

Sir,

**Post-traumatic fungal keratitis caused by *Absidia corymbifera*, with successful medical treatment**

Fungal keratitis is an uncommon form of infectious keratitis in Britain. *Absidia corymbifera*, a mucoraceous filamentous fungus, has only recently been recognised as a causative organism for eye infections.<sup>1-3</sup> The previously reported case of *Absidia*-related keratitis failed to respond to anti-fungal treatment.<sup>1,2</sup> We report a case of keratitis due to *Absidia corymbifera* that was successfully managed with topical anti-fungal treatment.

*Case report*

A healthy 39-year-old farmer had a small metallic foreign body impacted in the left cornea at work. He visited the general Accident and Emergency Department where the foreign body was removed with a sterile cotton bud. The foreign body was not sent for culture as this is not the routine practice of the A&E Department. He was reviewed within 24 h in the Eye Department when the acuity of the left eye was 6/18. An area of fluorescein staining was noted in the cornea, with surrounding oedema, and he was commenced on 2-hourly ofloxacin drops, mydriatics and chloramphenicol ointment.

Seventy-two hours later the eye was red and acutely painful, with acuity reduced to counting fingers. There were multiple areas of yellow-white, fluffy infiltrates distributed in a ring-like configuration over 6 mm of the central cornea (Fig. 1). The epithelium was intact over the infiltrates and there were fine keratic precipitates and fibrin over the endothelium. A small crater persisted at the site of the foreign body impact. Corneal scrapes were sent for culture and sensitivity. Fungal keratitis was suspected at this stage because of deterioration of the keratitis despite topical antibiotics and the nature of the trauma. As the ulcer was within the visual axis, threatening the final visual outcome, it was decided to start anti-fungal therapy based on the clinical appearance and behaviour. A broad spectrum fungicidal agent, amphotericin B eye drops, was started hourly at a



**Fig. 1.** Note the yellowish white fluffy stromal infiltrates distributed in a ring-like fashion in the central cornea. The site of the initial corneal foreign body can still be made out within the cluster of infiltrates (arrow).



**Fig. 2.** The corneal infiltrates healed rapidly with topical anti-fungal treatment leaving a faint stromal scar (arrow).

concentration of 0.15%, as previous experience in our department has shown it to be well tolerated by most patients.

Within 2 days the epithelial defect healed and stromal infiltrates and oedema began to resolve. Amphotericin drops were reduced after 1 week to 2-hourly for a further week, and then 4-hourly for 2 weeks. Three weeks into treatment, prednisolone 0.5% eye drops were added and all drops tapered over the next 3 weeks. The epithelial defect healed completely, leaving a faint stromal scar, with a visual acuity of 6/12 (Fig. 2). An extensive growth of a fungal colony was cultured on blood agar at 35 °C after 4 days. It was identified as *Absidia corymbifera*.

*Comment*

Keratomycosis related to trauma is usually caused by filamentous septate fungi such as *Aspergillus* and *Fusarium*. However, fungal keratitis caused by non-septate fungi of the class Zygomycetes (*Mucor*, *Rhizopus* and *Absidia*) is unusual.<sup>1</sup>

Two cases of ocular infection due to *Absidia* have been reported. One case of keratitis due to *A. corymbifera* also affected a young farmer.<sup>1,2</sup> This patient had a fulminating keratitis, unresponsive to both natamycin and amphotericin B topically and intravenously, ultimately requiring an 11 mm penetrating keratoplasty. The poor response to conservative treatment was probably due to limbal involvement and the extensive nature of the infection, but could also have been due to differences between *in vivo* and laboratory sensitivities to anti-fungal agents, which are not uncommonly encountered. In contrast, our patient had a more slowly progressive keratitis that responded favourably to topical treatment before the limbus could be involved. The other case of *Absidia*-related infection was of endophthalmitis following a penetrating injury with retained vegetable matter.<sup>3</sup> It seems that *Absidia*, like most other filamentous fungi, is typically inoculated by injuries contaminated by organic material. A case of post-traumatic keratomycosis due to *Rhizopus*<sup>4</sup> following injury with a soil-contaminated screwdriver also required a 10 mm penetrating keratoplasty to clear the infection.

The ubiquitous nature of filamentous fungi always raises the question of contamination in the laboratory culture. A diagnosis of fungal keratitis is ideally confirmed by histological evidence of the fungus in a corneal biopsy, but the clinical response in this case meant that this was not indicated. This case manifested a corneal lesion typical of fungal keratitis, with fluffy white stromal infiltrates in a ring distribution, which did not respond to anti-bacterial therapy, following an agricultural injury. Cultures were positive and there was an excellent response to anti-fungal therapy. These factors support the causative role of the isolated organism.

In conclusion, we feel that Accident & Emergency departments should be made more aware of the risks of fungal infection arising from corneal injuries in agricultural workers and that any degree of keratitis following such injury be investigated with full microbiological cultures. Anti-fungal therapy should be withheld until positive results are obtained from corneal scrapes. In exceptional cases of severe keratitis which appear to be clinically fungal, fungicidal agents such as amphotericin B could be commenced empirically while awaiting microbiological report.<sup>5</sup> This could give an excellent result and allow the retention of useful vision, as in our case.

#### References

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Sir,

#### ***Stenotrophomonas maltophilia* endophthalmitis after penetrating injury by a wooden splinter**

*Stenotrophomonas maltophilia* is a Gram-negative bacillus commonly found in the environment and is a plant-associated bacterium.<sup>1</sup> Endophthalmitis due to *S. maltophilia* is rare and only 8 post-operative cases have been reported.<sup>2-5</sup> To the best of our knowledge, this is the first report of post-traumatic *S. maltophilia* endophthalmitis.

#### Case report

A healthy 14-year-old Chinese female presented with a 2 day history of right eye redness, pain and decreased vision. Four weeks earlier, her right eye was injured by a sharp wooden splinter 3 mm posterior to the limbus inferotemporally, which was treated by her family doctor with topical antibiotics. The patient was referred for ophthalmic assessment but defaulted the initial appointment. On examination, the best-corrected visual acuity was hand movements for the right eye and 6/4 for the left eye. Slit-lamp examination of the right eye showed a mildly oedematous cornea with ciliary injection, anterior chamber cells 3+ with a 1.5 mm hypopyon. No wound was seen and the intraocular pressure was normal. The fundus was not visible due to a dense cataract. B-scan ultrasonography showed increased echogenicity in the vitreous with no intraocular foreign body detected. Examination of the left eye was normal.

Following aqueous and vitreous tappings, pars plana lensectomy and vitrectomy was performed. Multiple whitish-yellow vitreous condensations were removed. Intravitreal ceftazidime (0.2 mg) and vancomycin (0.1 mg) were administered at the end of surgery. Post-operatively, she received topical tobramycin (14 mg/ml) and ceftazidime (50 mg/ml). Smear and culture of the vitreous specimen revealed a moderate growth of *Stenotrophomonas maltophilia*, which was sensitive to ceftazidime, trimethoprim/sulfamethoxazole, ciprofloxacin and cefoperazone/sulbactam, but resistant to all aminoglycosides,  $\beta$ -lactams and carbapenems. Topical tobramycin was substituted by topical ofloxacin. The patient improved rapidly with control of endophthalmitis post-operatively. Her eye remained quiet, and 1 year later her best-corrected visual acuity was 6/9 for the right eye.

#### Comment

*Stenotrophomonas maltophilia* was originally known as *Pseudomonas maltophilia*, as well as *Xanthomonas maltophilia*.<sup>6</sup> There have been 8 cases of post-operative endophthalmitis due to *S. maltophilia* reported in the literature. The first reported case occurred in a patient with acquired immunodeficiency syndrome following ganciclovir implant<sup>2</sup> and the other cases occurred in