Summary

Mycosis is the term used to describe a disease caused by the growth of a saprophytic or parasitic fungus, either on the surface of or within the host organism.

Fungal infection of the cornea continue to be an important cause of ocular morbidity, especially in tropical areas since the abuse of topical administration of steroids and antibiotics.

Fungal corneal infection in particular occur most frecuently in individuals who work in agriculture especially who had trauma with vegetable matter. This condition is also associated with diabetes mellitus, AIDS, corneal anaesthetic abuse, neurotrophic ulcer and trauma. Contact lenses wear may be a risk factor in fungal keratitis. Another risk factor for fungal keratitis include cataract surgery, radial keratotomy and Laser in situ keratomileusis.

The aetiological agent for fungal keratitis may vary within countries (Fusarium species-Aspergillus species). A large number of demataceous fungi, yeast, and other dimorphic organisms have been implicated as aetiological agents for fungal keratitis

The diagnosis of fungal keratitis continues to be problematic as there are no pathognomonic clinical features. So, keratomycosis can easily be confused with other forms of microbial keratitis. Suspicion of fungal keratitis should be aroused in cases of suspected bacterial corneal ulcers that are indolent and refractory to antibiotic therapy. The clinical diagnosis is based on analysis of risk factors and distinctive signs of corneal infection. Certain clinical manifestations that were believed to be characteristic of mycotic keratitis, including white and greiysh colour and stromal infiltrates with feathery, hyphate, raised edges. Often the lesion has satellite appearance, immune ring,

endothelial plaques and presence of gutter at one edge of keratitis. In sever inflammation, hypopyon is present and usually is a thick coagulum without level and sticky to the back of the cornea or on the iris surface. End stage may present by perforated corneal ulcer.

But, it is now generally accepted that a reliable diagnosis can not be made by clinical appearance alone and that microbiological invistegations should be performed.

Stains used for diagnosing fungal keratitis include Calcoflour, Giemsa stain, Periodic Acid Schiff (PAS), Potassium Hydroxide Preparation (KOH), Gomori Methenamine Silver (GMS) stain and Acridine orange dye.

Fungal culture media is an important golden tool for fungal recognition. Scrapping should be vigorous and should include samples from the edge and the base of the ulcer.

Sabouraud's agar is the principal medium. Other media include blood agar, and brain and heart infusion.

Polymerase chain reaction (PCR) is promising as a mean to diagnose fungal keratitis and offers some advantages over culture. Another technique that may provide a new modality for quickly and accurately identifying the agent of corneal infection is the use of Confocal Microscope. Measuring concentration of (1,3)-beta-D-glucan one of the major components of fungal cell wall, in tears of a case of keratoycosis may be a reliable non invasive method for diagnosis of keratomycosis.

Treatment is difficult and one of the major problems of treating cases of mycotic keratitis specially in developing nations is the lack of commercially available topical antifungal drugs. Also the lack of safety with local or systemic antifungal therapy and differences of antifungal sensitivity between different

types of fungi .Moreover fungi can invade deeper layers of stroma or even reaching anterior chamber ،thus topical antifungal may not penetrate with fair amnounts to be effective.

2 % Econazole and 5 % natsamycin are effective for the management of fungal keratitis . Ketoconazole and itraconazole may be given orally in daily doses of 200 to 400mg. Amphotericin B may be used topically in concentrations of 15 % but systemic administration is not effective against keratomycosis.

Recent antifungal medications tried for fungal keratitis:

Voriconazole and Posaconazole have an excellent broad spectrum of antifungal activity and is active against species that are known to be resistant to the other antifungal agents commonly used in fungal keratitis.

Caspofungin (CAS) is a recently introduced echinocandin antifungal with fungicidal activity in vitro against all *Candida* spp., including strains resistant to fluconazole.

Terbinafine has fungistatic effect with a low concentration and the fungicidal action with a high concentration. In addition, terbinafine is very safe.

Several surgical interventions have been proposed for treating fungal keratitis, including simple debridement, cover with conjunctival or amniotic membrane flap and therapeutic PKP.

N-butyl cyanocrylate tissue adhesive is a useful modality for the management of progressive thinning or perforation associated with active fungal keratitis.

Lamellar keratoplasty can be effective for treating fungal keratitis that is not cured by antifungal therapeutics. In addition, LKP can provide useful vision

with few complications. Furthermore, corneal tissue used in LKP may be obtained more easily than healthy tissue used in PKP.

PKP is an effective treatment for fungal keratitis that does not respond to antifungal medications. Early surgical intervention before the disease becomes advanced is recommended. It is critical that the surgical procedure remove the tissue in its entirety to effect a cure.