

Management of ciliary body staphyloma & complicated cataract with cadaveric scleral patch superimposed amniotic membrane grafting: Case Report

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Abstract

Scleral thinning and associated ciliary body staphyloma can be managed with cadaveric scleral patch grafting. Such allogenic scleral grafts are easy to store and use in reconstruction of scleral defects. Here we are going to report how cadaveric scleral patch grafting with superimposed amniotic membrane transplantation is helpful in maintaining structural integrity of globe while avoiding with complications associated with only scleral patch grafting.

Keywords

Ciliary body staphyloma, cadaveric scleral patch grafting, amniotic membrane grafting

Introduction

Sclera is the outer fibrous coat of eye which provides support to the intraocular contents. Scleral thinning is well known complication of pterygium surgery, retinal detachment repair, high myopia and trauma. In some rare cases it may result in staphyloma formation uveal tissue exposure. Scleral reinforcement surgery is necessary when there is associated prolapse of orbital tissues and secondary infection.¹ There are various options of grafts are available for scleral reinforcement surgery. In this communication we would like to report our experience with cadaveric scleral patch graft with superimposed amniotic membrane graft.

Case Report

A 50-year-old female, housewife by occupation, presented to outpatient department of Sir T Hospital Bhavnagar with complaints of gradually progressive painless diminution of vision associated with swelling in upper part right eye since 3 years, following blunt trauma to her right eye by her grandson's hand. Patient had no history of any systemic illness and all the routine investigations like hemogram and chest x-ray were normal. Best corrected visual acuity (BCVA) was hand movement with PL present and PR in all quadrants in the right eye and 6/60 in the left eye. Intraocular pressure was 16 mm of hg in right eye and 18 mm of hg in left eye by noncontact tonometer. The slit lamp examination revealed brown coloured protruded swelling 2 mm above the superior limbus with thinning of surrounding sclera, conjunctival congestion with feeder vessels, shallow anterior chamber superiorly, pupil eccentric reacting to light with complicated cataract [fig. 1]. Fundus evaluation was not possible. Ultrasound findings were suggestive of limbal area defect with ciliary staphyloma of right eye [fig. 2]. Left eye fundus was unremarkable due to presence of dense cataract which was otherwise within normal limit.

Then patient was then advised to undergo ciliary body staphyloma excision with scleral patch and amniotic membrane grafting with cataract extraction. Under general anaesthesia first cataract extraction and posterior chamber intraocular lens implantation was performed through temporal section. Then after dissecting conjunctiva, Tenon's capsule staphyloma was excised and the tissue was then sent for histopathological examination. The area of scleral defect carefully exposed. Scleral defect was then reinforced with donor scleral patch grafting after preparing and fashioning it to appropriate size and thickness of scleral defect. Donor sclera was obtained from eye bank preserved in absolute alcohol. To prepare donor sclera for use in surgery, it was soaked in ringer lactate solution for 10 minutes three times, then in Betadine solution for 10 minutes and finally in Gentamycin 20mg/ml solution for 10 minutes.² The

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graft was then secured to the edges of scleral defect with 10-0 nylon sutures. The repaired scleral defect then covered with amniotic membrane graft positioned with stromal side down using 10-0 nylon sutures to the surrounding conjunctiva [fig. 3].

The operated eye was bandaged after surgery which was to be opened on next day. Post operatively tablet acetazolamide was given with a view of obtaining soft eye with low intra ocular pressure and thus preventing displacement of the graft during the early stages of union.³ On the first post-operative day patient had a vision of 1/60 with scleral patch and amniotic membrane graft was in place with sutures. Patient was discharged with moxifloxacin and prednisolone combination eye drops 1 hourly, atropine eye ointment 1 application three times a day and carboxy methyl cellulose eye ointment 2 times a day for lubrication. Patient was then regularly followed for 1 month; steroids were gradually tapered during this period and closely monitored for structural and visual outcomes.

During this period of follow up we observed that that was gradual improvement of visual acuity from 1/60 to 6/60 in right eye. The scleral graft was well tolerated without any signs of undue inflammation. There were no complications associated with scleral patch and amniotic membrane grafting like displacement, thinning, elevations, uveal tissue prolapse, necrosis or sloughing. Amniotic membrane was well in place with signs of re-epithelisation and vascularisation. Tectonic stability of graft then reconfirmed on follow up ultrasound biomicroscopy [fig. 4].

Discussion

There are various options of grafts that are available for scleral reinforcement surgery like sclera patch grafting, lamellar corneal graft, split thickness dermal graft and numerous other tissues like fascia lata, periosteum, and cartilage.³ Scleral patch grafting can be done by rotational pedicle graft, lamellar scleral autograft and cadaveric scleral patch graft. A rotational pedicle scleral graft can be done if the area of thinning is small and surrounding sclera is healthy.⁴ Lamellar scleral autograft is a safe procedure but the limitation of autologous scleral patch graft is the inability to take large grafts to cover large areas of scleral thinning.⁵ In cases like high myopes, where the sclera is thin overall, there is a risk of perforation while creating a graft. In our case scleral defect was large and surrounding sclera was not healthy so we found cadaveric donor sclera is good option for scleral reinforcement surgery as it is readily available, strong, flexible, easy to handle and better fit to host defect.⁶ Its natural curvature is easy to blend with host sclera. The cadaveric donor sclera is an avascular structure which has advantage of being immunologically inert and good acceptance without undue inflammatory reaction, but this avascular nature and absence of epithelium in scleral grafts may result in lack of vascularisation necrosis and sloughing.⁷ The whole survival and tectonic success of the graft is jeopardized owing to this avascularity. Here the superimposition of amniotic membrane on cadaveric scleral patch graft becomes helpful.⁸ Amniotic membrane has a thick basement membrane and avascular stroma which can act as an adjunctive to scleral patch graft. Amniotic membrane has anti-inflammatory, antifibrotic and epithelisation promoting properties.⁹ It helps in rapid re-epithelisation, vascularisation and acceptance of scleral patch grafting. A good amount of structural integrity, tectonic stability and visual rehabilitation obtained in this case with use of scleral patch and amniotic membrane grafting.



Figure 1- Pre operative photos showing scleral thinning with ciliary body staphyloma

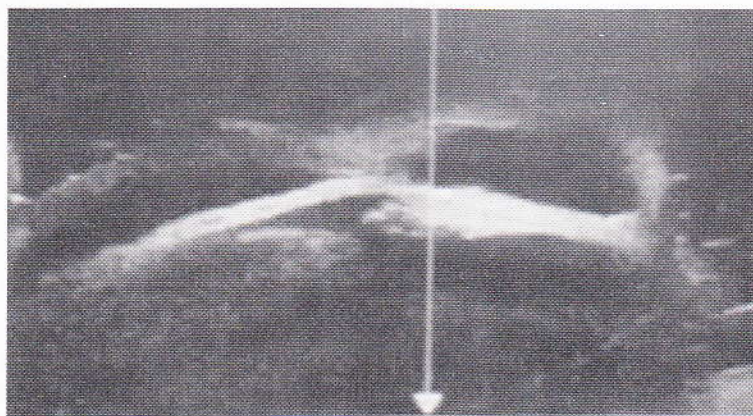


Figure 2- Pre Operative ultrasound showing cystic space in limbal area

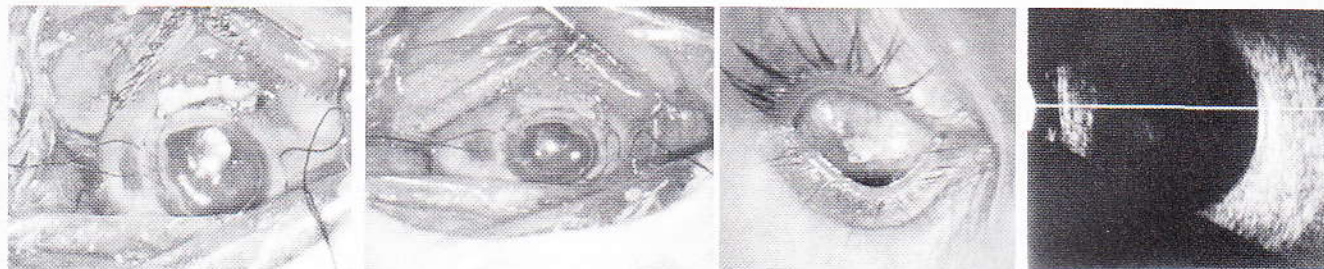


Figure 3- Intra operative photos showing cadaveric scleral patch graft and then superimposed amniotic membrane

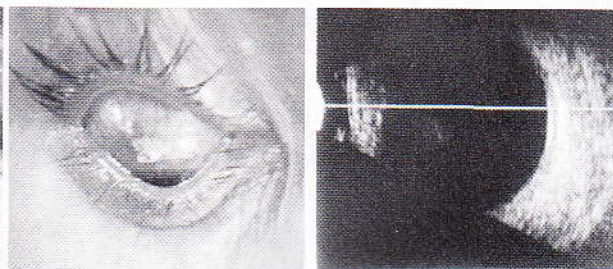


Figure 4- Post operative photo showing preserved globe integrity and post operative ultrasound

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