A Rare Case of Bilateral Membranous Conjunctivitis in a Young Healthy Woman

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Abstracts

Conjunctivitis is an extremely common. It is the most frequent ocular disorder encountered in ophthalmic clinics with viral conjunctivitis accounting for roughly 62% of all such cases. Membranous conjunctivitis is a type of conjunctivitis characterized by the formation of a grey-white layer of tissue consisting of fibroblasts, blood vessels, fibrin and inflammatory cells. It may be caused by a variety of noxious influences, the most common ones are due to micro-organisms like diphtheria and streptococci or chemical irritants (acids or alkalies). Rarely, there is a viral etiology.

Key Words: *Bilateral Membranous, Conjunctivitis, Healthy Women*

Case Report

A 19-year-old healthy female presented with redness and swelling of both eyelids together with profuse watery discharge of 1 month duration and fever for the past 7 days. She had been immunized for Diphtheria. Her eyelids were swollen, with severe conjunctival chemosis. A greyish–white membrane was present over the palpebral and bulbar conjunctiva of both eyes, which bled on peeling (fig .1). Patient also had bilateral multiple punctate keratitis (fig.2). There was preauricular suppurative lymphadenopathy. Systemic examination was non contributory. Patient gave history of similar complaints in her acquaintance who shared the same room in the hostel. She was clinically diagnosed a case of bilateral membranous conjunctivitis.

The membrane from both eyelids were peeled and was sent for Gram stain, Albert's stain and culture for diphtheria organisms as well as for virus culture. Staphylococcus aureus was isolated from both membranes (fig. 3 & 4). Patient was treated with intravenous ceftriaxone 1g/day for 5 days and topical moxifloxacin eye drop 0.5% 6 times/day. Patient was symptomatically better on sixth day with reduction in eyelid swelling and decrease in conjunctival chemosis. The membrane in the left eye resolved earlier than that of the right eye. Corneal punctuate infiltrates also resolved gradually over a period of 7 days. The clinical and laboratory findings of her roommate were similar to the findings described above.

Fig. 1

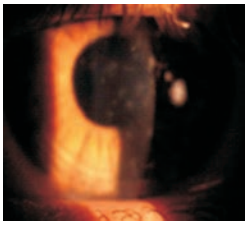

Fig. 2

Fig. 3

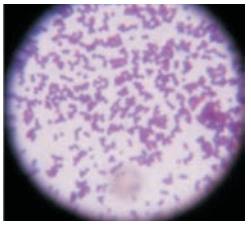

Fig. 4

Discussion

Membranous conjunctivitis is a type of conjunctivitis characterized by the formation on the conjunctiva of a grey-white layer of tissue consisting of fibroblasts, blood vessels, fibrin and inflammatory cells.[1] Fibroblasts and

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blood vessels from the conjunctival substantia propia provide a scaffold for a highly vascularized inflammatory membrane containing granulation tissue, which bleeds markedly if stripped from the underlying conjunctva. The prototype of membranous conjunctivitis is the conjunctivitis caused by Corynebacterium diphtheriae. Other causes include Streptococcus pneumoniae, Streptococcus pyogenes, Adenovirus, Neisseria gonorrhoeae and inclusion conjunctivitis of the newborn.[2,3] In most cases of chronic membranous conjunctivitis the etiologic agent is not apparent, but a small percentage of them result from a streptococcal infection.[4]

A true membrane forms when the fibrinous excretory or inflammatory exudate that is secreted by invading microorganisms or ocular tissues permeates the superficial layers of the conjunctival epithelium. True membranes become interdigitated with the vascularity of the conjunctival epithelium. They are firmly adherent, and tearing and bleeding often result when removed. Beta-hemolytic streptococci, Neisseria gonorrhoeae, Corynebacterium diphtheriae, Stevens-Johnson syndrome (severe systemic vesiculobullous eruptions affecting the mucous membranes-erythema multiforme) and chemical or thermal burns are among the common etiologic sources.[2-4]

Adenoviruses are extremely contagious and may spread by direct or indirect contact with ocular or upper respiratory tract secretions.[5] Public spaces, in particular eye clinics, are a major source of spread. Even pools and hot bath tubs have been shown to be sources for virus transmission.[6] The disease usually has an incubation period between 2 days to 2 weeks, during which it is probably not contagious (studies suggest viral particles are not detectable in the conjunctiva prior to symptom onset).[5] Following symptom onset, the condition is often contagious for 2 weeks or longer.[5]

The reservoir for infection is humans, and it is transmitted through direct contact with eye secretions of an infected person or indirectly via contact with contaminated surfaces, instruments or solutions.[4] Infection causes unilateral or bilateral inflammation of conjunctivae, and oedema of the eyelids and periorbital tissue. Symptoms include redness, pain, watery ocular discharge, photophobia, foreign-body sensation, blurred vision and occasionally low-grade fever, headache, malaise and lymphadenopathy.[2-4] Sub-epithelial corneal infiltrates can develop and may persist for up to 2 years and can result in permanent scarring.[4,5] The period of communicability is from day of onset of symptoms to 12 days following.[7] Outbreaks caused by several adenovirus types have been associated with a variety of eye-care institutions in several countries.[2,5,7-9]

Most cases of adenoviral conjunctivitis are benign. Generally, three patterns of disease are seen with adenoviral conjunctivitis, although differentiating patterns in a clinical setting is often irrelevant. These include:

1) Epidemic keratoconjunctivitis: Epidemic keratoconjunctivitis (EKC) is especially contagious and most frequently caused by serotypes 8, 19 and 37 (other possible serotypes being 2-5, 7, 10, 11, 21, 22, 29, and 342). It typically involves the cornea to some degree along with conjunctivitis, and often occurs in epidemics, especially in crowded living conditions (e.g. schools, military bases, ophthalmic practices).
2) Pharyngoconjunctival fever: Pharyngoconjunctival fever is a common pattern of adenoviral conjunctivitis seen that is characterized by a mild follicular reaction on the inferior tarsal conjunctiva in association with a systemic viral syndrome. It most commonly affects children and is caused by serotypes 3 and 7.[2]
3) Nonspecific follicular conjunctivitis: may be caused by multiple serotypes including 1-11, 15-17, 19, 20, and 22.[2]

The most probable etiological factor for the membranous conjunctivitis in this patient is viral because it was bilateral, there was corneal involvement and there was pre-auricular lymphadenopathy. The fact that one of her acquaintance also had similar complaint further goes in favor of viral infection, which is not so common among other causes of membranous conjunctivitis.

It is quite rare for a young healthy female to develop bilateral membranous conjunctivitis with corneal involvement superadded by staphylococcal infection, which makes this case quite rare.

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