Althouhg various fungal agents can be recovered from the conjunctiva, fungal conjunctivitis is rarely observed clinically. It is an uncommon disease, isolation of fungi from normal conjunctival sac occurs in 6 to 25% of normal individuals. There may be seasonal increase in conjunctival fungal isolation, possibly related to airborne carriage of candida. Rhinosporidiosis appears to be endemic in Indian sub continent.

**Predisposing factors are**
1. Shared cosmetics
2. Chronic use of topical broad spectrum antibiotics
3. Prolonged use of oral or topical steroids
4. Injury from vegetative matter
5. Bathing in stagnant water
6. Immunocomprised status (HIV, Diabetes, use of immunosuppressive drugs)

**Etiology**
Candida species can cause conjunctivitis after topical corticosteroid and antibacterial therapy to an inflamed eye.

Common funguses causing conjunctivitis are candida albicans, candida parapsilosis, candida tropicalis, paracoccidioides brasiliensis, coccidio immitis, blastomyces dermatitidis and rhinosporidium seeberi

**Clinical Features**
General features associated with fungal conjunctivitis are; Redness, itching, discharge and irritation. The intensity of these symptoms may depend on the type of infecting agent, extent of the infection and immune status of the patient.

Fungal infection often appears as chronic inflammation and scanty discharge from the eyes. On examination conjunctival edema, hyperemia of the tarsal and bulbar conjunctiva and granulaomata can be observed. The discharge can be mucopurulent or frankly purulent of yellow or green color.

Candida conjunctivitis presents with purulent, acute or sub acute superficial epithelial lesions, in newborns, school children and adults with primary infection localized in oral mucosa or vagina. A follicular papillary chronic conjunctivitis with no response to topical antibiotics and slow evolution is characteristic of candida conjunctivitis.

In some patients conjunctival membrane or pseudo membrane may be obscured.
Malassezia presents with catarrhal conjunctivitis, where as coccidio immitis causes severe necrotizing granulomatous conjunctivitis and or follicular conjunctivitis. Blastomyces dermatitidis causes contiguous spread and follicular conjunctivitis. Sporothrix schenckii presents with nodular conjunctivitis with associated deep lesions and local lymphadenopathy where as Aspergillus niger causes chronic conjunctivitis with black conjunctival secretions. Immune compromised patients may experience a more severe clinical course and demonstrate granulomatous conjunctivitis or necrotizing conjunctivitis with sclera melting. It may masquerade as squamous cell carcinoma, atypical papilloma lesions or conjunctival granuloma.

**Investigations**

Laboratory identification is necessary in patients presenting with atypical granulomatous lesions. Biopsy and histopathology is recommended diagnostic procedure. Giemsa stain of conjunctival scrape may demonstrate the presence of typical hyphae. Electron microscopy can demonstrate the presence of small intracellular and extracellular yeast organism.

Identification of the causative organism may also be obtained either by specific culture or PCR.

For suspected rhinospororidiosis, the lesion is surgically excised for histopathological examination. Inferior tarsal conjunctiva and fornices are vigorously scrubbed with calcium alginate or cotton tipped swabs. Conjunctival biopsy specimen for histopathology & culture is indicated if above specimen do not yield results.

Microscopic examination to identify fungus is made with PAS, Giemsa, gram stain, Calcofluor white & Fluorescence microscopy. Culture can be done on SDA agar.

**Treatment**

Medical management can be initiated with topical amphotericin B (0.15%), natamycin (5%), fluconazole (2%), ketonazole (2%) may be used. Generally topical antifungal is used for superficial conjunctivitis and systemic antifungal for deep lesions.

Necrotizing granulomatous conjunctivitis due to coccidio immitis require aggressive debridement of the affected area and months of topical amphotericin B & oral fluconazole therapy.

Blastomyces dermatitidis and Sporothrix schenckii have been associated with a granulomatous conjunctivitis. These mycoses are treated with systemic antifungal agents, usually itraconazole. Rhinosporidium seeberi infection of the conjunctiva usually manifests as a fleshy, friable, red, pedunculated mass. No drug therapy has been proven effective for rhinosporidiosis. Condition is treated by surgical excision of the lesions. Excision of the mass with adequate margins is often curative.

**References**