

Fungal Normal Flora of Conjunctiva in Healthy Individuals in Babol, Northern Iran

Dear Editor,

Fungal keratoconjunctivitis is relatively common in the north of Iran due to the wet climate and agricultural settings. Corneal trauma with plants and increasing use of topical antibiotics and corticosteroids may predispose fungal keratoconjunctivitis.¹ Knowledge about the normal fungus residence in conjunctiva may influence selection of antifungal agents for treatment of fungal keratoconjunctivitis. Most fungal corneal ulcers are caused by opportunists such as candida, fusarium, aspergillus, penicillium, cephalosporium and others.²

A study conducted in India showed the prevalence of fungal residence of 24.8% in the conjunctival flora of trachomatic patients.¹ Another study showed the rate of 25% fungal species resident in the normal flora of the farmers in China.³ Ando and Takatori reported the prevalence rate of 6.6% among 587 healthy conjunctiva.⁴ Since the rates of normal flora of conjunctiva are reported to be different in several parts of the world, the purpose of this study was to determine the most common fungal normal flora of conjunctiva in our region.

We studied 120 healthy persons without corneal, conjunctival infection, dacryocystitis, entropion and those who use eye drops. The samples were obtained from the lower fornix of both eyes by sterile swab without touching the lidmargin and skin, and then cultured on saboroud's dextrose agar media at room temperature. The culture media were evaluated daily at least for one month. In the case of any fungal colony growth, a smear with methylen blue staining was performed and then observed under microscope. Fungal species were identified by noticing conidia, spore, shape and color of the colony.

One hundred and twenty cases in the range of 5-70 years old were evaluated. Among 120 swab samples, 44 cases (36.7%) showed fungal growth while 76 (63.3%) of them had no growth, indicating that one third of the normal population have normal fungal flora in conjunctiva. The most commonly observed fungi were *Aspergillus* (34%), *Trichotitium* or *Cephalosporium* (2.2%). The frequencies of other fungi are as follows: *Alternaria* (15.9%), *Cladosporium* (11.3%), *Nigrospora* (9.9%), *Rhizopus* (6.8%), *Penicillium* (4.5%), *Mucor* (4.5%), *Rodotorolla* (4.5%),

and *Dermatiacea* (4.5%). In this study, around one-third of healthy general population (36.6%) had fungal normal flora. Likewise, in Wu *et al.*'s study,⁹ the sources of fungal flora of conjunctiva are air and area of living and *Aspergillus* was the most common same as Gong *et al.* and Sehgal *et al.* studies.^{3,10}

Since fungal residence of normal conjunctiva may influences the selection of antifungal agents following corneal infection, knowing the normal flora is very important. It has been suggested that the use of antibiotics and corticosteroids in recent years has significantly increased the incidence of mycotic infections of the eye.¹ Even the fungal flora of different parts of the air and room spaces may be existence.⁴⁻⁸

In special conditions, this normal fungal flora can be a pathogen. Normal fungal flora can become opportunistic pathogens when the host is immunosuppressed or has had a trauma and surgery. In conclusion, conjunctival colonization by fungi was seen in one third of the healthy persons. *Aspergillus* was the most common isolated fungi followed by *Alternaria*.

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Keywords: Conjunctiva; Cornea; Normal flora; Fungi

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