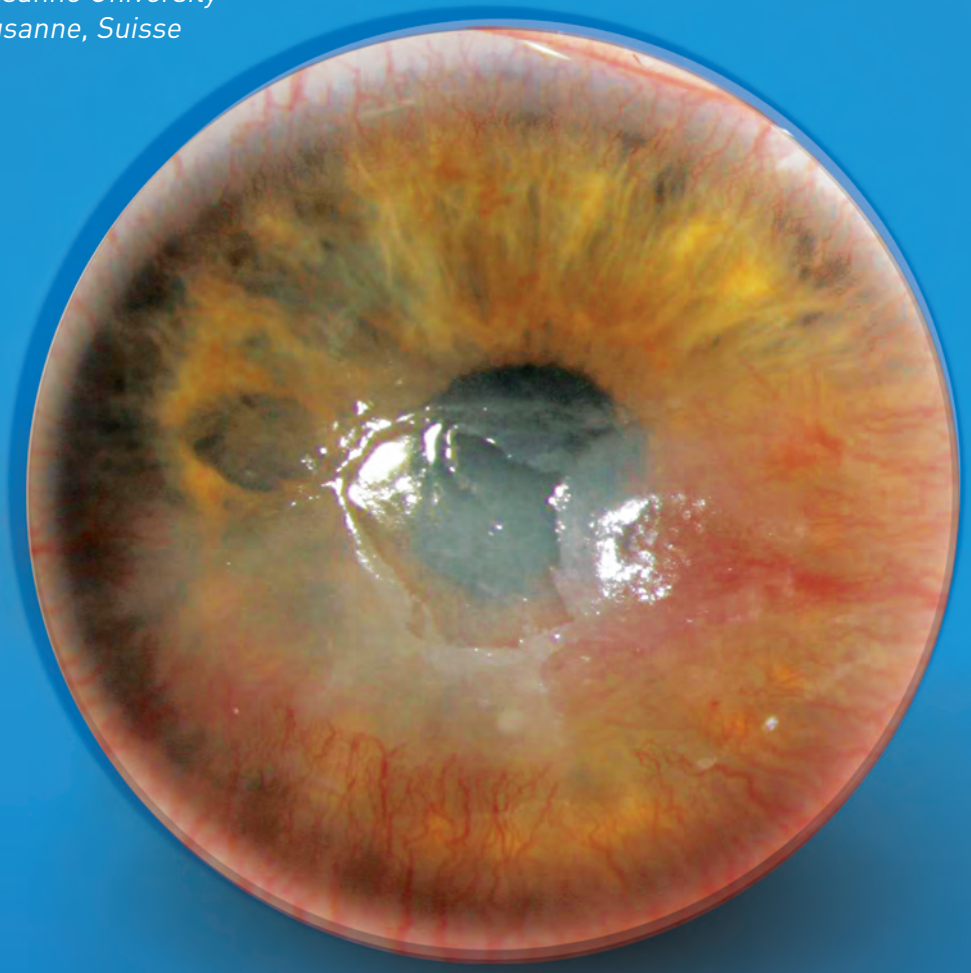
CHRONIC CORNEAL ULCERS

Pr Marc Muraine
Dr Julie Gueudry
Ophthalmology department
University Hospital Charles Nicolle
Rouen, France

Pr Bernard Duchesne
Ophthalmology department
University Hospital
Liège, Belgique

Dr François Majo
MD, PhD, Privat Docent
Ophthalmic Hospital Jules-Gonin
Lausanne University
Lausanne, Suisse



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CORNEAL EPITHELIAL RENEWAL AND HEALING

THE CORNEA AND ITS EPITHELIUM

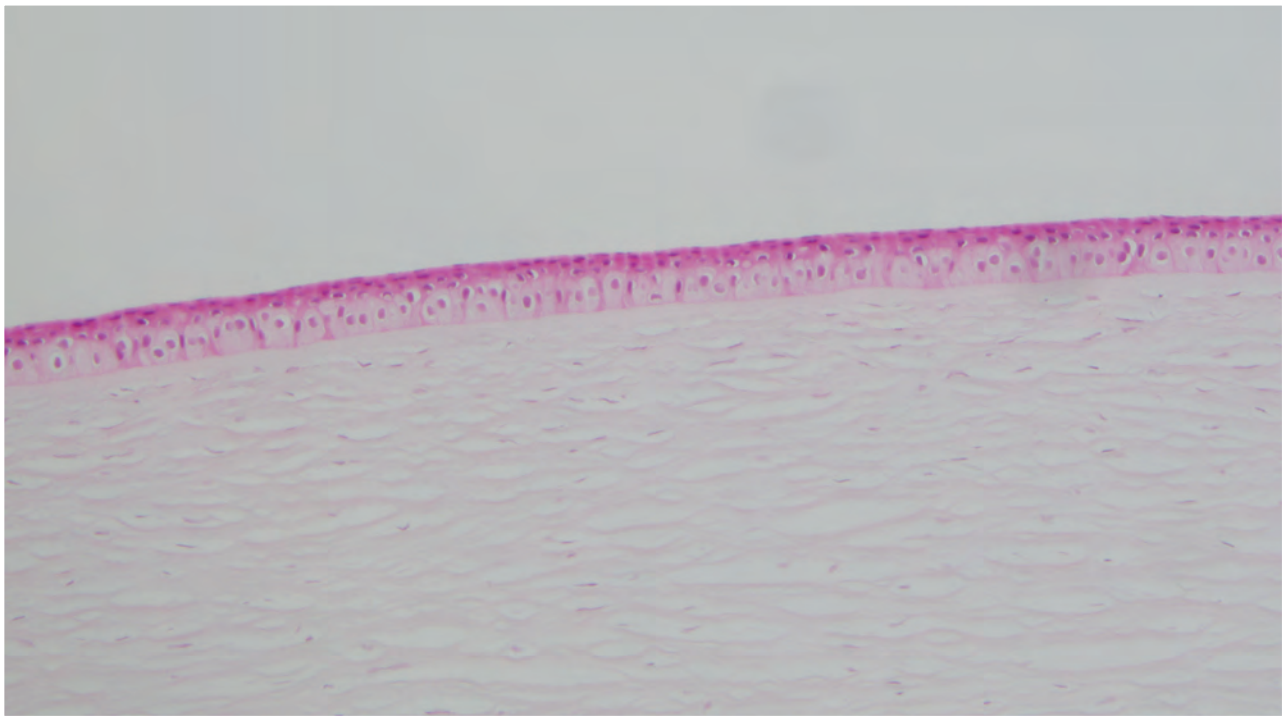
- The cornea is the avascular and transparent structure, embedded like a window in the front of the eyeball. The cornea consists from front to back of a stratified, non-keratinised epithelium, which rests on the Bowman's layer of the anterior stroma by means of a basal membrane. Then follows a collagen-rich stroma representing 90% of the total thickness, then, the Descemet's membrane, which is the basal membrane of the endothelium, a mono-cellular layer.

- The adjacent conjunctival epithelium is vascularised. The conjunctival epithelium is stratified and nonkeratinized. It contains goblet cells which secrete mucins. The epithelium of the cornea and the conjunctiva are separated by the limbal epithelium.

- Anatomically, the ocular surface includes the corneal and conjunctival epithelia together with the tear film. A disorder of any single anatomical component of the ocular surface is capable of altering other components.

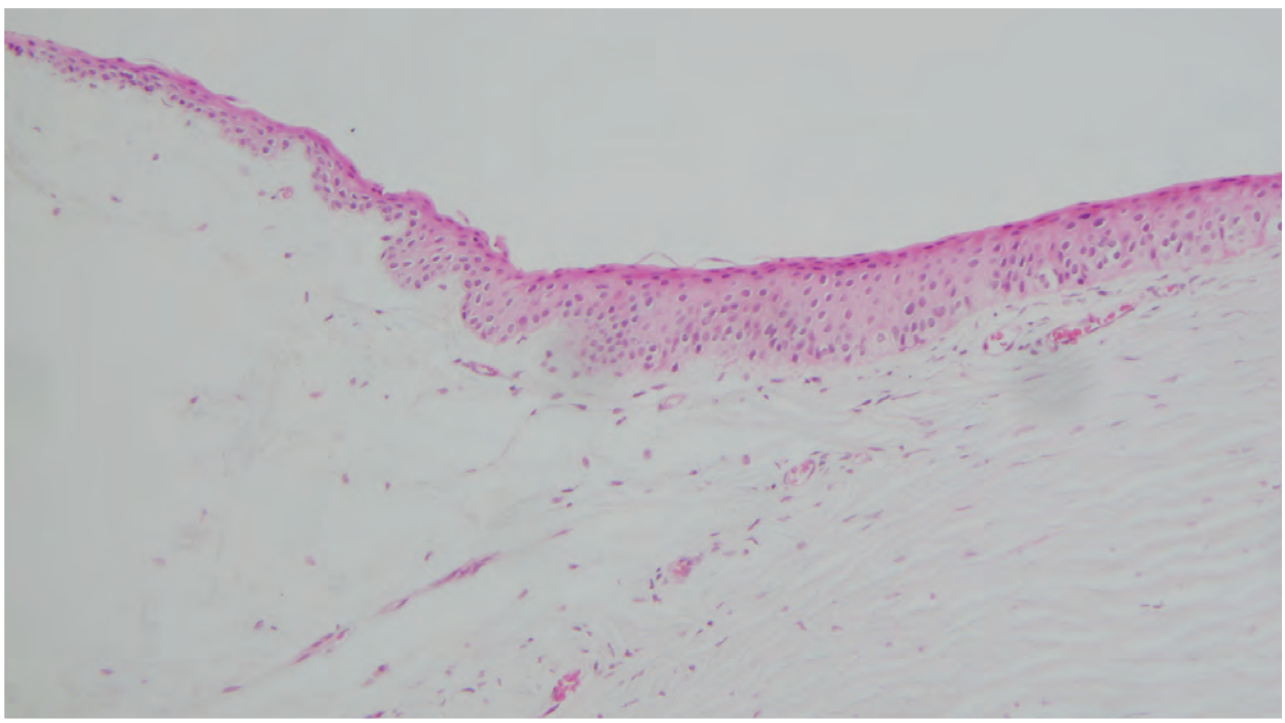
The cornea and the ocular surface.

The "ocular surface" entity includes the corneal epithelium and the conjunctival epithelium, separated by the corneo-conjunctival limbus, and the tear film.



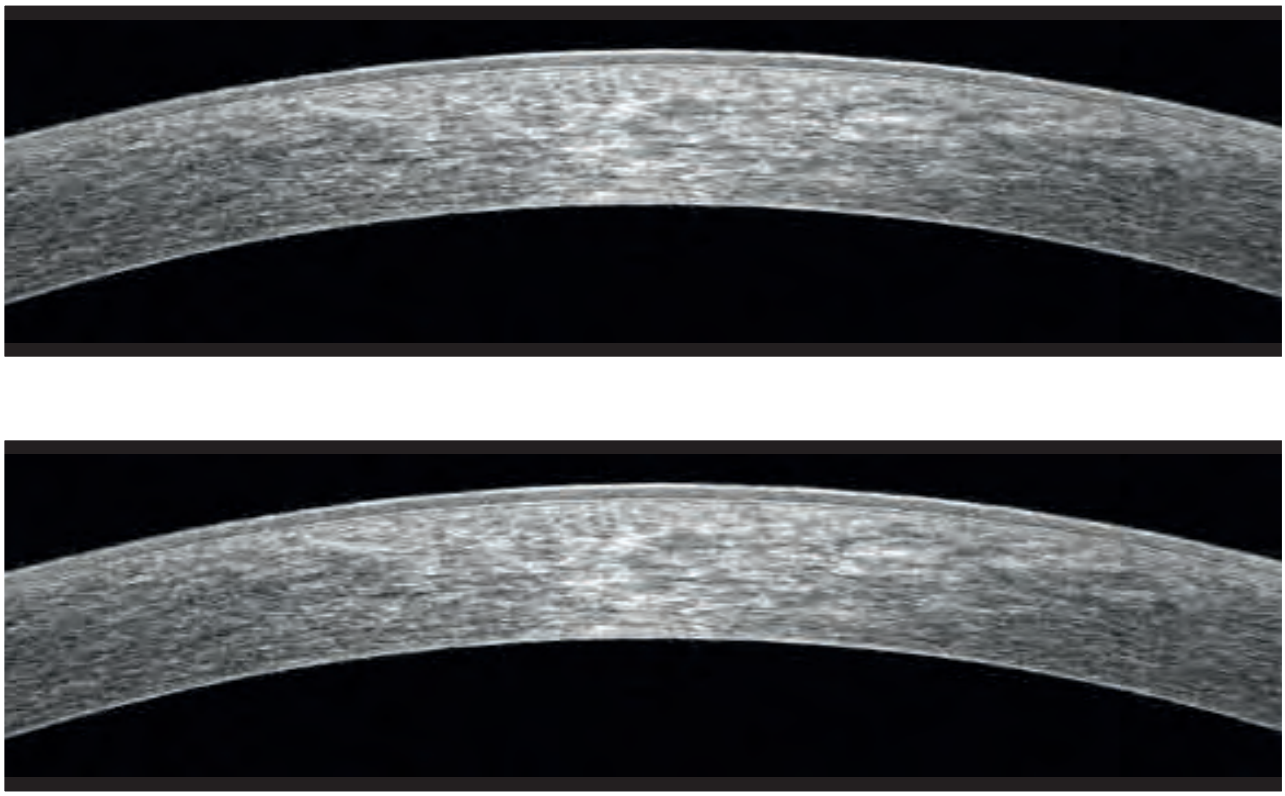
The corneal epithelium.

This is a stratified squamous epithelium 50 µm thick. It comprises 5 to 7 cell layers and rests by means of a basal membrane on Bowman's layer. The underlying stroma is also visible in this histological section. (haematoxylin-eosin, X100).



The corneoscleral limbus.

Here the epithelium thickens and has 10-12 layers. It is possible to observe the vascularisation present in the region of the limbus while it is absent at the peripheral corneal stroma (haematoxylin-eosin, X100).



Images of normal cornea using Spectral Domain OCT and Swept Source OCT.
The main layers of the cornea are visible, from the tear film to the endothelium.
From top to bottom:

- Cirrus OCT®, Carl Zeiss Meditec, Dublin, USA
- Triton OCT®, Topcon, Tokyo, Japan