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ORIGINAL ARTICLE

Assessment of incidence of postoperative infectious endophthalmitis in a known population

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ABSTRACT:

Background: The present study was conducted for evaluating the incidence of postoperative infectious endophthalmitis in a known population. **Materials & methods:** A total of 400 patients who underwent ophthalmic surgeries were enrolled. Separate analysis of patients with complaints of decrease in vision, presenting with hypopyon, vitreous opacification and pain following surgery reporting with a duly filled-in specifically designed form were enrolled in the present study. Patients were enrolled in the present study who reported back with clinical symptoms and signs of postoperative inflammations were subjected to diagnostic microbiological investigations to identify the causative agents. The diagnostic aqueous humor and/or vitreous fluid specimen samples were collected and processed for isolation of the causative infectious agent. All the results were recorded and were analysed using SPSS software. **Results:** A total of 400 patients were enrolled. Among these patients, incidence of postoperative infectious endophthalmitis was 1 percent. Among them, two patients were of acute onset while the remaining 2 patients were of late onset. Mean age of the patients with of postoperative infectious endophthalmitis was 41.2 years. Out of four patients with of postoperative infectious endophthalmitis, chief microorganism identified was S. epidermidis, S. aureus, Pseudomonas aeruginosa and S. epidermidis respectively. **Conclusion:** From the above results, the authors concluded that postoperative infectious endophthalmitis should always be in the differential of recurrent inflammation in a previously operated eye.

Key words: Endophthalmitis, Infection

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INTRODUCTION

Endophthalmitis means bacterial or fungal infection inside the eye, involving the vitreous and/or aqueous humors. Most cases of endophthalmitis are exogenous, and organisms are introduced into the eye via trauma, surgery, or an infected cornea. Endogenous endophthalmitis occurs when the eye is seeded via the bloodstream. Patients usually have symptoms from their underlying systemic infection, but sometimes present only with eye symptoms.[1,2] Endophthalmitis does not serve as a source of bactaeremia or fungaemia. Infection remains confined to the eye. In panophthalmitis, infection spreads from the globe of the eye to the adjacent soft tissues of the orbit.[3] Most cases of endophthalmitis present acutely, with hours to a few days of symptoms. These cases are medical emergencies, as delay in treatment may result in permanent vision loss.[4] Postoperative endophthalmitis is an uncommon complication of any ocular surgery.

Hence; the present study was conducted for evaluating the incidence of postoperative infectious endophthalmitis in a known population.

MATERIALS & METHODS

The present study was conducted for evaluating the incidenceof postoperative infectious endophthalmitis in a known population. A total of 400 patients who underwent ophthalmic surgeries were enrolled. Separate analysis of patients with complaints of decrease in vision, presenting with hypopyon, vitreous opacification and pain following surgery reporting with a duly filled-in specifically designed form were enrolled in the present study. Patients were enrolled in the present study who reported back with clinical symptoms and signs of postoperative inflammations were subjected to diagnostic microbiological investigations to identify the causative agents. The diagnostic aqueous humor and/or vitreous fluid specimen samples were collected and processed for isolation of the causative infectious agent. All the results were recorded and were analysed using SPSS software.

RESULTS

A total of 400 patients were enrolled. Among these patients, incidence of postoperative infectious endophthalmitis was 1 percent. Among them, two patients were of acute onset while the remaining 2 patients were of late onset. Mean age of the patients with of postoperative infectious endophthalmitis was 41.2 years. Out of four patients with of postoperative infectious endophthalmitis, chief microorganism identified was S. epidermidis, S. aureus, Pseudomonas aeruginosa and S. epidermidis respectively.

Table 1: Incidence of postoperative infectious endophthalmitis

Postoperative infectious endophthalmitis		Number	Percentage
Present	Acute onset (Before 6 weeks)	2	0.5
	Late onset (After 6 weeks)	2	0.5
Absent		396	99
Total		400	100

Table 2: Microbiological pathogen responsible for postoperative infectious endophthalmitis

Patient	Microorganism isolated
Patient 1	S. epidermidis
Patient 2	S. aureus
Patient 3	Pseudomonas aeruginosa
Patient 4	S. epidermidis

Table 3: Demographic profile of patients with postoperative infectious endophthalmitis

Variable	Number
Mean age (years)	41.2
Males	3
Females	1

DISCUSSION

Endophthalmitis is an uncommon but sight-threatening intraocular inflammation that may be due to a non infectious process or may be caused by an infectious organism. It is a term used to describe intraocular inflammation that involves the vitreous cavity and the anterior chamber of the eye and can involve other adjacent ocular tissues such as the choroid or retina, sclera or cornea. In infectious endophthalmitis, the organism might reach the eye from other infected sites in the body through hematologic seeding and in these cases it is labeled endogenous endophthalmitis.[6- 8] More commonly, the organism is exogenous and gains access to the intraocular environment. According to the Endophthalmitis Vitrectomy Study, postoperative endophthalmitis is divided generally into two types: acute and chronic. Acute postoperative endophthalmitis is defined as infections within 6 weeks of surgery; on the other hand, chronic postoperative endophthalmitis is defined as infections after 6 weeks of surgery.[9- 12] Hence; the present study was conducted for evaluating the incidenceof postoperative infectious endophthalmitis in a known population.

A total of 400 patients were enrolled. Among these patients, incidence of postoperative infectious endophthalmitis was 1 percent. Among them, two patients were of acute onset while the remaining 2 patients were of late onset. Mean age of the patients with of postoperative infectious endophthalmitis was 41.2 years. Our results were similar to observations reported in previous literature. The reported incidence of postoperative endophthalmitis ranges from 0.01% to 0.367%, with incidence varying among different surgical procedures and across studies and different countries. Most of postoperative endophthalmitis studies were conducted on cases after cataract surgery, being the most commonly performed surgery in ophthalmology. In a large meta-analysis, 3 140 650 cataract extraction cases were reviewed for the incidence of endophthalmitis after cataract surgery worldwide in the period between 1964 and 2003. The analysis showed an increase in the incidence of postsurgical endophthalmitis from 0.087% in the 1990s to 0.265% in the 2000s, and this was attributed to the change in surgical technique towards clear corneal sutureless wounds that allow exogenous organisms easy access to the intraocular space.[13- 16]

In the present study, out of four patients with of postoperative infectious endophthalmitis, chief microorganism identified was S. epidermidis, S. aureus, Pseudomonas aeruginosa and S. epidermidis respectively. Mould infection of the cornea (keratomycosis) may lead to endophthalmitis as the mould grows through the cornea and into the aqueous humor. Keratomycosis was the aetiology for half of all exogenous mould cases in a series from Florida, and eye surgery and trauma each accounted for 25% of cases. Many cases of keratomycosis are associated with contact lens wear. Fusarium is the most common cause of endophthalmitis resulting from keratomycosis in many series. Some of these cases reflect the international outbreak of Fusarium keratitis that occurred in 2004–2006, related to one brand of contact lens cleaning solution. In this outbreak, 6% of keratitis cases developed endophthalmitis.[17- 20]Jambulingam, Malathi et al, in a previous study, assessed the incidence of culture-proven postoperative endophthalmitis and probable sources of infection.Data of analysis showed that 98 (0.042%) out of 2,31,259 patients who underwent intra-ocular surgery developed infectious endophthalmitis. Among these, 70 (0.053%) occurred after cataract, 10 (0.5%) after penetrating keratoplasty (PK) and 18 (0.018%) following other types of intra-ocular surgeries. The predominant infectious agents isolated were bacteria (89.7%), with equal proportions of Gram-positive and

Gram-negative bacteria.[21]Bhoomibunchoo C et al characterized the causative pathogens and the visual outcomes among patients with endophthalmitis at a large referral center in northeastern Thailand. All cases of infectious endophthalmitis treated between 1983 and 2007 were reviewed retrospectively.A total of 420 cases of endophthalmitis were reviewed: 181 cases (43.1%) had ocular trauma before the infection; 135 (32.2%) developed endophthalmitis after intraocular surgery; and, 122 (29.1%) had a positive culture. Bacteria were isolated in 114 cases (93.4%) and fungi were noted in eight (6.6%). The common causative bacterium was Staphylococcus epidermidis. Combined vitrectomy and intraocular antibiotics were performed in 189 cases (45.0%), whereas 69 cases (16.4%) were treated with intraocular antibiotics alone.Most of the reviewed cases were associated with trauma and intraocular surgery.[22]

CONCLUSION

From the above results, the authors concluded that postoperative infectious endophthalmitis should always be in the differential of recurrent inflammation in a previously operated eye.

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