

Swallowed Ocular Prostheses

Report of Three Cases in Children With Retinoblastoma

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Purpose: To report 3 instances of 2 children who swallowed their ocular prostheses.

Methods: A 30-month-old boy whose eye had been enucleated for retinoblastoma swallowed his ocular prosthesis on 2 different occasions, and a 32-month-old boy whose eye had also been enucleated for retinoblastoma swallowed his ocular prosthesis once.

Results: In the second child, an abdominal radiograph was obtained, but the swallowed prosthesis was not apparent, and radiographic imaging of the recovered prosthesis failed to demonstrate an identifiable object. In each case, the prosthesis was recovered in the child's stool without incident several weeks later. Neither child had physical complications as a result of the swallowing events.

Conclusions: We report 3 instances in which a child fitted for an ocular prosthesis after enucleation swallowed his prosthesis and had no untoward effects. The failure of imaging to detect the prostheses in the second child is attributed to the radiolucent nature of materials used in the manufacture of the prosthesis. Each of the children was having life stresses in addition to his medical treatment that may have accounted for his behavior.

The standard accepted treatment for unilateral, unifocal, nongermline retinoblastoma is enucleation of the eye.¹ Enucleation is a relatively safe procedure with few complications.² The most common complications are physical and include implant exposure, superior sulcus deformity, lax socket, enophthalmos, and socket contracture.²⁻⁴

However, recently at St. Jude Children's Research

Hospital, we encountered an unusual behavioral complication after enucleation in two separate patients with retinoblastoma. One patient swallowed his ocular prosthesis twice, and the other swallowed his once. Each episode was associated with extraordinary stresses in the child's life in addition to his medical treatment. To our knowledge, no similar cases have been reported.

CASE REPORTS

A 30-month-old boy newly adopted from Russia was evaluated for unilateral, unifocal retinoblastoma of the left eye. He underwent enucleation with placement of an 18-mm porous polyethylene implant and subsequent fitting of an acrylic prosthesis 6 weeks later. Three months later, his mother reported that he had removed and swallowed the new prosthesis. After evaluation by his pediatrician, a course of observation was suggested. The

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child passed the prosthesis in his stool 2 weeks later. Examination of the prosthesis demonstrated pitting of the surface with loss of paint and gloss (Fig. 1). The child was refitted, but he removed and swallowed his second prosthesis after 4 months. He was again observed and soon passed the prosthesis in his stool. He was refitted with another prosthesis and has demonstrated no further episodes of this behavior in the past 14 months.

A second 32-month-old boy underwent enucleation of his right eye with placement of a 20-mm hydroxyapatite sphere for treatment of recurrent retinoblastoma. One year later, his mother reported that the boy had removed and swallowed his prosthesis. Abdominal radiography failed to reveal the prosthesis. It was recovered in his stool several weeks later. He was refitted and has tolerated the prosthesis well in the 18 months after this event. Before this episode, his mother had recently given birth to a new brother.



FIG. 1. Ocular prosthesis recovered from the stool of a 30-month-old boy 2 weeks after he had swallowed it shows pitting of the surface and loss of the fine gloss and localized paint.

DISCUSSION

A review of reported cases revealed no similar instances of a child swallowing a prosthesis. Both children described herein were fitted by the same ocularist, who remembers no similar episodes in over 25 years of fitting prostheses in children. No adverse effects were noted, although a choking hazard is theoretically possible.

Despite our efforts to localize the second child's prosthesis within the digestive tract by using abdominal radiography after the swallowing incident, the prosthesis could not be visualized. When the recovered prosthesis was placed in a saline bath and imaged using standard technique for abdominal radiography, it was found to be radiolucent because the prosthesis was acrylic and the paints used to decorate it were radiolucent. This is in contrast to older prostheses painted with lead-based paints, which are radiopaque (Fig. 2). Therefore, because our patients passed their prostheses in their stool without incident, we believe that a course of careful observation be undertaken and that abdominal radiography would not likely be useful in ruling out the possibility of an ingested prosthesis. It should also be noted that the materials currently used in prosthesis manufacture are non-toxic.

Although the condition of the socket was apparently not a factor in the behavior of either of these children, it may play a role in such behavior and thus should be considered by a physician evaluating similar cases. The status of the orbits in both children reported was completely normal for anophthalmic orbits. The first patient had received no other treatment, and the second patient

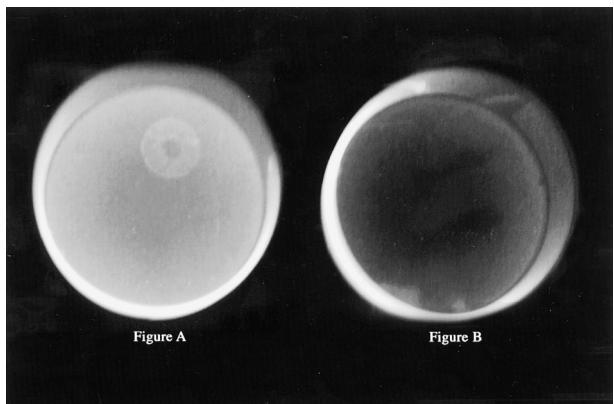


FIG. 2. Comparison of two prostheses, both placed in saline baths and imaged by standard radiographic techniques. **A**, Older prosthesis manufactured with lead-based paints is easily visualized. **B**, In contrast, the recovered prosthesis is not apparent with the same radiographic technique, which indicates the radiolucent nature of the prosthesis.

had been treated with intravenous chemotherapy and external beam irradiation before enucleation. There was no evidence of fornix contracture, conjunctival dehiscence, implant exposure or extrusion, or infection. Neither of the children was receiving drops of any kind nor ointment (except in the immediate postoperative period). At regularly scheduled follow-up examinations, the prostheses appeared well polished and showed no signs of obvious damage.

A child with retinoblastoma undergoes many stressful life changes as a result of the diagnosis and management of the disease, not the least of which is the enucleation of a diseased eye. In addition to the anxiety associated with their disease, our two patients were having further stressful life changes. The first child was in transition from a foreign country to a new adoptive family, and the second child was dealing with a new younger sibling. Although the psychological ramifications of enucleation in a young child have not been well explored,⁵ the swallowing behavior of our two patients may represent a reaction to the high level of stress placed on the child.

Because children are prone to swallow small and colorful objects, it is probable that similar cases have occurred and gone unrecognized by parents who thought only that the prosthesis had been lost. We present these cases to alert the ophthalmic community to consider that young children may swallow their prostheses and that parents should be informed of this possibility.

REFERENCES

1. Shields JA, Shields CL, Sivalingam V. Decreasing frequency of enucleation in patients with retinoblastoma. *Am J Ophthalmol* 1989; 108:185-8.
2. Moshfeghi DM, Moshfeghi AA, Finger PT. Enucleation. *Surv Ophthalmol* 2000;44:277-301.
3. Karcioğlu ZA, al-Mesfer SA, Mullaney PB. Porous polyethylene orbital implant in patients with retinoblastoma. *Ophthalmology* 1998;105:1311-6.
4. Lee V, Subak-Sharpe I, Hungerford JL, et al. Exposure of primary orbital implants in postenucleation retinoblastoma patients. *Ophthalmology* 2000;107:940-5.
5. Oppenheim D, Hartmann O. Psychotherapeutic practice in paediatric oncology: four examples. *Br J Cancer* 2000;82:251-4.