Spontaneous Epithelisation in Exposed Implant following Enucleation- A Case Report and Review of Literature

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Introduction :

Retinoblastoma is the most common intraocular malignancy of childhood.[1] Enucleation in retinoblastoma is performed beyond group C of the disease when eye cannot be salvaged by othertreatment modalities.[2] The purpose of enucleation in the eye with retinoblastoma is to remove the diseased globe, prevent the extraocular spread of the disease and provide acceptable cosmesis.[3] Orbital implants are beneficial to orbital growth besides replacing the volume loss and also promote prosthesis motility.[4] Orbital implants can be of alloplastic or autogenous material within the socket and porous hydroxyapatite is one of the alloplastic orbital implants.[5] The hydroxyapatite material is filled with living fibrovascular tissue, hence it is possible to make a hole into it and support a motility peg which provides direct mechanical coupling to the prosthesis.[6] Earlier reported experience has been good in terms of cosmesis and motility with the use of this implant.[7] However few cases of conjunctival dehiscence over implant causing exposure of implant have been noted due to various reasons.[8,9,10] Herein we have discussed a case of exposed hydroxyapatite implant which further self-epithelizedwith due course of time.

Case :

A 1 year old male child presented to us with a chief complaint of white reflex in the right eye in 2018. The CT scan of the patient was done which showed an enlarged right eyeball with calcificationand normal left eyeball. The patient was diagnosed with group D retinoblastoma and underwent enucleation with 18 mm porous hydroxyapatite implantation using my oconjunctival technique with 14 mm optic nerve length retrieval in September 2018.The patient was kept on regular follow up every 3 monthly after that. Approximately 2 years after implantation, the patient developed conjunctival dehiscence with exposure of implant measuring about 4×5mm. (Figure : 1)

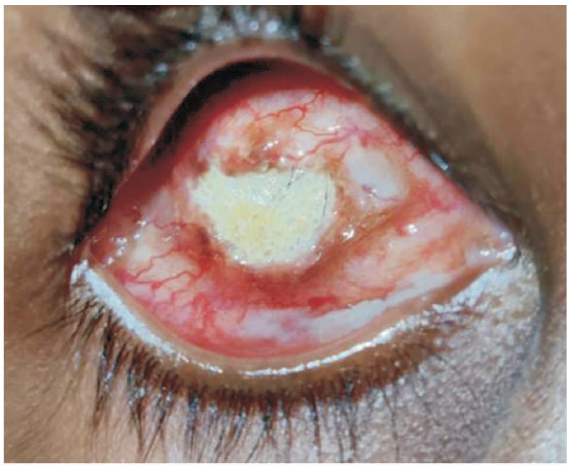

Figure 1 : Enucleated socket showing implant exposure along with few cilia present over it

He was managed on topical to bramycin 0.3% and dexamethasone 0.1% and was kept on close follow up. After 12 months the size of the defect remained the same. Some vascular tufts were seen in the hydroxyapatite pores but the spicules remained exposed. The patient was planned for the removal of the implant. The patient was lost to follow up for 1 year due to covid19 lockdown and travel restrictions. The patient visited us in September 2021. On examination, we found that there was conjunctival reepithelization over the exposed implant area (Figure : 2)

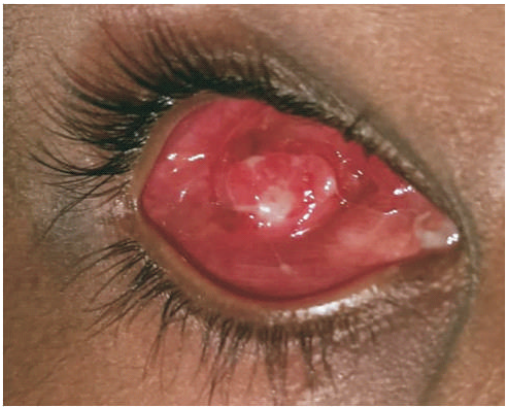

Figure 2 : Conjunctival re-epithelisation seen after a period of 1 year treated by topical tobramycin 0.3% and dexamethasone 0.1% ointment.

Discussion :

Porous hydroxyapatite has been used as a successful orbital implant in enucleation, evisceration and as secondary implants since 1985.[6,11] There may be various causes of implant extrusion which includes infection, haemorrhage, surgical technique, biocompatibility with implant material and inappropriate sizing.[12] These enumerated causes mostly cause extrusion of the implant in the early healing phase. In our case, there were no signs of infection, haemorrhage or oedema. The clinical course was uneventful for two years. So early causes of implant extrusion were excluded in our case scenario. Superficially placed hydroxyapatite orbital implant can be a cause of conjunctival wound dehiscence as shown in previous studies because it is thought that hydroxyapatite spicules can be irritative to the conjunctiva.[5] The ill-fitted prosthesis can be a cause of late extrusion of the implant which causes tissue erosion over the anterior surface of the implant. In our case scenario superficially placed implant or ill-fitted prosthesis can be a cause of implant exposure.

Although the implant was chronically exposed, the clinical outcome was uneventful. It is probably related to the excellent fibrovascular ingrowth inside the hydroxyapatite pores. This makes the hydroxyapatite implant superior as compared to other implants made of silicon or polymethacrylate which would have been probably extruded.[5]

Previous studies have shown the treatment of conjunctival dehiscence using vascular flaps or scleral patch graft to cover implant exposure.[5] In our case since the patient was not having any discharge or any change in the size of the exposed area of the implant, we had kept the patient for follow up without any intervention. As the patient lost to follow up for one year, we could not document the clinical course of the patient. After one year when the patient consulted us again, surprisingly we found the area of implant exposure was completely epithelized without any intervention. The patient is not having any clinical complaint, has been kept under our observation and has been advised for revaluation of prosthesis fitting.

The treatment for implant exposure has been speculative but we can always practice careful sterile techniques, placing the implant as deeply as possible, closing without tension and using vascularized tissue over the implant. The wrapping material can also be used like autogenous fascia, donor sclera or any other biocompatible layer to protect the anterior surface of orbital tissues from hydroxyapatite spicules.[5] Implant exposure is a potential problem with hydroxyapatite implants however with the advent of newer techniques and implant material these problems can be overcome.[13]

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