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SHORT COMMUNICATION

Actinomyces neuii subspecies *anitratus* chronic endophthalmitis after cataract surgery

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PURPOSE. *To report a case of unusual chronic endophthalmitis by Actinomyces neuii subspecies anitratus.*
METHODS. *A 75-year-old man underwent uneventful phacoemulsification with implantation of a foldable posterior chamber intraocular lens in his right eye. Four weeks after surgery, a chronic postoperative endophthalmitis characterized by anterior chamber and vitreous cellular debris developed in this eye. Cultures were positive, and A neuii subspecies anitratus was identified by polymerase chain reaction and subsequent rRNA sequence analysis. Immediate treatment included intravitreal and intensive topical antibiotics along with oral ciprofloxacin.*
RESULTS. *The condition improved rapidly, and 6 months after surgery the patient was asymptomatic, the best spectacle-corrected visual acuity was 20/22, and the anterior chamber was quiet.*
CONCLUSIONS. *A neuii subspecies anitratus should be considered in the differential diagnosis of chronic endophthalmitis after cataract surgery. Polymerase chain reaction and subsequent RNA typing were useful in detecting the causative organism, and intravitreal antibiotics were successful. (Eur J Ophthalmol 2007; 17: 445-7)*

KEY WORDS. Actinomyces neuii, *Cataract surgery, Chronic endophthalmitis*

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INTRODUCTION

Ocular actinomycosis is relatively rare (1) but it has been implicated in a spectrum of disease entities such as canaliculitis, keratitis, and postoperative endophthalmitis (2).
We report a case of chronic indolent endophthalmitis after uneventful phacoemulsification with posterior chamber intraocular lens implantation caused by *Actinomyces neuii* subspecies *anitratus*. To our knowledge, there is only one previous report on chronic postoperative endophthalmitis caused by *A neuii*, although with no subspecies identification.

Case report

A 75-year-old man, with no general health problems and no significant ocular history**,** underwent uneventful phacoemulsification with implantation of a foldable intraocular lens (AcrySof Natural SN60AT, Alcon) in the right eye under topical anesthesia. After surgery, routine treatment was commenced with topical tobramycin 0.3% plus dexamethasone 0.1% (TobraDex). Before surgery, best-corrected visual acuity was 20/80 in the right eye, and on the first postoperative day uncorrected visual acuity was 20/40. Slit-lamp examination on the first postoperative day was unremarkable.

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Four weeks after surgery, the patient complained of mild pain, loss of vision, and redness in the right eye. The visual acuity dropped to 20/200, and on slit-lamp examination, mild ciliary injection, moderate-grade reaction in the anterior chamber, and white cellular debris in the anterior vitreous were detected. Binocular indirect ophthalmoscopy score was equal to 2, and intraocular pressure was 14 mmHg. This was thought to represent a chronic microbial endophthalmitis, and aqueous and vitreous taps were performed. The aspirates were sent for microbiologic processing.

The immediate management involved an intravitreal injection of vancomycin 1 mg/0.1 mL plus ceftazidime 2.25 mg/0.1 mL. Topical ofloxacin and fortified cefazolin 50 mg/mL every 2 hours were also started on the same day, and oral ciprofloxacin 500 mg was given twice a day. In addition, the patient was started on topical prednisolone 1% four times a day. The patient's condition rapidly improved under this treatment regime.

Aerobic and anaerobic cultures were positive after 24 hours of incubation, and the Gram staining showed Gram-positive coryneform rods. The preliminary microbiologic study suggested a *Corynebacterium* sp as the causative organism. Since it was not possible to identify the organism genus/species, the specimen was sent to a national reference laboratory. An antibiotic sensitivity test showed that the organism isolated was sensitive to penicillin, ciprofloxacin, and vancomycin. In a final microbiologic report, the strain was identified as *A neuii* subspecies *anitratus* by polymerase chain reaction (PCR) and subsequent 16S rRNA gene sequence analysis.

Over the following weeks, the intraocular inflammation improved. Oral ciprofloxacin was stopped after 2 weeks, and topical antibiotics after 3 weeks. Topical steroids were decreased as the condition improved and stopped after 6 weeks from onset. Six months after surgery, the patient remained asymptomatic without treatment, the best-corrected visual acuity was 20/22, and the anterior chamber was quiet.

DISCUSSION

Chronic postoperative uveitis from intraocular infection is a well-known complication of cataract surgery (2). Most chronic microbial endophthalmitis cases have been associated with *Propionibacterium acnes*. Other organisms isolated less commonly include *Staphylococcus epidermidis* and *Corynebacterium* species (2).

In 1994, Funke and coauthors (1, 3) assigned CDC group1 and group 1-like coryneform bacteria to the genus *Actinomyces*, under a new *Actinomyces* species designated *A neuii*. *A neuii* was divided into two new subspecies *A neuii* subspecies *neuii* (former CDC group 1) and *A neuii* subspecies *anitratus* (former CDC group 1-like) (3).

A neuii has been identified as the cause in two previous cases of postoperative endophthalmitis, one of which was a chronic low-grade endophthalmitis (4, 5). Raman and associates (4) reported a case of chronic endophthalmitis caused by *A neuii* after uneventful phacoemulsification with intraocular lens implantation, although *A neuii* subspecies was not identified.

Our case illustrates a delayed onset postoperative endophthalmitis due to *A neuii* subspecies *anitratus* after routine cataract surgery. The clinical picture became evident 1 month after surgery, and the main clinical findings were moderate-grade anterior chamber reaction and cellular reaction in the anterior vitreous. This clinical picture is a bit different from that due to *Propionibacterium* species, which is characterized by a low-grade chronic granulomatous uveitis and white plaques on the posterior capsule (2).

In our case, it was necessary to send the sample to a reference laboratory for final organism identification by PCR. Raman and coauthors (4) also reported difficulties in identifying the organism in their *A neuii* case. Since many organisms involved in chronic postoperative endophthalmitis are fastidious and difficult to culture or are difficult to identify properly, diagnosis in this condition is open to molecular diagnosis, which has shown a high sensitivity in intraocular infections.

Optimal management of postoperative endophthalmitis caused by low virulent bacteria remains uncertain, although initially it is usually treated as acute postoperative endophthalmitis with intravitreal antibiotics (2), as we did in our patient.

In conclusion, *A neuii* subspecies *anitratus* infection should be considered in the differential diagnosis of chronic postoperative uveitis, even after uneventful phacoemulsification. PCR and nucleic acid sequence analysis should be considered for early diagnosis of this and other fastidious organisms involved in chronic postoperative endophthalmitis. *A neuii* is usually sensitive to intravitreal antibiotics commonly used in endophthalmitis cases, and with a proper diagnosis, a more aggressive approach may be avoided.

The authors have no proprietary interest in any of the materials described in this article.

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