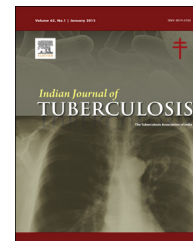


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## Review Article

## Ocular manifestations of tuberculosis

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## ABSTRACT

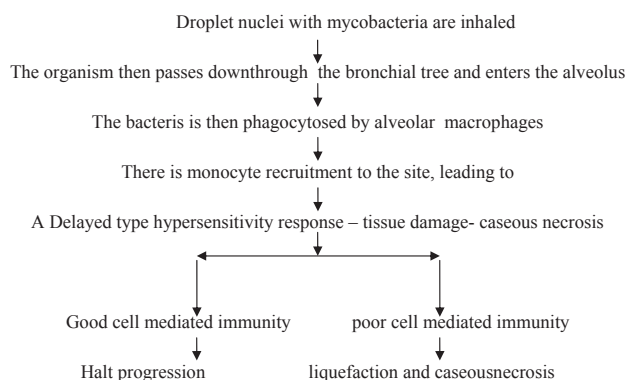
Tuberculosis (TB) is a chronic debilitating infection which is caused by *Mycobacterium tuberculosis* and other mycobacteria. *Mycobacterium tuberculosis* affects predominantly the lungs although it can affect every organ of the body. Two billion people are affected by tuberculosis. Majority of tuberculosis cases and related deaths occur in Asia.<sup>1</sup> Tuberculosis most commonly occurs in people belonging to the low socio-economic status. Crowding, poor healthcare, unemployment and poor knowledge about basic sanitation increase the risk of acquiring the infection. India is endemic for tuberculosis with 256/lakh population.<sup>2</sup> TB can affect majority of the structures of the eye with marked variability of the lesions. This review will focus on the clinical presentation and management of ocular TB.

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The term “ocular tuberculosis” is used to describe infections caused by *Mycobacterium tuberculosis* or any of the three other mycobacteria species (*sp. bovis*, *africanum*, and *microti*) in the eye. The bacteria affects the eye either by a direct invasion after haematogenous dissemination accompanied by local inflammation, or via a hypersensitivity reaction to the bacteria with a focus elsewhere in the body. The factors that increase the risk of acquiring TB are:

- Age (young < 5 yrs and elderly men are at an increased risk).
- Alcoholism and/or drug addiction.
- HIV infection.
- Diabetes mellitus.
- Immunosuppressive conditions.
- Close contact with patients harboring active infection.
- Silicosis
- Poverty and malnutrition.

The pathogenesis of ocular TB involves 5 stages and is summarized below<sup>3–5</sup>:-



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The respiratory tract is the most common portal of entry for infectious droplet nuclei that spread by coughing or sneezing. The bacteria are ingested by alveolar macrophages and multiply within these phagocytes eventually destroying them. The infected macrophages spread by lymphatic flow to the regional lymph nodes and then enter the haematogenous route.

## 1. Clinical spectrum of intraocular TB

All parts of the eye maybe affected by TB. The most common ocular manifestations are chorioretinitis and uveitis.

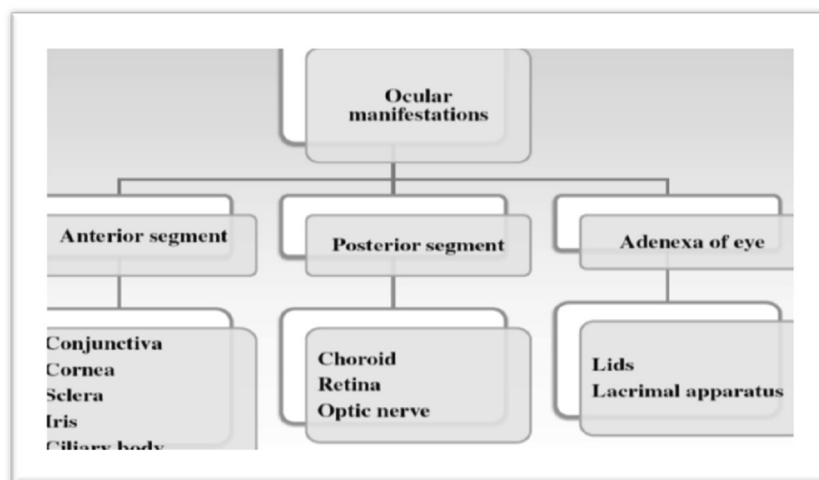


Table classifying the clinical presentations of ocular tuberculosis

## 2. Tuberculosis of the adnexa

### 2.1. Skin of eyelids and peri-orbital area<sup>6–9</sup>

- a) **Lupus vulgaris**—A chronic form of adnexal tuberculosis that affects eyelid skin and occurs in patients who are sensitive to tuberculin antigen. The lesions are solitary, small, reddish brown usually involving the head and neck region and have gelatinous consistency (Apple jelly nodules).
- b) **Tubercular lids**—Lesions are popular or indurated nodules or plaque which may ulcerate.
- c) **Erythema nodosum**—Reddish nodules on the lids.
- d) **Scrofuloderma**—Lesions are firm, painless nodules that overly a tuberculous focus which may break down and suppurate leading to ulcer formation with undermined edges and granulation tissue at the floor. Healing of ulcers is slow and indolent.
- e) **Tarsitis**—Inflammation of the tarsal plate of the lids.
- f) **Miliary TB of the skin**—Presents as multiple small red papules or macules in cases with fulminant military TB.

### 2.2. Orbital tuberculosis<sup>10–13</sup>

Orbital TB can occur as ahaematogenous spread or contiguous spread from the neighbouring paranasal sinuses. Manifestations of orbital TB can be grouped under five clinical groups:

- Orbital Periostitis,
  - Orbital soft tissue tuberculoma without bony destruction,
  - Orbital tuberculoma with bony involvement,
  - Orbital spread from paranasal sinuses and dacryoadenitis.
- a) **Orbital periostitis**: It affects the people in the first two decades of life as maximum bone growth occurs during these

years. It presents as erythema and edema of the lids and conjunctiva with involvement of the spongy vascular tissue of the outer margin of the orbit. It is the most common type of orbital TB and can lead to the formation of a chronically discharging fistula.

- b) Tuberculomas of the orbit present as a painless proptosis with or without involvement of bones.
- c) Orbital abscesses

### 2.3. Lacrimal system

- a) Non specific dacryoadenitis with or without abscess formation is a usual presentation in these cases.
- b) Chronic dacryocystitis can present in two forms
  1. Attenuated sclerotic form: It presents as chronic painless hard lobulated mass associated with limitation of extra-ocular movements and ptosis or proptosis.
  2. Active caseous form presenting as red and edematous lesion of lids with fluctuation and fistulization.

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