Effect of Mitomycin-C on Haze Formation in Rabbit Cornea After PRK: Immunohistochemical Study

The authors have no financial interest in the subject matter of this e-poster

* Photorefractive keratectomy (PRK) has proven to be a safe and effective procedure to correct low to moderate levels of myopia, hyperopia, or astigmatism. It continues to represent a good alternative to LASIK for many patients, and in some situations, PRK remains the procedure of choice.
* However, PRK has several problems including increased postoperative pain, and most significantly, the possibility of subepithelial corneal opacity or “haze” formation following corrections for high myopia.

* The corneal wound healing process following corneal refractive procedures involves a very complex and sometimes unpredictable biological response. After photorefractive keratectomy (PRK), the organization of the extracellular matrix is altered in the anterior stroma, and along with changes in cellular density and phenotype, can be associated with the production of disorganized extracellular matrix components. The final result is a decrease in tissue transparency-referred to as corneal haze or opacity.

* Thus, eyes that have PRK for less than six diopters of myopia rarely develop significant haze. As the level of correction increases beyond six diopters, however, the incidence of clinically significant haze increases

- The use of topical mitomycin C as a modulator of the corneal wound healing response after excimer laser photo ablation. rabbits treated with mitomycin C following laser ablation had markedly reduced formation of subepithelial collagen. Mitomycin c is a potent inhibitor of corneal haze induced by PRK mitomycin c reduced the number of keratocytes and fibroblasts after PRK

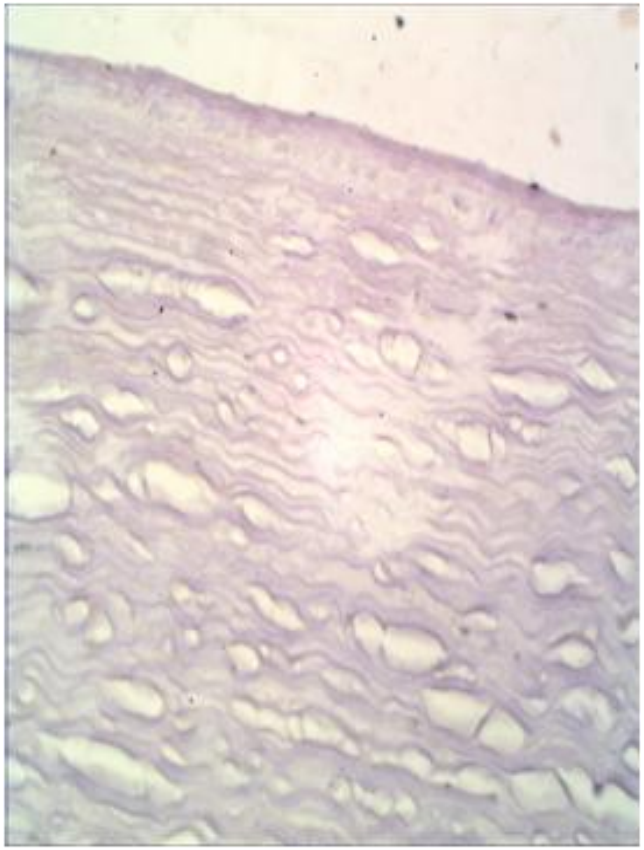
Method

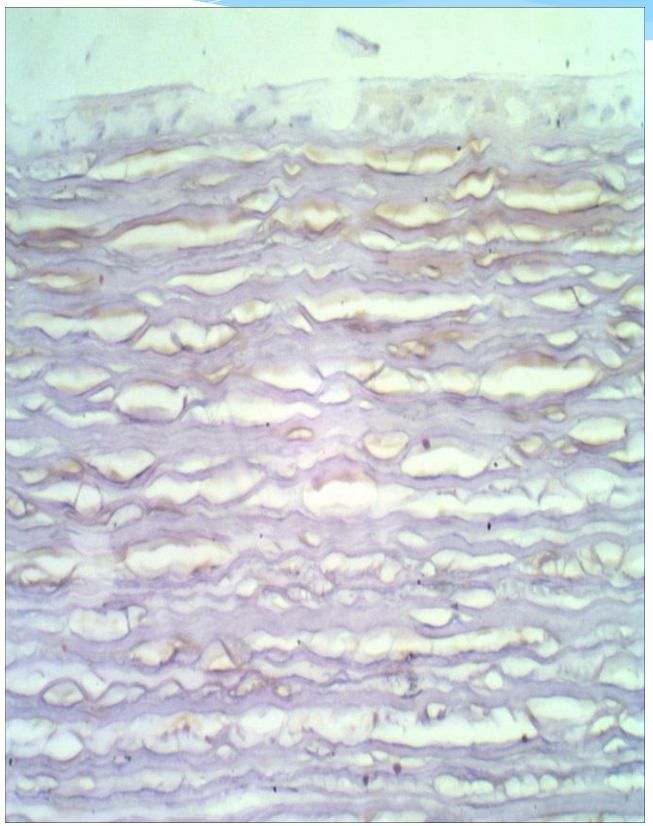
- We use 20 rabbits divided into 2 groups:
- Group 1: PRK with MMC (0.02% MMC was placed for 30 seconds)
- Group 2: PRK without MMC .

Immunostaining technique

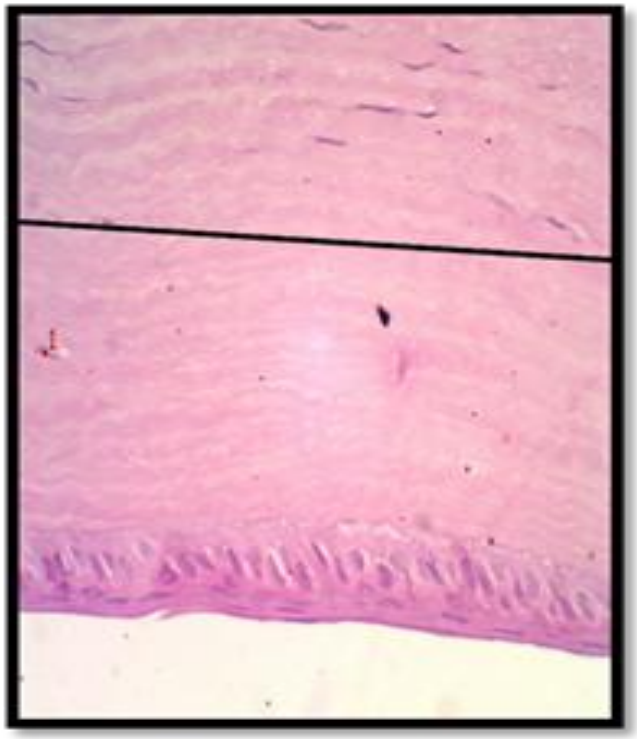
* the primary antibody for anti-SMA (a marker for myofibroplast) was be used for visualization of the antibody reaction to detect and counting the number of keratocytes or myfibroblasts.

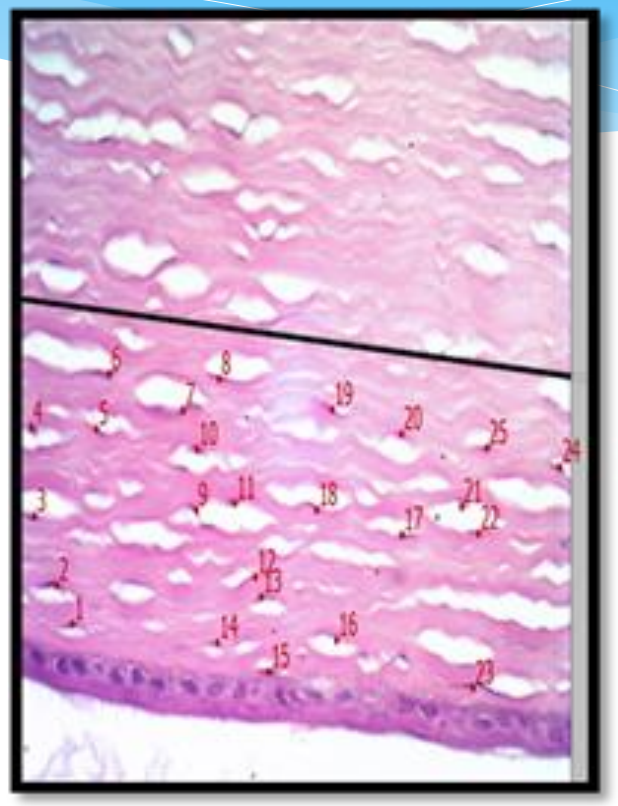
The number of keratocytes in group (1) PRK+MMC were 3.75±1.60 while in the group(2) PRK without MMC were 18.688±2.566

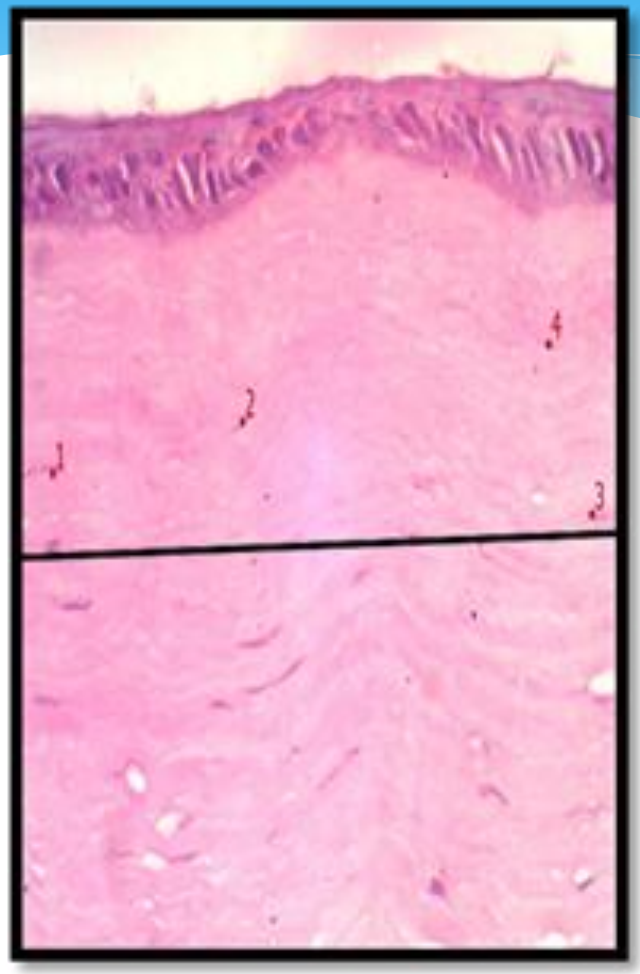


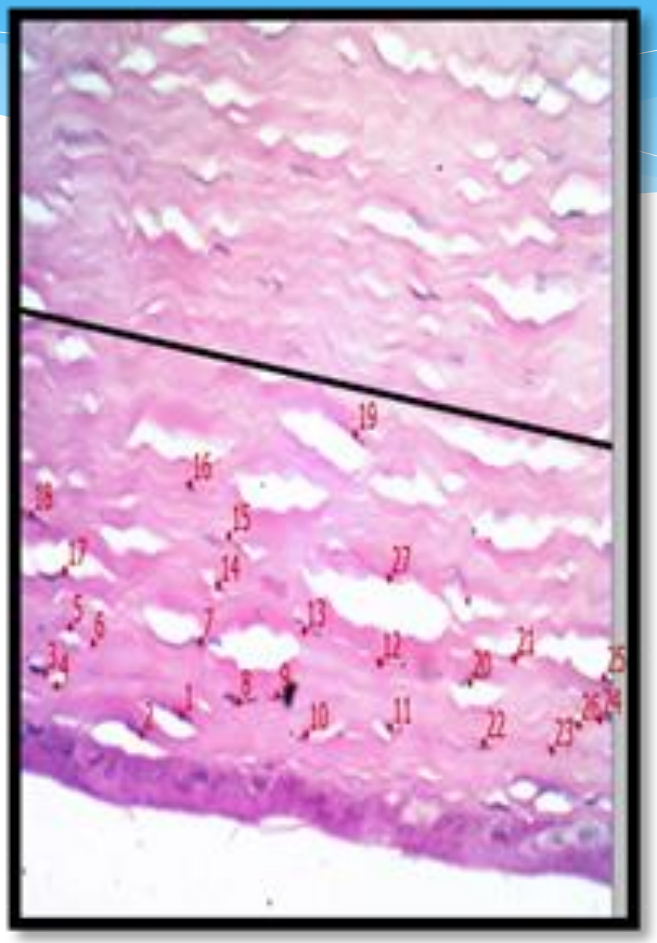


H&E stain






1
2
3
4


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27