been linked to noncompliance with clinic visits in other settings, and was the strongest predictor of noncompliance in the present study. This association, although perhaps unsurprising, was not noted by Kosoko and associates whose study population included patients with ocular hypertension and glaucoma. Despite our findings, it remains unclear if lack of health insurance is the direct cause of poor compliance, or if other associated factors contribute to a greater degree.

Kosoko and associates also found noncompliance (defined as greater than six months between visits) was significantly more likely among glaucoma suspects and younger patients, and the most common reason for noncompliance was the perceived unimportance of the eye problem. Educating patients about the risk of progression to glaucoma and the association between glaucoma and blindness might improve compliance. Patient education significantly reduced no-show rates at a family practice clinic.

A significant proportion of the study population was excluded because the treating ophthalmologist did not obtain appropriate VF testing. Other authors have noted similar issues in management of glaucoma patients in the community. Physician education might improve these practice patterns.

Some authors have found non-English speaking patients did not differ in compliance with clinic visits. Our sample size is likely too small to draw any firm conclusions. Other limitations of this study include inability to account for follow-up elsewhere and lack of knowledge about reasons for noncompliance. Factors associated with a retrospective study may also have affected our results, including nonstandardization of data collection, differences in practice patterns among physicians, and bias in population characteristics and referral patterns related to the university-based practice. Further investigation is warranted to confirm these findings.

**TABLE 2. Risk Factors for Noncompliance With Follow-up Among Normal-Tension Glaucoma Suspects**

<table>
<thead>
<tr>
<th>Compliant</th>
<th>Noncompliant</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at diagnosis (years)</td>
<td>55.1 ± 12.8</td>
<td>50.5 ± 15.0</td>
</tr>
<tr>
<td>No/unknown insurance</td>
<td>9/98 (9.2%)</td>
<td>39/83 (47%)</td>
</tr>
<tr>
<td>Non-White</td>
<td>29/98 (30%)</td>
<td>16/83 (19%)</td>
</tr>
<tr>
<td>Non-English speaking</td>
<td>13/98 (13%)</td>
<td>3/83 (3.6%)</td>
</tr>
<tr>
<td>Family history of glaucoma</td>
<td>30/98 (31%)</td>
<td>27/83 (33%)</td>
</tr>
<tr>
<td>Male gender</td>
<td>34/98 (35%)</td>
<td>34/83 (41%)</td>
</tr>
</tbody>
</table>

*Independent samples t test, two-tailed test. †Chi-square test, two-tailed test.

__REFERENCES__


__Amniotic Membrane Transplantation with Fibrin Glue for Conjunctivochalasis__

Ahmad Kheirkhah, Victoria Casas, Gabriela Blanco, Wei Li, Yasutaka Hayashida, Ying-Ting Chen, and Scheffer C. G. Tseng

**PURPOSE:** To evaluate the feasibility of performing sutureless amniotic membrane transplantation (AMT) using fibrin glue for conjunctivochalasis.

**DESIGN:** Noncomparative interventional case series.

**METHODS:** In 25 eyes of 16 patients with refractory conjunctivochalasis (CCh), AMT using fibrin glue was performed to cover the bare sclera.

**RESULTS:** The mean age was 55.2 ± 18.5 years with nine patients (56.2%) younger than 60 years. The Tenon capsule was dissolved in all eyes. Fibrin glue was effective

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in securing the amniotic membrane to the sclera. For a mean follow-up of 10.6 ± 4.3 months, all eyes achieved a smooth conjunctival surface with complete or significant improvement of symptoms in 44% and 56%, respectively. Complications included focal conjunctival inflammation in four eyes and pyogenic granuloma in one eye.

CONCLUSION: AMT using fibrin glue can be performed for refractory CCh resulting in alleviating its symptoms and signs. (Am J Ophthalmol 2007;144:311–313. © 2007 by Elsevier Inc. All rights reserved.)

FIGURE. Surgical steps of amniotic membrane transplantation using fibrin glue for conjunctivochalasis (CCh). After using several drops of nonpreserved epinephrine 1/1000 for hemostasis and 2% lidocaine gel for anesthesia, an arc-like conjunctival peritomy was created 1 to 2 mm posterior to the limbus in the area of CCh (Top left) and extended to remove pinguecula, if present. A traction suture made of 7-0 Vicryl was placed 2 mm posterior to the limbus at the 6 o’clock position and used to rotate the eye upward. Poor conjunctival adhesion to the sclera from dissolution of the Tenon capsule was noted as evidenced by easy separation of the conjunctiva from the sclera simply by forceps grabbing (pointed but not cut by scissors) (Top middle). Severe conjunctival thinning was trimmed off and the conjunctiva was recessed to the fornix (Top right). Cryopreserved amniotic membrane (Bio-Tissue, Miami, Florida, USA) was laid down on the sclera with the stromal surface down. For application of fibrin glue (Tisseel, Baxter, Inc, Irvine, California, USA), half of the membrane was folded over onto the other half to expose the stromal surface. The thrombin solution was first applied onto the scleral surface (Bottom left) while the fibrinogen solution was applied onto the stromal surface of amniotic membrane (Bottom middle). Then the membrane was flipped back on the sclera and a muscle hook was used to spread the fibrin glue under the membrane (Bottom right). These steps were repeated for the other half of the membrane, and then the excessive membrane and fibrin gel were trimmed to flush with the conjunctiva.

CONJUNCTIVOCHALASIS (CCh), DEFINED AS A REDUNDANT, loose bulbar conjunctiva interposed between the globe and the eyelid, tends to affect both eyes of older populations.1 CCh is a common cause of ocular surface irritation and its clinical significance is often overlooked. No treatment is needed if patients with CCh remain asymptomatic. For symptomatic cases, medical therapies are directed to suppressing ocular surface inflammation, and when they fail, surgical removal of the redundant conjunctiva becomes necessary.1 Surgical technique usually includes excision of the bulbar conjunctiva2,3 or suture fixation of the conjunctiva to the sclera.4 Amniotic membrane transplantation (AMT) has been shown to be successful in reconstructing the conjunctival surface after removal of CCh.2,5 Sutures, which are used to secure the cryopreserved amniotic membrane introduce certain disadvantages, including prolonged operating time, postoperative discomfort, and suture-related complications such as abscesses, granuloma formation, and giant papillary conjunctivitis. To avoid these, fibrin-based tissue adhesives have recently gained increasing acceptance for ocular surface surgeries. This retrospective study reviews our clinical experiences in using fibrin glue to achieve AMT for CCh in 25 eyes of 16 patients. Surgical technique has been demonstrated in the Figure.

This study included 10 women and six men with a mean age of 55.2 ± 18.5 years and nine patients (56.2%) were younger than aged 60 years. All had symptomatic CCh that was refractory to medical management. In addition, we noted pinguecula in 14 eyes (56%), varying degrees of
floppy eyelid syndrome in 13 eyes (52%), aqueous tear deficiency dry eye in 12 eyes (48%), add lipid tear deficiency in 10 eyes (40%).

All 16 patients had bilateral CCh, and nine patients (56.2%) were operated bilaterally at the same time. There was involvement of only inferotemporal and inferonasal areas in six eyes (24%) of three patients, but the entire inferior bulbar conjunctiva in 19 eyes (76%) of 13 patients. During surgery, it was noted that the Tenon capsule was mostly dissolved in all eyes with little attachment of the conjunctiva to underlying sclera. Polymerization of the fibrin glue took place within 15 to 20 seconds to secure AM attachment to the underlying sclera.

During the follow-up period of 10.6 ± 4.3 months (range, five to 16 months), symptoms were completely (100%) resolved in 11 eyes (44%) of eight patients and significantly (more than 50% but less than 100%) in 14 eyes (56%) of eight patients. The residual symptoms were mainly due to other ocular pathologies such as aqueous tear deficiency, lipid tear deficiency, and floppy eyelid syndrome. Conjunctival redundancy completely disappeared without recurrence in all eyes, resulting in a smooth conjunctival surface with reduced inflammation and restoration of a continuous tear meniscus in all operated eyes. Complications included focal inflammation of conjunctiva adjacent to AM in four eyes (16%) and pyogenic granuloma in one eye (4%), all of which completely resolved after subconjunctival injection of triamcinolone acetonide.

Although CCh is usually regarded as a disease of old age,1 more than half of our patients were younger than 60 years, suggesting that CCh might not be restricted to the older population. We noted dissolution of the Tenon capsule in all eyes and this has not been described previously. In this study, we used fibrin glue in lieu of sutures to shorten the operating time, promote postoperative comfort and care, and eliminate suture-related complications (that is, the advantages that have been observed in various other ophthalmic surgeries).6,7 After surgery, irritating symptoms were completely resolved in about half of our cases, whereas the other half showed partial resolution. Previously, focal inflammation of host conjunctiva, scar formation, and suture-induced granuloma were noted in 13%, 11%, and 2% of 47 eyes, respectively, after AMT using sutures for CCh.2 Using fibrin glue, we noted a similar incidence of focal inflammation of host conjunctiva only adjacent to the border of AM in the fornix. In conclusion, symptoms and signs of refractory CCh can be alleviated by AMT using fibrin glue.

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REFERENCES


Spectrum of Eye Disease Caused by Methicillin-Resistant Staphylococcus Aureus

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PURPOSE: To compare the clinical features and antibiotic susceptibility of ocular methicillin-resistant Staphylococcus aureus (MRSA) and methicillin-sensitive Staphylococcus aureus (MSSA).

DESIGN: Cross-sectional study.

METHODS: The Proctor clinical laboratory database was reviewed to identify all ocular isolates of S. aureus collected between July 1, 1998 and July 31, 2006.

RESULTS: Of 915 S. aureus isolates, there were 88 MRSA isolates in 41 different patients. The proportion MRSA increased from 4.1% in 1998 to 1999 to 16.7% in 2005 to 2006. A total of 78.0% of patients with MRSA had blepharoconjunctivitis, 2.4% had cellulitis, 2.4% had dacryocystitis, 14.6% had keratitis, and 2.4% had endophthalmitis. The diagnoses associated with MSSA were not statistically different. A total of 63.6% of