Conjunctival cysts in anophthalmic orbits

Ton J Smit, Leo Koornneef, Frans W Zonneveld

Abstract
Five out of 149 patients (3%) who received an intraorbital implant to prevent or treat the disfiguring symptoms associated with the postenucleation socket syndrome developed intraorbital conjunctival cysts. All five patients had received a secondary implant two to 14 months previously. After excision of the cysts four patients required additional surgery for lack of conjunctiva and/or recurrent cyst formation. The clinical findings, mechanism of development, and management of this rare but serious complication of socket surgery are described.

Conjunctival cysts of the orbit following enucleation are rare. Only 17 cases of orbital conjunctival cyst formation after enucleation have been reported.4 5 We have seen this complication in five patients over a period of seven years.

Patients and methods
The patients consisted of 149 patients referred to the Orbital Center who received an intraorbital implant between January 1982 and April 1989 to prevent or treat the disfiguring symptoms associated with the postenucleation socket syndrome. Fifty-one patients had the implant placed at the time of enucleation (primary implant), 73 some time after enucleation (secondary implant), 17 after replacement of a previously inserted inadequate implant, and eight after an evisceration of the eye. The implants were 18 mm acrylic balls covered with donor sclera, the so-called baseball implant.6 For patients whose eyes were eviscerated 18 mm bare acrylic balls were used. The implants were inserted in a standardised manner.7

Results
Five patients in this series, all with a secondary implant, developed conjunctival cysts in the anophthalmic orbit two to 14 months after the implantation of the baseball (Table 1). In all five increasing difficulty in retaining the prosthesis was the first sign. Proposis of the prosthesis and shallowness of the fornices (the inferior fornix in four, the superior fornix in one) was also noted. In two a palpable mass was found.

Diagnosis was established with high resolution computerised tomography (CT) in two patients (Fig 1) and with fine needle aspiration of 6–7 ml of a yellow-grey fluid from the mass in one patient. In the other two patients the cysts were accidentally found during surgery for deepening the fornix. In three of the five patients multiple cysts were present. Complete excision was undertaken in all cases.

During excision three implants were replaced because they appeared to communicate with the cysts. The two patients in whom the implant was not replaced at first had a recurrence. The recurrent cysts were removed completely in a second session, together with the implant in one patient. So altogether four out of five implants had to be replaced. In three patients a donor sclera-covered ball was reinserted; in one patient a dermis fat graft was used after recurrent cyst excision because this patient also showed lack of conjunctiva (Table 2).

Histopathological examination revealed cysts lined with non-keratinising stratified squamous epithelium and surrounded by fibrous tissue.

Lack of conjunctiva, resulting in shallow fornices, was a complication found in three patients after excision of the cysts. This required additional treatment: two patients had fornix reconstruction with oral mucous membrane grafts, and in one patient a dermis fat implant was placed instead of a baseball implant—later on a mucous membrane graft (Table 2).

Unfortunately, the final cosmetic result was poor in all five patients.

Discussion
Orbital conjunctival cyst formation following enucleation is a
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Table 2: Clinical details

<table>
<thead>
<tr>
<th>Patient no.</th>
<th>Reason for enucleation</th>
<th>Surgery</th>
<th>Multiple cysts</th>
<th>Additional surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Trauma</td>
<td>Excision cyst</td>
<td>-</td>
<td>Recurrent cyst excision, replacement implant with dermis fat graft, mucous membrane graft</td>
</tr>
<tr>
<td>2</td>
<td>Retinoblastoma</td>
<td>Excision cyst, replacement implant</td>
<td>-</td>
<td>Mucous membrane graft</td>
</tr>
<tr>
<td>3</td>
<td>Glioma</td>
<td>Excision cysts, replacement implant</td>
<td>+</td>
<td>Recurrent cyst excision</td>
</tr>
<tr>
<td>4</td>
<td>Trauma</td>
<td>Excision cysts, replacement implant</td>
<td>+</td>
<td>Mucous membrane graft</td>
</tr>
<tr>
<td>5</td>
<td>Melanoma</td>
<td>Excision cysts, replacement implant</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>

concomitant cysts, in anophthalmic orbits, have been described by Allison and Wergeland. In our series, 3% of the cases had recurrence of conjunctival cysts. This is consistent with the findings of others who have reported recurrence rates ranging from 0% to 33%. However, in a series of 60 patients with congenital cataracts, none of the cases had recurrence of conjunctival cysts. This may be due to the fact that in the congenital cataract group, the cysts were present from birth and therefore did not have the opportunity to recur. In contrast, the cysts in the anophthalmic group were present after enucleation and therefore had the chance to recur.

A significant number of cases had cysts that were buried in the socket by one of these mechanisms. In our series, conjunctival cysts were found only in patients with a secondary implant. In contrast to a primary implantation, the orbital anatomy in secondary implantations has already been disturbed, and a space for the implant has to be created by sharp dissection inside the collapsed orbital tissues. Because of this, the secondary implantation technique is more complicated. The risk of implantation of conjunctiva into the orbit is increased, because accurate closure of Tenon's capsule and conjunctiva is more difficult. It is therefore important to close Tenon's capsule and conjunctiva with great care in two separate layers. If conjunctival cysts still develop, it is better to remove the implant as well to forestall further recurrences.

We conclude that orbital cyst formation is rare in patients with a primary implant. If orbital conjunctival cysts occur in secondary implants, we recommend removal of the implant together with the cysts to prevent further complications. In general, the final cosmetic outcome in these patients remains poor.

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Br J Ophthalmol 1991 75: 342-343
doi: 10.1136/bjo.75.6.342

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