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CASE REPORT

# Secondary reconstruction of a mobile eye socket 30 years after enucleation of the eyeball for retinoblastoma: A case report



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## KEYWORDS

Mobile eye-socket reconstruction;  
Eye enucleation;  
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**Summary** A mobile eye socket is generally reconstructed by inserting an implant into the scleral pocket immediately after bulbar exenteration, or by attaching the extra-ocular muscles to the implanted artificial eyeball immediately after enucleation. However, exposure of the implanted material and other problems can occur. We achieved satisfactory reconstruction of a mobile eye socket by using an autogenous cartilage graft and a pericranial flap in a patient with long-standing anophthalmia due to enucleation.

This case is presented with a review of the relevant literature.

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In general, a mobile eye socket can be reconstructed by inserting an implant into the scleral pocket immediately after bulbar exenteration, or by attaching the extra-ocular muscles to an implanted artificial eyeball immediately after enucleation. Although problems related to exposure

of the implanted material can occur, there have been few reports about secondary reconstruction of a mobile eye socket because of the difficulty in obtaining mobility at a late stage. We achieved satisfactory reconstruction of a mobile eye socket in a patient with long-standing anophthalmia due to enucleation, as reported here.

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## Case report

A 31-year-old male presented with right-sided anophthalmia because his eyeball had been enucleated to treat retinoblastoma at 1 year of age. He had used an artificial

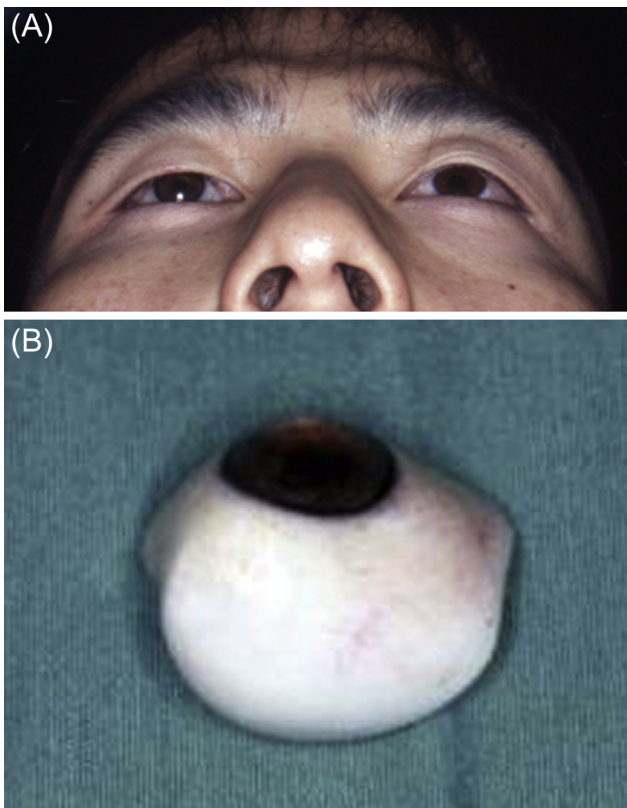
eye without adequate socket plasty since then, but his old prosthesis often slipped out because of its weight and thickness. The patient wanted an eye socket that was suitable for a light and thin prosthesis and preferably also mobile.

At the first visit, there was obvious enophthalmos of his right eye despite the patient using a thick prosthesis, which easily slipped out of the socket (Figure 1A, B).

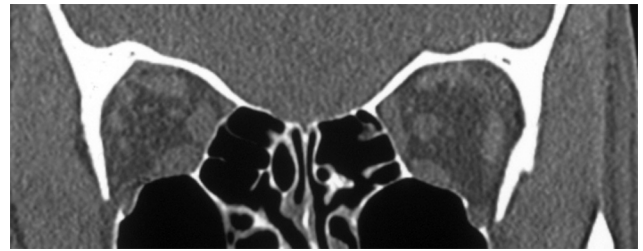
Although it had been 30 years since enucleation of the eyeball, the contracted extra-ocular muscles (except for the lateral rectus) were detected by computed tomography (CT) in the deep orbital region (Figure 2). In addition, movement of the conjunctiva in the socket was synchronous with that of the unaffected eyeball.

## Operative procedure

Under general anaesthesia, cartilage was harvested from the right sixth rib and crafted into a ball to augment the socket (Figure 3A). Then, the conjunctiva in the eye socket was incised to prepare an appropriately sized orbit, and the contracted extra-ocular muscles were pulled up from the deep orbital region and exposed, except for the lateral rectus that had become atrophic. Then, a coronal incision was made and a pericranial flap was raised to wrap the cartilage ball in order to prevent its extrusion (Figure 3B). The lateral rectus was elongated with a part of pericranium and sutured to the cartilage ball, while the other muscles were sutured directly. Finally, the conjunctival incision was closed.



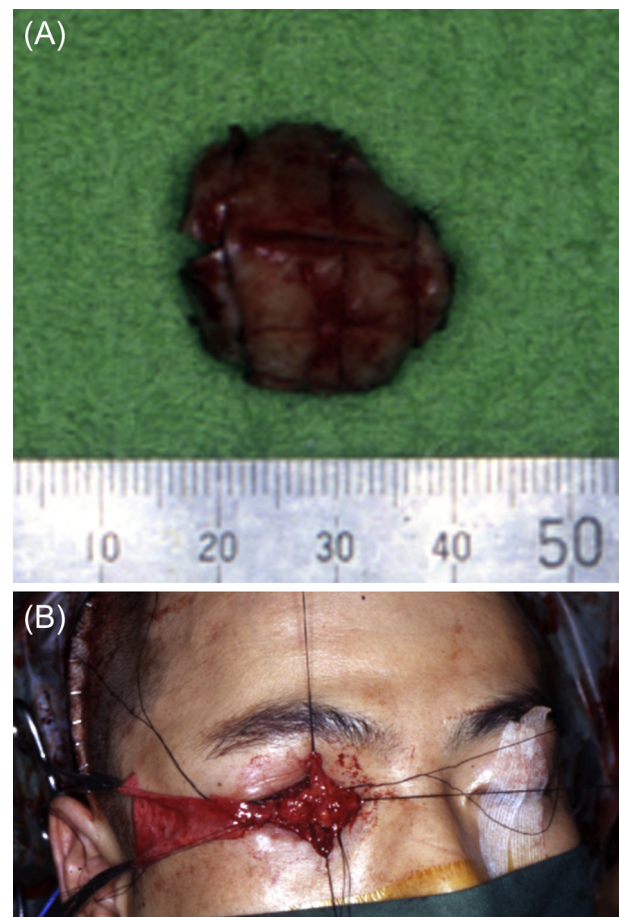
**Figure 1** Findings at the first visit. (A) Obvious enophthalmos of the right eye. (B) The patient's thick and heavy prosthesis.



**Figure 2** CT scan before reconstruction. The extraocular muscles (except for lateral rectus) were contracted and thickened deep inside the orbit.

## Postoperative course

The patient recovered uneventfully, and he was aware of eye-socket movement from immediately after surgery. One month postoperatively, we confirmed movement of the conjunctiva in the socket. One year after surgery, CT revealed that the extra-ocular muscles (except for the lateral rectus) were in contact with the cartilage ball (Figure 4A). The patient was able to use a thin and light prosthesis that rarely slipped out (Figure 4B). It moved with the healthy left eye, although oriented slightly downwards



**Figure 3** Intraoperative findings. (A) The cartilage ball. (B) The rectus muscle and the pericranial flap exposed through the conjunctival incision.

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