Emerging Cause for Endophthalmitis in Rural Population of South India

Dr. Smita Karandikar, Dr. Jagadeesh Kumar Reddy K., Dr. Shamik Prafull Mokadam, Dr. Shweta Mokadam

Cataract is the most common cause of treatable blindness in developed as well as underdeveloped countries. With improvement in technique and sterilization protocols, there has been a reduction in the complication and infection rate after surgery. But still, endophthalmitis remains the most commonly dreaded complication following cataract surgery. Endophthalmitis is the infection of the intraocular tissues which may be exogenous or endogenous. The exogenous endophthalmitis following surgery and trauma forms the bulk of the reported cases.

Nocardia species are a rare cause of endophthalmitis. But lately they have emerged as a significant cause of post-operative infection and morbidity. The nocardiae are gram-positive, bacillary, branching bacteria whose hyphae often fragment to coccobacillary forms. Members of the genus Nocardia are associated with the group of microorganisms known as the aerobic actinomycetes and belong specifically to the family Mycobacteriaceae. The nocardiae contain tuberculostearic acids but differ from the mycobacteria by possession of shorter-chained (40 - 60-carbon) mycolic acids. Nocardia are found worldwide in soil that is rich with organic matter. In addition, Nocardia are oral microflora found in healthy gingiva as well as periodontal pockets. Most Nocardia infections are acquired by inhalation of the bacteria or through traumatic/iatrogenic introduction. Nocardia species usually cause opportunistic infections in immunocompromised individuals. Nocardia asteroids and Nocardia brasiliensis are the two most common organisms causing clinically significant infection.

The purpose of this study was to identify the incidence and the clinical profile of Nocardia endophthalmitis as it portends a poor visual prognosis owing to the advanced nature of disease at presentation and poor therapeutic outcome.
MATERIALS AND METHODS

A retrospective study of 1, 14,942 patients from computerized database were carried out after obtaining approval from ethics committee. These patients presented with cataract and were screened by the rural outreach department. They underwent manual small incision cataract surgery at a tertiary eye care centre from April 2010 to March 2013. All patients were followed up on 1\textsuperscript{st} day, 7\textsuperscript{th} day and 6 weeks post operatively and detailed record of the clinical presentation, slit lamp examination, microbiological spectrum, intervention done and outcome was evaluated.

All patients with presumed endophthalmitis underwent a thorough examination. Smears and cultures were prepared from anterior chamber paracentesis and/or vitreous tapping. The smears were treated with Gram staining and potassium hydroxide (KOH) wet preparation. Cultures were performed by plating on blood agar, chocolate agar, and McConkey agar incubated at 37°C for bacterial isolation. Sabouraud’s dextrose agar without inhibitor and blood agar were incubated at 25°C to enhance fungal growth. Systemic and intraocular antibiotics were administered and surgical intervention was done as indicated.

RESULTS

The incidence of endophthalmitis was found to be 0.031\% (36 cases). Out of 36 cases, nocardia growth was obtained in 8 patients (22.222\%). Ratio of male to female patients was 5:3. Age distribution ranged from 40 to 82 years with a median age of 62 years.

The mean time of presentation for these cases was 4 weeks with predominately anterior segment involvement. Wound infection was noted in 50\% (4/8) of the patients and characteristic clinical features included scleral abscess, cotton ball exudates in the anterior chamber, fluffy exudates on the corneal endothelium, nodular exudates on the iris, and hypopyon. 58.5\% of these cases had undergone an uneventful surgical procedure. Even after prompt surgical intervention and intensive treatment with topical and systemic antibiotics, the mean visual acuity remained as poor as 1/60.
DISCUSSION

The incidence of endophthamitis in our study was as low as 0.031%. On comparing with a similar study, the rate of endophthalmitis in surgeries performed by residents, fellows, and mini-fellowship trainees was 0.13%.\textsuperscript{15}

Nocardia emerged to be a lesser-known but virulent organism causing endophthalmitis, the management of which still poses a therapeutic dilemma.\textsuperscript{16}

Most of the patients belonged to rural regions of South India. The increased Nocardia isolates may be attributed to patient’s exposure to soil as majority of the patients were engaged in agriculture.\textsuperscript{17}

Nocardia positive patients had the worst visual outcome even after prompt treatment. The poor prognosis in Nocardia endophthalmitis is due to severe intraocular inflammation, which may lead to even phthisis.\textsuperscript{18} Nocardia endophthalmitis after cataract surgery is an aggressive disease with poor visual prognosis.\textsuperscript{13}

Conclusions

Although the study covers a large population, it is a single centre study which cannot account for the spectrum of organisms which can present all over the country.

Thus, the need of the hour is maintaining a national reporting system to identify factors for future multicentre randomized prospective study, like the EVS to understand the trends of postoperative endophthalmitis and its management in our country.

Nocardia infection is to be borne in mind as occupation of patients coming from rural South India is mainly agriculture.

REFERENCES


