# Libyan International Medical University
# Faculty of Basic Medical Science

Spheroidal Degeneration

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**Abstract :**
The aim of this study to identify the effect of directly exposed to sun rays specially with how is outdoor worker to recognize the effect may occur in anterior segment of the eye, and we well discuss in details how it occur, stages, management and protection tools.

**Introduction :**
Spheroidal degeneration ( Corneal elastosis, Labrador keratopathy, Climatic droplet keratopathy and Bietti nodular dystrophy ) is a bilateral degenerative condition of unknown cause which typically occur in men whose working lives are spent outdoors.
The main postulated predisposing factor is ultraviolet exposure since severity correlated closely with the length of time spent outdoors.
The condition is relatively innocuous although visual impairment may occur rarely.

**Discussion :**
Spheroidal keratopathy is a degeneration of the cornea and/or conjunctiva, characterized by homogeneous, translucent, fine, golden yellow, spherules or globules of varying size located in the superficial corneal stroma, Bowman membrane, and subepithelium, and at the epithelium in advanced case. It is also known as climatic droplet keratopathy, Bietti's band-shaped nodular dystrophy, Labrador keratopathy ( the name is related to the area where the first study about the disease was done ), and many other names based on geographic locations and races that are most affected by the condition.
Nine specimens of the corneas of patients outdoor worker affected by spheroidal degeneration (climatic droplet keratopathy) have been examined microscopically. Histochemical stains confirmed studies of similar corneal degenerations from other geographical areas that the droplets contain a protein, which does not have all the characteristic properties of elastic tissue. Staining compatible in some instances with fibrin and "fibrinoid" was found. By immunoperoxidase techniques the droplets were located in the zones of greatest concentrate on of various plasma constituents, especially albumin and immunoglobulins G and A. Reasons are given why the abnormal deposits are not thought to be derived directly from corneal collagen. It is suggested that some of the plasma proteins, which are known to be diffusing through the cornea from the limbal vessels under normal conditions are acted upon by the ultraviolet light reflected from the objects in surrounding area so that they accumulate in the superficial stroma, The source of the proteinaceous material forming the droplets is not well understood. Proposed theories include the diffusion of serum proteins from the limbal vessels to the cornea as a result of interactions with ultraviolet light. Physical irritation to the corneal surface from the environment, such as sand, ultraviolet light, wind, and welding burns, have been associated with the development and progression of spheroidal degeneration.[1.2]
The diagnosis of spheroidal keratopathy is mostly based on clinical presentation or features, as clinical features spheroidal degeneration divided into four grading:
Grade 1: Lesions involving the interpalpebral cornea horizontally but not involving the central cornea.
Grade 2: Central corneal involvement without affecting visual acuity.
Grade 3: Central corneal involvement with a decline in visual acuity.
Grade 4: Grade 3 features with lesion elevation.[2]

## Conclusion :

The main cause or risk factor of spheroidal degeneration is the sun rise, so the long time outdoor workers should wear protective sunglasses to avoid the effect of ultra violet rays and advise this group of people how outdoor worker to do routine ophthalmological examination to diagnose early and avoid the late and complicated stages of this disease, because the early diagnosis the better prognosis.

## References:

1- AJO History of Ophthalmology Series,Spheroid Degeneration of the Cornea and Conjunctiva. (2012). American Journal of Ophthalmology, 154(1), p.106.

2- Garner, A., Fraunfelder, F., Barras, T. and Hinzpeter, E. (1976). Spheroidal degeneration of cornea and conjunctiva. British Journal of Ophthalmology, 60(6), pp.473-478.

3- LWW. (2018). Spheroidal Degeneration of the Cornea: A Clinicopathologic... : Cornea. [online] Available at:https://journals.lww.com/corneajrnl/Abstract/2004/01000/Spheroidal_Degeneration_of_the_Cornea__A.15.aspx