Conspicuously absent were retinal tissues and blood vessels. They likely did not survive 1 week after burial in the conditions offered by the Atacama Desert. This is not surprising given that these delicate tissues do not escape autolytic disintegration in vivo following ischemic events.

Mummification describes the preservation of soft tissues by various mechanisms that resist the usual enzymatic and microbial degradation processes of postmortem decay. Soft tissues may be preserved by desiccation, chemical processing, or freezing temperatures that retard the enzymatic cascade of tissue degeneration. Similarly, ocular tissues identified in the coronary arteries of the specimens in our study, evidence of atherosclerosis has been noted. The prevalence and patterns of systemic diseases in the ancient world might confer new understandings of the relationship between diet, lifestyle, and these chronic diseases. We have taken only the first step and have shown that these tissues can be successfully reconstituted and made available for 21st-century investigative laboratory techniques. Further work must be done to unlock this ancient and fascinating database.

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The Fusarium Keratitis Outbreak: Not Done Yet?

In February 2006, several clusters of patients with Fusarium keratitis were reported in Singapore1 and in Hong Kong.2 Because initial findings suggested an association between the use of Bausch & Lomb’s ReNu with MoistureLoc solution (Rochester, New York) and the development of this infection, the manufacturer voluntarily suspended all sales of the product in these locations. One month later, the Centers for Disease Control and Prevention (CDC) received a report of 3 cases of Fusarium keratitis in New Jersey3 and, subsequently, several clusters of contact lens–related Fusarium keratitis were reported in the literature, including cases in unlikely temperate-climate locations such as San Francisco, California.4 After preliminary findings suggested a link between the infections and the ReNu with MoistureLoc product, on May 15, 2006, Bausch & Lomb withdrew this product from the world market.

The CDC has subsequently published a summary of the multistate outbreak of Fusarium keratitis associated with contact lens use in the United States, and they concluded that the Bausch & Lomb ReNu product was indeed associated with the outbreak. In this study, only 2 of the 164 patients with confirmed Fusarium keratitis used a non–Bausch & Lomb solution.

After the withdrawal of the ReNu with MoistureLoc product, there was a dramatic decrease in the number of cases of contact lens–related Fusarium keratitis that were reported to the CDC,2 and it appeared that the Fusarium keratitis outbreak was finished. In this study, we report 4 cases of Fusarium keratitis that presented to us between July 1, 2006, and November 1, 2006, after the withdrawal of Bausch & Lomb’s ReNu with MoistureLoc from the world market. In all cases, cultures from the cornea yielded Fusarium species, and none of the patients were using Bausch & Lomb’s ReNu with MoistureLoc product.

Institutional review board approval was obtained to perform this retrospective study, and the patients’ clinical data are shown in Table 1. All patients were female and ranged in age from 12 to 42 years. The patients were initially treated for 2 to 21 days for a bacterial or herpetic keratitis in 3 of the 4 cases, and for a corneal abrasion in 1 case. All pa-
 Patients started receiving topical natamycin drops every hour after they were examined at our institution, and topical amphotericin B drops were started on an hourly basis after corneal scraping cultures confirmed the presence of *Fusarium* species. Three patients were also given oral voriconazole twice daily (the fourth patient was nursing her young child, and therefore the use of voriconazole was contraindicated). Two patients required therapeutic penetrating keratoplasties (*Figure 1* and *Figure 2*). All patients had a best corrected visual acuity of 20/40 or better at last follow-up visit. Although interpretive breakpoints for resistance of *Fusarium* species to antifungal medications do not exist, the minimum inhibitory concentrations of the various tested antifungal medications to the organisms were very high (except for amphotericin B to the specimen from patient 4), which suggested resistance (*Table 2*).

In the 8½ years from January 1, 1997, through June 30, 2005, we saw 2 cases of *Fusarium* keratitis at our institution, and neither was associated with contact lens wear. From July 1, 2005, through June 30, 2006, the period encompassing the time of the *Fusarium* keratitis outbreak, we saw 3 cases of contact lens–related *Fusarium* keratitis, all associated with Bausch & Lomb’s ReNu with MoistureLoc product. Since the withdrawal of this product from the world market, we have seen these 4 additional cases of contact lens–related *Fusarium* keratitis, and none were associated with the recalled product. This suggests that the *Fusarium* keratitis outbreak may not yet be over. Indeed, at the 2006 Federated Societies Scientific Session, in Las Vegas, Nevada, an informal poll revealed that, since the recall of Bausch & Lomb’s ReNu with MoistureLoc, many in attendance had seen cases of contact lens–related *Fusarium* keratitis that were

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**Table 1. Clinical Summaries of All 4 Patients With Contact Lens–Related Fusarium Keratitis After the Recall**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Patient 1</th>
<th>Patient 2</th>
<th>Patient 3</th>
<th>Patient 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y/Sex</td>
<td>12/F</td>
<td>42/F</td>
<td>37/F</td>
<td>28/F</td>
</tr>
<tr>
<td>Initial diagnosis/eye</td>
<td>Corneal abrasion/OS</td>
<td>Herpetic keratitis/OS</td>
<td>Bacterial vs herpetic keratitis/OD</td>
<td>Bacterial keratitis/OS</td>
</tr>
<tr>
<td>Duration of symptoms before referral to us</td>
<td>2 d</td>
<td>5 d</td>
<td>21 d</td>
<td>12 d</td>
</tr>
<tr>
<td>Medications on referral</td>
<td>Moxifloxacin hydrochloride QID</td>
<td>Gentamicin sulfate QID, trifluridine every 2 h</td>
<td>Moxifloxacin hydrochloride BID, trifluridine 5 times a day, 1% prednisolone acetate QID, oral acyclovir (400 mg) QID</td>
<td>Gatifloxacin QID, trifluridine BID, 1% prednisolone acetate QID, tobramycin/dexamethasone QID, erythromycin ointment qhs</td>
</tr>
<tr>
<td>Contact lens solution used</td>
<td>AMO Complete Moisture Plus</td>
<td>B &amp; L Sensitive Eyes Saline</td>
<td>B &amp; L Multiplus</td>
<td>AMO Complete Moisture Plus</td>
</tr>
<tr>
<td>Initial VA</td>
<td>20/200</td>
<td>20/80</td>
<td>20/100</td>
<td>20/100</td>
</tr>
<tr>
<td>Interventions</td>
<td>Natamycin q1h, later, amphotericin B q1h and voriconazole BID</td>
<td>Natamycin q1h, later, amphotericin B q1h and voriconazole BID</td>
<td>Natamycin q1h, later, amphotericin B q1h and voriconazole BID</td>
<td>Natamycin q1h, later, amphotericin B q1h</td>
</tr>
<tr>
<td>Corneal culture</td>
<td><em>Fusarium solani</em></td>
<td><em>Fusarium species</em></td>
<td><em>Fusarium species</em></td>
<td><em>Fusarium solani</em></td>
</tr>
<tr>
<td>Clinical course</td>
<td>PK 10 d after referral</td>
<td>PK 17 d after referral</td>
<td>Resolution of infiltrate</td>
<td>Resolution of infiltrate</td>
</tr>
<tr>
<td>Length of follow-up (last BCVA)</td>
<td>3 mo (20/20)</td>
<td>6 wk (20/40)</td>
<td>2 mo (20/25)</td>
<td>1 mo (20/25)</td>
</tr>
</tbody>
</table>

Abbreviations: AMO, Advanced Medical Optics, Inc; BCVA, best-corrected visual acuity; BID, 2 times a day; B & L, Bausch & Lomb; PK, penetrating keratoplasty; q1h, every hour; QID, 4 times a day; qhs, every night; VA, visual acuity.
not associated with the recalled product.

Several theories have been proposed to explain the sudden increased incidence of *Fusarium* keratitis in contact lens wearers, and these were discussed at the 2006 American Academy of Ophthalmology annual meeting. These theories included the possible loss of antimicrobial activity during contact lens storage, and the selective growth of *Fusarium* in globules of partially dried deposits of ReNu with MoistureLoc. In addition, because the contact lens solutions on the market are composed of different disinfectants and antimicrobial agents, it is possible that there is a generalized decreased effectiveness of all-in-1 solutions to kill *Fusarium* compared with previous disinfecting systems. It is also possible that *Fusarium* has a propensity to bind to different contact lens materials. Further research is needed, especially into theories involving other possible contact lens solutions besides ReNu with MoistureLoc, so that this outbreak can be better understood and controlled.

In summary, it appears that the *Fusarium* keratitis outbreak may not be finished, and that this condition may be associated with other contact lens cleaning solutions. Ophthalmologists should be aware of this and must therefore continue to be vigilant in suspecting this infection. Any suspicious infiltrate should be scraped for culture, and prompt appropriate antifungal therapy should be instituted.

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**Table 2. Minimum Inhibitory Concentrations** of Various Antifungal Medications to the *Fusarium species* Found in Each Patient’s Corneal Culture

<table>
<thead>
<tr>
<th>Antifungal Medication</th>
<th>Patient No. 1</th>
<th>Patient No. 2</th>
<th>Patient No. 3</th>
<th>Patient No. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natamycin</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Amphotericin B</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Itraconazole</td>
<td>&gt;8</td>
<td>&gt;8</td>
<td>&gt;8</td>
<td>&gt;8</td>
</tr>
<tr>
<td>Voriconazole</td>
<td>8</td>
<td>&gt;8</td>
<td>&gt;8</td>
<td>8</td>
</tr>
</tbody>
</table>

*Minimum inhibitory concentration is given in micrograms per milliliter.

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Sentinel lymph node biopsy, introduced by Morton et al, is a mode of early detection of regional lymph node metastasis for many variants of solid tumors. Prognostically, these data correlate more closely with melanoma-related mortality than other histologic data. Perineural invasion of cutaneous eyelid melanoma is uncommon; neither Dr Char nor William Hoyt, MD (oral communication, May 2005) have seen a case without marked sensory asymmetry. Our case provides a cautionary note regarding both sentinel lymph node biopsy and physical findings associated with perineural invasion.

**Report of a Case.** A 20-year-old woman had delayed diagnosis of a left medial eyelid malignant melanoma. The patient was examined elsewhere at age 14 years for a red, acniform papule and was followed up for 6 years. During the past year, she experienced periorbicular shooting pain 1 to 2 times daily and received 2 intralesional corticosteroid injections without regression. The lesion was biopsied elsewhere, revealing melanoma with dimensions of 1.5 × 1.3 cm. Suboptimal processing limited histologic interpretation.

On our examination, there was a linear scar with mild erythema in the left lower eyelid. Sensation in the distribution of the fifth cranial nerve first division (V₁) and the fifth cranial nerve second division (V₂) was symmetric. Extraocular movements were intact. Results of a metastatic evaluation were negative. We performed a wide local excision of the lesion with sentinel lymph node biopsy. The sentinel node drainage was to the left submandibular node and the biopsy results were negative. The area was resected and the tumor appeared to be removed with clear margins. Pathological analysis revealed residual melanoma 5.3 mm in thickness. The lesion had invaded the subcutaneous component and was at Clark level V. Examination results of the inferior medial and superior lateral margins were negative, as were those of the deep margins. The inferolateral margin...