

Case Report

Use of therapeutic pinhole soft contact lens in a fighter pilot with corneal scar

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ABSTRACT

A MiG 27 fighter pilot sustained corneal laceration and resultant corneal scarring impinging on visual axis. Spectacle correction was found unsuitable due to astigmatism and diffraction effect of the corneal scar. Use of therapeutic pinhole soft contact lens (Plano lens with painted iris and transparent pupillary area measuring 2mm giving pinhole effect) in this situation has resulted in effective visual rehabilitation.

LIASM 2000; 44(1) : 44 - 45

KEY WORDS: Corneal scar; Soft contact lens.

A 32 year old Air Force fighter pilot was flying MiG 27 aircraft on 27 Sep 98 when the canopy [made of perspex (PMMA)] got fragmented due to bird hit. He was able to land the aircraft safely inspite of the decompression effects and injuries to the face. On landing he realized that he had sustained a penetrating injury to the right eye. He was taken to the Civil Hospital and the corneal laceration was sutured with interrupted 10-0 nylon sutures. He was seen at this Establishment after about 10 weeks on 04 Dec 98 and his ocular findings were as follows :

Both eyes were quiet. Right eye examination showed that DVAR was 6/60 improving to 6/12 with pinhole. Refraction was H - 1.5 V - 2.25. Lids and conjunctiva were normal. Cornea had a linear wound extending from 1 O'clock periphery to pupillary area. There were 3 interrupted sutures with buried knots. There were opacities at the points of suture passage including one such nebulo-macular grade opacity encroaching close to

visual axis. The wound appeared well healed. The anterior chamber was normal. Pupil was normal in size and reaction. Lens and fundus were normal. The left eye was unremarkable except for the presence of a typical congenital Iris coloboma opening in 2'clock direction. The IOP was 17mm Hg (Pulsair) BE.

Suture removal was done on 4-12-98. He was seen again on 27-1-99 and his vision was DVAR 6/18 improving to 6/12 with -2.25 D Cyl @ 10°. Vision improved to 6/9 with pinhole and 6/6 with pinhole and addition of -1.75 D Cyl @ 10°. He was given a trial of therapeutic pinhole soft contact lens (Plano lens with painted iris and transparent pupillary area measuring 2mm giving pinhole effect). The visual acuity with this lens was 6/60

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and he had full field of vision. He has tolerated this lens well and was comfortable at the three month follow up. He has now been sent for cockpit trials with the aim of restoring him back to flying duties.

Discussion :

Contact lenses are used for therapeutic purposes in cases of corneal scars impinging on visual axis [1,2]. They improve visual acuity by reducing the diffraction effect of such scars and giving pinhole effect. This modality has largely replaced tattooing [3] as a means for treating corneal opacities because of its temporary effect and inability to improve the quality of vision.

In the present case the young fighter pilot has made a remarkable recovery from a potentially sight threatening ocular injury. However he was unable to have the desired standard of visual acuity with conventional glasses, thus preventing him from being returned to flying duties.

Soft contact lenses for refractive errors are approved for use by civil aviators. They have been

evaluated in the Indian military flying environment with respect to effect of hypoxia, rapid decompression [4] and +Gz acceleration [5] and are now used for military pilots in specific cases. This young pilot has therefore been given a trial with therapeutic soft contact lens which he has tolerated well. It is expected that after cockpit trials, he will be reflighted, thus leading to conservation and proper utilization of highly trained manpower.

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