.08.004

Arya SK, Badhu BP, Amatya R, Ramachandran VG, Lavaju P. Adenoviral conjunctivo-corneal epithelitis: an unusual clinical presentation of epidemic keratoconjunctivitis study. *Int J Ophthalmol (Guoji Yanke Zazhi)* 2009;9(8):1444-1447

INTRODUCTION

Acute conjunctivitis is not uncommon in the developing countries like Nepal. Epidemic keartoconjunctivitis (EKC) is the most common cause of viral conjunctivitis. Typical signs of adenoviral conjunctivitis include preauricular lymphadenopathy, conjunctival hyperemia, chemosis, subconjunctival hemorrhage and follicular conjunctival reaction. Corneal involvement in adenoviral keratoconjunctivitis is variable. Most patients have a diffuse, fine, superficial keratitis with focal, elevated, punctate epithelial lesions which become subepithelial opacities later. We had a 35 years old male who had unusual clinical presentation of adenoviral conjunctivitis in the form of conjunctivo-corneal epithelitis which has not been described in the literature. Patient was managed successfully by conservative treatment alone.

CASE REPORT

Thirty-five years old male presented with history of redness, watering and discharge in right eye (RE) of 3 days duration and in left eye (LE) of 2 days duration. There was no history of trauma, foreign body or some liquid falling into the eyes, use of any topical or systemic medications recently. He had history of upper respiratory catarrh one week prior to this illness. There was no history of any other systemic illness. There was no history suggestive of diabetes mellitus or hypertension. General physical and systemic examination including cardiovascular, respiratory, abdomen and ENT was normal. Ocular examination revealed best corrected visual acuity of 6/12 in RE and 6/9 in LE. There was marked blepharospasm with yellowish discharge and diffuse congestion of conjunctiva in both the eyes. There were follicles in the inferior palpebral conjunctiva with pseudomembrane formation in both the eyes (Figure 1). RE cornea showed central 7mm × 8mm epithelial defect without any corneal infiltrates. Cornea was transparent with minimal oedema around the margin of epithelial defect. LE showed 4mm × 5mm epithelial defect with wrinkled surrounding corneal epithelium without any corneal infiltrates. Epithelial defect was staining with 20g/L sodium fluorescein impregnated strips in both eyes (Figure 2A,2B). There was no anterior chamber reaction. Rests of the anterior and posterior segment were normal in both the eyes. Intraocular pressure was normal in both the eyes on digital tonometry. On the basis of history and clinical examination, it seemed bilateral viral conjunctivitis with very unusual clinical presentation having bilateral corneal epithelial defects and wrinkled corneal epithelium. Conjunctival discharge and peeled off pseudo-membrane from both the eyes were sent for microbiological evaluation. Gram stain of conjunctival pseudomembrane showed conjunctival epithelial cells without any bacteria or fungal hyphae (Figure 3A). Giemsa stain of conjunctival pseudomembrane showing conjunctival epithelial cells with intranuclear basophilic inclusion bodies (Figure 3B). On the basis of clinical examination and smear report, diagnosis of bilateral adenoviral conjunctivo-corneal epithelitis was made. We started prophylactic 3g/L ofloxacin eye drops

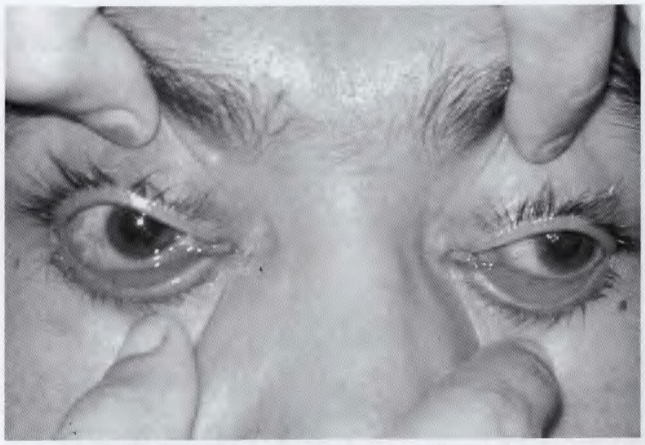

Figure 1 Clinical photograph showing marked conjunctival congestion with pseudomembrane formation in both the eyes

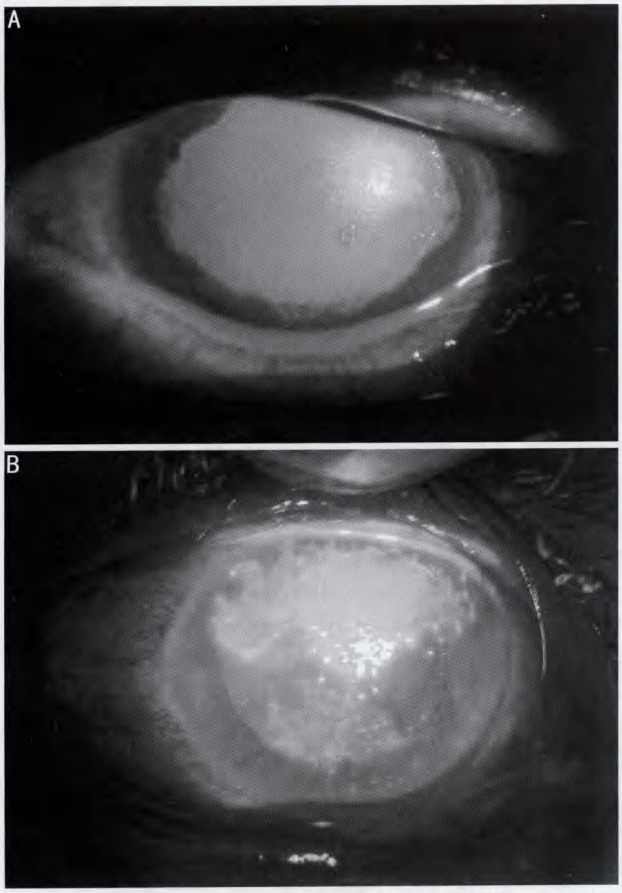

Figure 2 Clinical photograph of RE and LE A: Large corneal epithelial defect staining with 20g/L Sodium fluorescein (RE); B: Large corneal epithelial defect staining with 20g/L Sodium fluorescein with wrinkled corneal epithelial surface (LE)

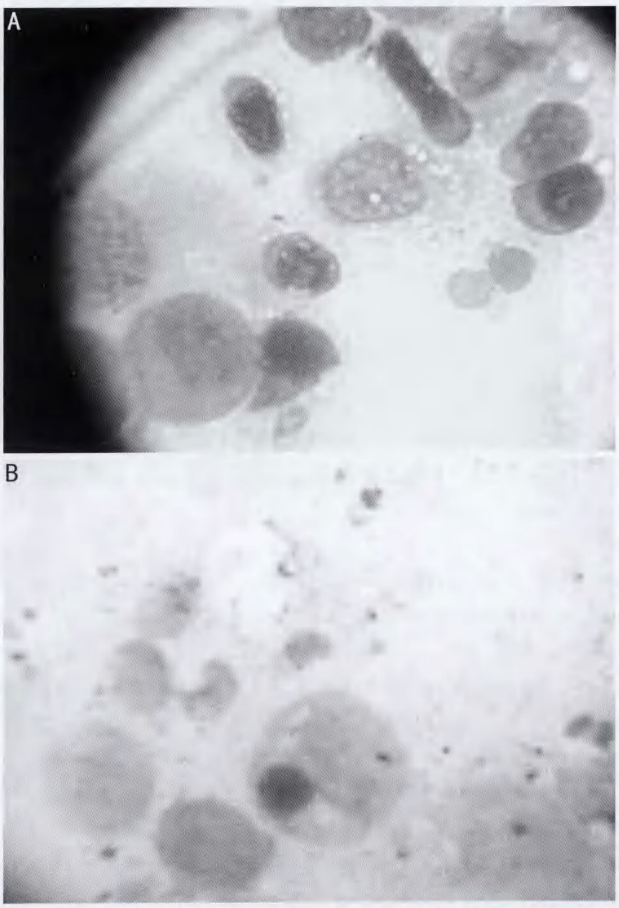

Figure 3 Conjunctival pseudomembrane showing conjunctival epithelial cells A: Without any bacteria or fungal hyphae. B: With intranuclear basophilic inclusion bodies. (Oil immersion Gram stain × 100)

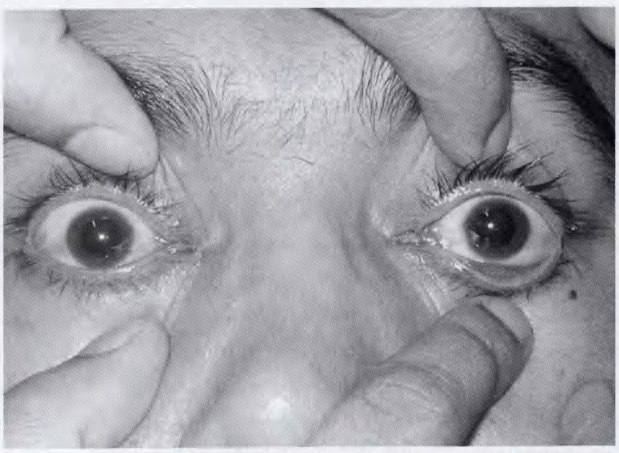

Figure 4 Clinical photograph showing decreased conjunctival congestion in both eyes after one week

q. i. d along with ciprofloxacin eye ointment at night. Due to large epithelial defects along with discharge, patching was advised during night time only. After 2 days, discharge markedly decreased but the epithelial defect was almost same. After 3rd day onwards, ciprofloxacin eye ointment with whole day patching was done in both eyes. After 5 days, the epithelial defect completely healed without leaving any residual corneal scar with minimal conjunctival congestion (Figure 4). Fluorescein staining was negative in both eyes (Figure 5A, 5B). Patient was continued on 3g/L ofloxacin eye drops bid and lubricating eye drops qid. Within 2 weeks, there was no conjunctival congestion with normal cornea without any residual subepithelial or stromal scarring with unaided visual acuity of 6/6 in both the eyes.

DISCUSSION

Adenoviral conjunctivitis is the most common cause of viral conjunctivitis[1]. Particular subtypes of adenoviral conjunctivitis include EKC and pharyngoconjunctival fever[2]. EKC is usually

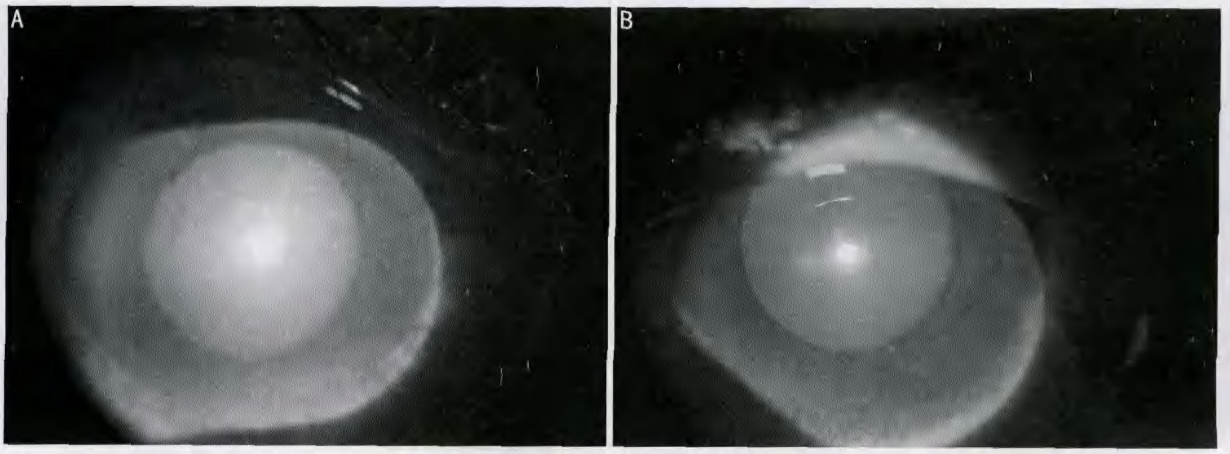

Figure 5 Clinical photograph of healed epithelial defect without staining with 20g/L Sodium fluorescein after one week A:RE; B:LE

produced by adenovirus serotypes 8,19,37. It is more severe than pharyngoconjunctival fever and lasts for 7-21 days. Transmission occurs through contact with infected upper respiratory droplets, fomites, and contaminated swimming pools. Viral conjunctivitis can affect all age groups, depending on the specific viral etiology. Usually, adenovirus affects patients aged 20-40 years[3]. Patients with adenoviral conjunctivitis may give a history of recent exposure to an individual with red eye at home, school, or work, or they may have a history of recent symptoms of an upper respiratory tract infection. The eye infection may be unilateral or bilateral. Patients may complain of ocular itching, foreign body sensation, tearing, redness, and photophobia. Typical signs of adenoviral conjunctivitis include preauricular lymphadenopathy, epiphora, hyperemia, chemosis, subconjunctival hemorrhage[4], follicular conjunctival reaction[2]. Our patient had all the signs except preauricular lymphadenopathy. Pseudomembranous or membranes leading to cicatricial conjunctival reaction occur in approximately in one third of cases[2] and are more common with severe infections like in our case. Histologically these conjunctival membranes consist of fibrin and leucocytes with occasional fibroblast infiltration. Corneal involvement in adenoviral keratoconjunctivitis is variable. Most patients have a diffuse, fine, superficial keratitis within the first week of the disease. Focal, elevated, punctate epithelial lesions that stain with fluorescein develop by day 6 to 13, producing a foreign body sensation. By day 14, subepithelial opacities develop under the focal epithelial lesions in 20%-50% of cases. Often, these opacities may be visually disabling and may persist for months to years, but eventually they resolve without scarring or vascularization[5]. In our case, there were no such subepithelial infiltrates or any scarring later. The cornea may demonstrate a punctate epitheliopathy[6] like in our case. But wrinkling of corneal epithelium and formation of large corneal epithelial defect seen in our case has not been reported in the literature. It typically began in one eye and progressed to the fellow eye within 48 hours. This wrinkling of corneal epithelium with formation of epithelial defect could be due to severe infection by EKC or some new strain of EKC due to mutations. Yet we could not confirm this by virology due to lack of facilities in our Institution. Treatment of EKC usually consists of amelioration of symptoms with prevention of infection to others. Patients may be infectious for up to 14 days after onset[7]. Topical vasoconstrictors and antihistamines may be used for severe itching but generally are not indicated because they are minimally helpful and may cause rebounding of symptoms, as well as local toxicity and hypersensitivity. Topical steroids may be used for pseudomembranes or when subepithelial infiltrates impair vision, although subepithelial infiltrates may recur after discontinuing the steroids. However, in cases of adenoviral infection, the stromal abnormalities may persist for months to years, long after the epithelial changes have resolved. In such cases, these subepithelial infiltrates are considered to be immunologic in origin, the result of antigen-antibody reaction. If they are in the pupillary axis, they may cause decreased vision and/or glare. Most cases of viral conjunctivitis are acute, benign, and self-limited. The infection usually resolves spontaneously within 2-4 weeks. We gave only prophylactic antibiotic (Ofloxacin 3g/L) eye drops four times a day with patching of both eyes due to large epithelial defect. Conjunctivitis and corneal epithelial defect improved within 1 week. Cidofovir, an antiviral agent, has been shown to prevent formation of corneal opacities but its use has been limited by local toxicity[8].

REFERENCES

1 Smolin G, Thoft RA. Viral keratitis and conjunctivitis. In: Cornea: Scientific Foundations and Clinical Practice 2005:359-364

2 Krashmer JH, Mannis MJ, Holland E. Conjunctivitis: an overview and classification, viral conjunctivitis. *Cornea* 2005;601-612,629-634

3 Sutphin JE. Viral infections. In: Section 8. AAO Basic and Clinical Science Course 2006:157-160

4 Thygeson P, Kimura SJ. Chronic conjunctivitis. *Trans Am Acad Ophthalmol Otolaryngol* 1963;67:494-517

5 Dawson CR, Hanna L, Wood TR, Despain R. Adenovirus type 8 in the United States. III. Epidemiologic, clinical and microbiological features. *Am J Ophthalmol* 1970;69(3): 473-480

6 Leibowitz HM, Waring GO. Superficial punctate keratopathy. In: Clinical Disorders: Clinical Diagnosis and Management 1998:445-447

7 Hogan MJ, Crawford JW. Epidemic keratoconjunctivitis with a review

of literature and a report of 125 cases. *Am J Ophthalmol* 1942;25:1059-1078

8 Hillenkamp J, Reinhard T, Ross RS, Böhringer D, Cartsburg O, Roggendorf M, De Clercq E, Godehardt E, Sundmacher R. The effects of cidofovir 1% with and without cyclosporine A 1% as a topical treatment of acute adenoviral keratoconjunctivitis. *Ophthalmology* 2002;109(5):845-850

临床表现罕见的流行性角结膜炎1例:腺病毒角结膜上皮炎

Sudesh Kumar Arya[1], Badri Prasad Badhu[2], Ritu Amatya[2], V G Ramachandran[2], Poonam Lavaju[2]

(作者单位:[1]印度昌迪加尔政府医学院及医院眼科;[2]尼泊尔达朗柯伊拉腊BP健康科学研究所眼科)

通讯作者:Sudesh Kumar Arya. aryasudesh@ yahoo. co. in

摘要

腺病毒角结膜炎,由腺病毒血清型8,19,37引起。腺病毒结膜炎典型的体征包括耳前淋巴结病变,结膜充血水肿,结膜下出血,结膜滤泡。腺病毒角结膜炎角膜受累情况各不相同,多数患者有弥散的轻微的浅层角膜炎,局部隆起的点状上皮损害,随后形成上皮下混浊。我们报道一例罕见的腺病毒角结膜上皮炎,为临床表现特殊的流行性角结膜炎(EKC),并回顾相关特殊病例文献。患者,男,35岁,患腺病毒结膜炎,临床表现罕见,表现为角结膜上皮炎形式,这种病例文献未见报道。经过保守治疗患者痊愈。角结膜上皮炎可以是临床表现特殊的腺病毒角结膜炎。

关键词:结膜炎;流行性角结膜炎;腺病毒角结膜炎;角结膜上皮炎

2010 World Congress in Berlin

The next World Ophthalmology Congress will be June 5-9, 2010, in Berlin, hosted by the German Ophthalmological Society (DOG) and co-hosted by the German Academy of Ophthalmology (AAD). 2010 WOC President Gerhard Lang, MD, reported to the International Council of Ophthalmology (ICO) in Hong Kong on plans for the Congress, which will incorporate XXXII World Ophthalmology Congress, the 108th Congress of the DOG and AAD 2010.

2008 WOC Scientific Program Director Stephen Ryan, MD, will work with Professor Gabriele Lang, MD, on the scientific program for Berlin, with Congress General Secretary Anselm Kampik, MD, organizing the program for the AAD. The 2010 WOC will also offer subspecialty days and instruction courses.

The main social event will be a Bavarian-style Octoberfest, to be called the WOCtoberfest. For more information, see **www. woc2010. de.**

The World Ophthalmology Congress was previously held in Germany in Heidelberg in 1888 and Munich in 1966.

(quote from **www. icoph. org/congress/index. html#berlin**)