Surgical management of limbal dermoids: ten-year review

Yong Yao1,2, MD; Ming Zhi Zhang1,2, MD; Vishal Jhanji1,2 MD

1Joint Shantou International Eye Center of ShanTou University and The Chinese University of Hong Kong, ShanTou, China
2Department of Ophthalmology and Visual Sciences, The Chinese University of Hong Kong, Hong Kong SAR

Corresponding author:
Vishal Jhanji, MD, FRCOphth
3/F, Hong Kong Eye Hospital
147K Argyle Street, Kowloon, Hong Kong
Phone: (852) 3943-5807
Fax (852) 2715-9490
E-mail: vishaljhanji@gmail.com
Corneal limbal dermoid is a congenital, benign choristoma composed of tissues of ectodermal and mesodermal origin (Cha et al, 2013), (Pirouzian, 2013). Grade I limbal dermoids are superficial and measure <5 mm. Grade II limbal dermoids cover more of the cornea and extend down to Descemet's membrane. Grade III limbal dermoids cover the whole cornea and extend through it to the anterior chamber up to the pigmented epithelium of the iris. Surgical intervention is indicated in cases with amblyopia unresponsive to conservative management, dellen, recurrent conjunctivitis, growth into

This article is protected by copyright. All rights reserved
the optical zone and inadequate lid closure. Different surgical techniques have been described for removal of dermoids (Stergiopoulos et al, 2009). These include bare-sclera excision, excision with amniotic membrane transplantation (Pirouzian, 2012), and excision with corneal graft (Chen et al, 2005). We reviewed the records of cases with limbal dermoids that were treated in our hospital between June 2005 and June 2015. All surgeries were performed using a standard surgical technique. Briefly, the area of limbal dermoid was marked, followed by excision using a Crescent blade until a clear bed was achieved. A lamellar, limbal-based corneo-scleral patch, 0.5-1.0 mm larger than the excised dermoid bed, was fashioned from a whole donor eye. The donor button was laid over the area of excised dermoid and aligned with the corneal limbus. The corneal edge was sutured with interrupted or continuous 10-0 nylon sutures, and scleral edge was sutured with interrupted 10-0 nylon sutures. The conjunctiva was pulled over the exposed sclera and sutured with 10-0 nylon to the edge of the graft. The nylon sutures were sequentially removed 4-12 months after the surgery.

Overall, 43 patients (25 females, 18 males) received surgery over a 10-year period. The mean age of patients at the time of surgery was 11.4 (SD 6.4; range, 1-26) years. Goldenhar syndrome was present in 11/43 (26%) patients. Three patients (grade 1) underwent simple dermoid excision and 40 patients (1 patient grade 1; 39 patients grade 2) underwent dermoid excision with lamellar sclerokeratoplasty. The mean dermoid diameter was 5.3 (SD 0.6; range, 4.0-7.0) mm. The mean graft diameter was 7.0 (SD 0.7; range, 5.2-9.0) mm. The median postoperative follow-up was 36 months (range, 7-108) months. The median logMAR visual acuity was 0.3 (SD 0.3) preoperatively and 0.20 (SD 0.2) postoperatively (Wilcoxon Signed rank test, p<0.001). The mean astigmatism was 2.3 (SD 1.0; range, 1.0-6.0) diopters preoperatively and 1.4 (SD 0.6; range, 0.75-3.25) diopters postoperatively. Figure 1 shows the preoperative and postoperative images of representative cases. Postoperatively, mild graft opacification was noted in 16 eyes (37%; 95% confidence interval: 24-52) and pseudopterygium occurred in 3 eyes (7%; 95% confidence interval: 1-19). Postoperative staphyloma was noted in 1 eye of a 3-year-old young girl at the end of 1-year follow-up. Overall, 10 patients (6 male, 4 female) had associated amblyopia and 33 (12 male, 21 female) did.
not have amblyopia. Both groups were comparable in terms of dermoid diameter (Wilcoxon Signed rank test, p=0.062), graft diameter (Wilcoxon Signed rank test, p=0.198), preoperative astigmatism (Wilcoxon Signed rank test, p=0.077) and postoperative astigmatism (Wilcoxon Signed rank test, p=0.098). Significant differences were noted in preoperative and postoperative visual acuity in both groups (Wilcoxon Signed rank test, p ≤ 0.002) (Table 1). However, amblyopia was not responsive to surgical management in those who had failed conservative management.

The usual surgical approach in limbal dermoids is simple excision mainly due to ease of the procedure. Lamellar keratoplasty is indicated in deep-seated dermoids. In our study, a lamellar graft was performed after excision of dermoid in majority of the cases. We encountered mild graft opacification in 16 eyes, pseudopterygium in 3 eyes, and staphyloma in 1 eye. We speculate that staphyloma may be attributed to a thin residual scleral bed although we did not measure the scleral thickness before or after the surgery. Watts et al. (2002) reported successful surgical management of 49 children with excellent visual results in the majority of their patients. In our study, the mean visual acuity improved significantly after the surgery. However, there was no significant change in the astigmatism postoperatively. This may be attributed to a relatively small tumor size in our patients. We also analyzed our patients based on the presence of amblyopia. Both preoperative as well as postoperative visual acuity was better in patients without amblyopia. The visual acuity improved postoperatively in both groups.

Our study showed that simple excision with or without lamellar sclerokeratoplasty is effective for management of grade 1 and grade 2 corneal limbal dermoids. Long-term follow-up is mandatory especially in young patients to look for possible complications related to scleral thinning.

Disclosure: The authors report no conflicts of interest in this work.

Acknowledgments: None

References


This article is protected by copyright. All rights reserved.


**Legends for figures**

Figure 1: Clinical photographs showing preoperative and postoperative grade II (a and b), grade I (c and d), and grade II (e and f) limbal dermoids
Table 1: Visual outcomes after surgery for limbal dermoid in patients with and without associated amblyopia

<table>
<thead>
<tr>
<th></th>
<th>No Amblyopia (n=33)</th>
<th>Amblyopia (n=10)</th>
<th>Total</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>11.4± 6.8</td>
<td>11.5± 5.1</td>
<td>11.4± 6.4</td>
<td>0.985</td>
</tr>
<tr>
<td>Preoperative visual acuity</td>
<td>0.3± 0.3</td>
<td>0.6± 0.1</td>
<td>0.3± 0.3</td>
<td>0.001*</td>
</tr>
<tr>
<td>Preoperative astigmatism</td>
<td>2.1± 1.0</td>
<td>2.8± 1.2</td>
<td>2.3± 1.0</td>
<td>0.077</td>
</tr>
<tr>
<td>Postoperative visual acuity</td>
<td>0.1± 0.2</td>
<td>0.4± 0.1</td>
<td>0.2± 0.2</td>
<td>0.016*</td>
</tr>
<tr>
<td>Postoperative astigmatism</td>
<td>1.3± 0.5</td>
<td>1.7± 0.6</td>
<td>1.4± 0.6</td>
<td>0.098</td>
</tr>
<tr>
<td>Graft size</td>
<td>6.9± 0.7</td>
<td>7.3± 0.7</td>
<td>7.0± 0.7</td>
<td>0.198</td>
</tr>
<tr>
<td>Bed size</td>
<td>6.7± 0.6</td>
<td>7.1± 0.71</td>
<td>6.8± 0.7</td>
<td>0.126</td>
</tr>
<tr>
<td>Dermoid size</td>
<td>5.3± 0.6</td>
<td>5.70± 0.63</td>
<td>5.3± 0.6</td>
<td>0.062</td>
</tr>
<tr>
<td>Follow-up (months)</td>
<td>39.8± 25.4</td>
<td>34.8± 14.4</td>
<td>38.6± 23.2</td>
<td>0.548</td>
</tr>
</tbody>
</table>
Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:
Yao, Y; Zhang, MZ; Jhanji, V

Title:
Surgical management of limbal dermoids: 10-year review

Date:
2017-09-01

Citation:

Persistent Link:
http://hdl.handle.net/11343/292618