ORIGINAL ARTICLE

A Descriptive Study of Clinical Profile of Endophthalmitis Patients Seen at Vitreo-Retina Facility of a Tertiary Care Centre in North-West India

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ABSTRACT

Purpose: Description and evaluation of clinical and microbiological profile of endophthalmitis patients presenting to a vitreo-retinal facility at a tertiary care hospital in Rajasthan.

Methods: Endophthalmitis cases presenting consecutively between Jan 2019 and Dec 2019 were evaluated for clinical and microbiological profile via retrospective chart review.

Results: The study included 86 patients where the mean age of the sample was 37.8 years (SD=24.1). Males 72 (83.7%) with left eye predominant involvement 60 (69.7%) outnumbered the females. Amongst all aetiologies post-traumatic endophthalmitis was maximum (55.8%). Majority of patients had PL only vision, 23.35% of patients had vision greater than perception of light. At presentation majority of patients were phakic (60.4%) in which traumatic cataract was seen in 25.6% of patients. Intravitreal antibiotics were used in 90.6% and oil tamponade in 70.6% of patients who underwent pars plana vitrectomy. Gram negative bacilli (51.1%), gram positive cocci (13.9%) and fungi (13.9%) were reported in the microbiological analysis of the vitreous fluid .

Conclusion: More than 2/3rd of endophthalmitis patients at our centre presented with either post-traumatic or post operative condition. A low incidence of post injection and endogenous endophthalmitis was seen. Pars plana vitrectomy was done in a majority of these patients. Gram negative bacilli were the commonest organisms reported on the microbiological analysis.

Keywords: Endophthalmitisl; India Vitrectomy

INTRODUCTION

Endophthalmitis is intraocular infection affecting inner coats of the eye with progressive vitreous inflammation[1,2]. It is the most dreaded and devastating ocular complication with a potential to lead to permanent and profound loss of vision[3]. Endophthalmitis especially exogenous and infective in nature occurs either after trauma or intraocular surgery while endogenous endophthalmitis results mostly from haematogenous route from another site of infection in the body or from catheters or needles that are contaminated[4].

The aim of the study was description and analysis of clinical and microbiological profile of endophthalmitis patients presenting to the largest referral centre in the state of Rajasthan. In addition, treatment profile and outcomes are also described in these patients.

METHODS

Participants: A convenience sample was used to include all cases diagnosed and treated as endophthalmitis at vitreo-retinal facility of a tertiary care hospital in Rajasthan over one year .

Procedure: Medical records were reviewed and these patients were followed up for 6 weeks to assess the outcome. All patients underwent a diagnostic work-up and were provided appropriate treatment for management of endophthalmitis.

Ethical Statement: An approval from institute ethical committee was obtained, in accordance with the Declaration of Helsinki. Informed consent was taken from all patients for use of their medical records for purpose of research and they were assured of confidentiality.

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Statistical Analysis: Data was coded in Microsoft Excel and all statistical calculations for descriptive statistics were done in it.

RESULTS

The study included 86 patients where the mean age of the sample was 37.8 years (SD=24.1). The majority of patients were males 72 (83.7%) and with predominant left eye involvement 60 (69.7%). Majority of the patients were diagnosed with post-traumatic endophthalmitis (55.8%) in which post-traumatic endophthalmitis with intra-ocular foreign body were 18.6% . Post-operative endophthalmitis constituted 34.9% of total cases. Endogenous endophthamitis was seen in only 6.9% of cases and endophthalmitis post Anti-VEGF injectionin 2.3% of cases. Majority of the patients had only perception of light (PL) [76.75%] and among these 56.4% had an accurate projection of rays (PR). The mean intra-ocular tension was 14.6 (SD=5.6).

At presentation the eye was phakic in 34.8%, pseudophakic in 30.2%. and with traumatic cataract was seen in 25.6%. Majority of the patients (90.6%) underwent vitrectomy with intravitreal antibiotics . IOFB removal was done in 23.2%, tear repair was done in 20.9%. Oil tamponade was also used in 79% of the patients who underwent pars plana vitrectomy with or without retained intraocular foreign body removal. Finally, improved vision (better thanvision at presentation) was seen in 44 i.e 56.4% of the patients at 6 weeks.

The microbiological analysis of vitreous sample revealed a predominance of gram negative bacilli (51.1%) overall , gram positive cocci (13.9%) and fungi (13.9%). Inaddition, a neutrophilic infiltrate was seen in 46.5% of the patients.

Table 1: Clinical profile of patients with endophthalmitis

S No		Total (%)
1.	Number of patients	86
	Males	72 (83.7)
	Females	14 (16.3)
2.	Age	37.81(24.18)
3.	Eye involved	
	Left	60 (69.7)
	Right	26 (30.3))
4.	Diagnosis	
	Endogenous endophthalmitis	6 (6.9)
	Post operative endophthalmitis	30 (34.9)
	Post Trauma endophthalmitis	30 (34.9)
	PTE with IOFB	16 (18.6)
	Post Trauma subluxation	2 (2.3)
	Post anti VEGF inj endophthalmitis	2 (2.3)
5.	Vision at presentation	
	PL Negative	8 (9.3)
	PL Positive	78 (80.7)
	Among PL Positive	
	Accurate PR	44 (56.4)
	Inaccurate PR	34 (43.6)
	Among Accurate PR	
	HM	30 (68.1)
	FC	14 (31.9)
6.	Intra ocular tension (IOT)	
	Mean	14.66 (5.68)
7.	Lens	
	Phakic	30 (34.8)
	Pseudophakic	26 (30.2)
	Tr. Cataract	22 (25.6)
	Sec IOL	2 (2.3)
	Subluxated Lens	2 (2.3)
	Lens	2 (2.3)
	Clear lens	2 (2.3)
8.	Operative procedure	
	None	8 (9.3)
	Yes	78 (80.7)
	Among those with operative procedure	
	Vitrectomy	78 (90.6)
	IOFB removal	20 (23.2)
	IV Antibiotics	52 (60.5)
	IOL explants	6 (6.9)
	Lensectomy	2 (2.3)
	Pupillary membrane removal	2 (2.3)
	SICS	18 (20.9)
	Tear repair	18 (20.9)
	Sealed tear	12 (13.9)
	Phaco	2 (2.3)
9.	Oil tamponade	48 (55.8)
10.	Improved vision at 6 weeks	44 (56.4)

VEGF- Vascular endothelial growth factor; PL-Perception of light; PR-Projection of rays; HM- Hand movement; FC- Finger counting; IOL- Intra ocular lens; IOFB- Intraocular foreign body; SICS- small incision cataract surgery

Table 2: Microbiological profile of patients with endophthalmitis

S No		No of patients (%)
1.	Type of microorganism	
	Gram Negative Bacilli	44 (51.1)
	Gram Positive Cocci	12 (13.9)
	Fungi	12 (13.9)
2.	Type of cells	
	Neutrophil	40 (46.5)

Table 3: Comparison of clinical feature of patients according to the type of endophthalmitis

S No	Characteristic	Post traumatic (%)	Post operative (%)	Endogenous (%)
1.	Number	48	30	6
2.	Vision better than PL	14 (29.1)	8 (26.6)	4 (66.6)
3.	Vitrectomy done	44 (91.6)	28 (93.3)	6 (100)
4.	Gram stain only	24 (50)*	8 (26.6)*	2 (33.3)
5.	Culture only	2 (4.2)	4 (13.3)	0 (0)
6.	Both positive	16 (33.34)	14 (46.6)	4 (66.6)
7.	Both negative	6 (12.5)	0 (0)	0 (0)
8.	Gram negative bacilli	26 (54.1)	16 (53.3)	1 (16.3)
9.	Gram positive cocci	8 (16.6)	4 (13.3)	0 (0)
10.	Fungi	4 (8.3)	6 (20)	0 (0)

*P=.045

DISCUSSION

The aim of the current study was to describe the clinical and microbiological profile of consecutive patients diagnosed and treated for any cause endophthalmitis. At risk groups like post-traumatic or post-cataract have been described in many previous studies including mainly their incidence[5-8]. Many studies have also studied a specific type like endogenous endophthalmitis. But there are a few studies which have described a series of consecutive cases presenting at a tertiary referral centre in North West India.

The data presented here represents almost whole of Rajasthan and its neighbouring states like Haryana and some parts of Delhi. Areas within or around the Jaipur district of Rajasthan were the main source of post cataract surgery endophthalmitis cases. One of the reasons for males comprising the majority of the case scan be that they are involved in outdoor activities more than females so chances of injury are also higher[4]. Also due to conservative socioeconomic situation in North west India, males are more likely to travel and seek treatment.

On microbiological analysis , the vitreous sample positive on culture for microorganisms was 46.5% and vitreous sample positive on gram staining but negative on culture was 19.7% . Studies in past have reported sample positivity higher than this[9,10]. A number of causes such as low microbial load, delay in processing the samples due outsourcing of samples to specialized labs, prior treatment with fortified or broad spectrum antibiotics, *etc.* might be the cause for low culture positivity. Services of a specialized lab outside hospital were utilized for culture and microscopy of the samples of vitreous biopsy which may account for low culture and microscopy positivity in our patients. Polymerase chain reaction (PCR) which can detect microorganisms even in small and delayed samples[11] could not be done due to low socioeconomic status of the patients and lack of in hospital specialized clinics for the same.

The Endophthalmitis Vitrectomy Study (EVS)[10] reported around 94 per cent Gram- positive cocci and 6 percent Gram-negative bacilli in post-operative endophthalmitis. The Indian studies reported 10-54 percent Gram-positive cocci, 26-42 percent Gram-negative and 16-22 percent fungal infection in post-operative endophthalmitis[5,12]. In post traumatic endophthalmitis most studies have reported polymicrobial infections [12].

In our study gram negative bacilli were predominant in all groups of endophthalmitis, followed by gram positive cocci and fungi in very few cases. The dry weather of Rajasthan might be responsible for less fungal infections.

Majority of our patients had to undergo pars plana vitrectomy with oil tamponade due to poor vision and severe condition at presentation.

CONCLUSION

Major findings of our study indicate that more than half of endophthalmitis patients presented to us with post traumatic condition followed by post operative. The incidence of endogenous endophthalmitis and post injection endophthalmitis were very less. Majority of these patients had perception of light only vision at presentation and had to undergo pars plana vitrectomy with intravitreal anitibiotics . Most commonly found

organism on microbiological profile was gram negative bacilli in all etiologies. An implication of the study would be that it would add to the epidemiological database and help in understanding clinico microbiological profile in North west India . this would help in starting appropriate antibiotics empirically.

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