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Management of Endophthalmitis at the IOTA University Hospital Center (CHU-IOTA)

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Abstract: Introduction: Endophthalmitis represents a rare but serious damage to the eyeball, potentially blinding, leading in most cases to a significant or permanent reduction in visual acuity. They mainly affect active people and can occur after regular eye surgery, endogenous eye trauma or by contiguity. They sometimes involve the anatomy of the globe. Methodology: This was a prospective and descriptive study running from January 1 to June 30, 2020 and covering all patients aged over 10 years consulting for endophthalmitis at IOTA University Hospital. The general objective was to study the management of endophthalmitis. Result: In total, 55 cases out of 20,843 patients were identified, i.e. a frequency of 0.26%. The average age was 39 years with a range of 10 to 74 years. The sex ratio was 1.3. Ocular trauma was the most common etiology found in 78.2%. Gram-positive germs were found in 47.3%. In total, 51 eyes or 92.8% were anatomically preserved and four eyes were eviscerated or 7.2%. The anatomical result at the end of the treatment was satisfactory in 92.8%. On admission, all our patients had visual acuity less than 1/10. Patients had visual acuity of 1-3/10 in 36.4% and greater than 3/10 in 16.4% after treatment. Endophthalmitis was complicated by iris hernia with 12.7%. Discussion: Ocular trauma represented the highest frequency, i.e. 78.2%. This result is higher than that of Chehab H. et al. [1] who found a frequency of 13% in his study. Endophthalmitis after cataract surgery represented 16.4%. This result is significantly higher than that of Chérif T. and Isabelle C. [3] who found 0.014%. Endogenous etiology was represented in 5.4%. Landré C. and Baillif S. [9] found 6.20% of endogenous cause out of 323 cases in their study. On admission, 100% of our patients had visual acuity less than 1/10; the most common signs were pain and decreased visual acuity (BAV). Marcil S. et al. had found BAV, pain in all patients. FRIENDS group. [8] also reported 100% BAV and 60% ocular pain. Thus, we witnessed a significantly favorable evolution of this visual acuity 90 days after initiation of treatment. Conclusion: Endophthalmitis, an ophthalmological emergency, is a potentially blinding intraocular infection. Early treatment, adapted to the antibiogram, would be decisive for a better anatomical and functional prognosis.

Keywords: Endophthalmitis, Intravitreal injection, Antibiogram.

INTRODUCTION

Endophthalmitis is caused by bacterial or fungal proliferation developed at the expense of the vitreous and/or aqueous humor. They represent a rare but serious damage to the eyeball, potentially blinding, leading in most cases to a significant or permanent reduction in visual acuity. They can occur after regular eye surgery, trauma, by contiguity or of endogenous origin. [1] Due to their potential seriousness, they still arouse sustained interest from ophthalmologists and infectious disease specialists. [1] Despite early antibiotic treatment which is mainly based on intravitreal antibiotic injections, recovery is often far from complete, hence the importance of prevention. [2]

In industrialized countries, it is a single-germ bacterial infection, unlike India where infections are in 10 to 20% of cases of fungal origin. In the United States, its incidence decreased from 0.12 to 0.072% after cataract surgery. [4-6] In 2018, a study conducted in France by Titah C. and Cochereau I. showed an incidence of 0.31% to 0.014% of acute endophthalmitis post cataract surgery. [3]

In Africa, studies carried out by Ahmed E.A. et al in 2013 found 73 cases over a period of 5 years including 51 cases of post-cataract surgery endophthalmitis, 7 cases of post-traumatic endophthalmitis, 13 cases of idiopathic origin. and 2 cases post trabeculectomy. [7]

We proposed to carry out a prospective study of cases of endophthalmitis seen in consultation and hospitalized at the IOTA University Hospital. The aim of this study was to study the management of endophthalmitis, to determine the socio-demographic profile of patients, to identify the germs involved, to establish a therapeutic management protocol and to assess the results. anatomical and functional at the end of treatment.

METHODOLOGY

This was a six (6) month prospective and descriptive study from January 1 to June 30, 2020 at the University Hospital Center of the Tropical Ophthalmological Institute of Africa (CHU IOTA).

Were included in our study:

- Any patient aged 10 and over in whom the diagnosis of endophthalmitis was made and who accepted hospitalization during the study period.
- Any patient whose symptoms relating to endophthalmitis date back a maximum of five (5) weeks.

All patients benefited from the same protocol:

- three (3) intravitreal injections of a combination of Ceftazidime injection 1 g and Vancomycin injection 1 g, the first session of which took place on admission, the second 48 hours later and the third 72 hours after the second injection.
- parenteral antibiotics: ciprofloxacin 200 mg, metronidazole 500 mg by direct intravenous infusion for seven (7) days then switching to oral ciprofloxacin 500 mg, metronidazole 500 mg for three (3) days. Gentamycin 80 mg vial for injection IM for five (5) days weight dose. Paracetamol injected directly intravenously for 48 hours followed by paracetamol 500 mg as needed.
- instillation of eye drops topically: ciprofloxacin 0.3% hourly drop for 48 hours then six (6) drops from the third day, fucidine gel one application per day in the evening. Atropine eye drops 1% one drop two (2) times a day for five (5) days. Topical corticosteroid therapy was started after the infection was controlled.

Treatment was adjusted according to the results of the antibiogram. The duration of hospitalization was seven (7) days and the treatment lasted 15 days to three (3) weeks depending on the severity and clinical evolution. All patients were provided with a monitoring sheet during the follow-up period which included 90 days for the evaluation of functional and physical signs.

The data collected was entered and analyzed using Epi Info Statistics software version 3.5.3 and word processing was done on Microsoft Word 2010. The graphic representations were made from the EXCEL table. Ethical considerations were respected.

RESULTS

During our study, carried out from January 1 to June 30, 2020, we recorded 55 cases of endophthalmitis out of 20,843 consultations at IOTA University Hospital, or 0.26%.

The age group of 10 to 20 years was the most represented with 21.7% of cases (Figure 1), the age limits varied between 10 and 74 years and the average age was 39 years. The M/F sex ratio is 1.3 (Figure 2).

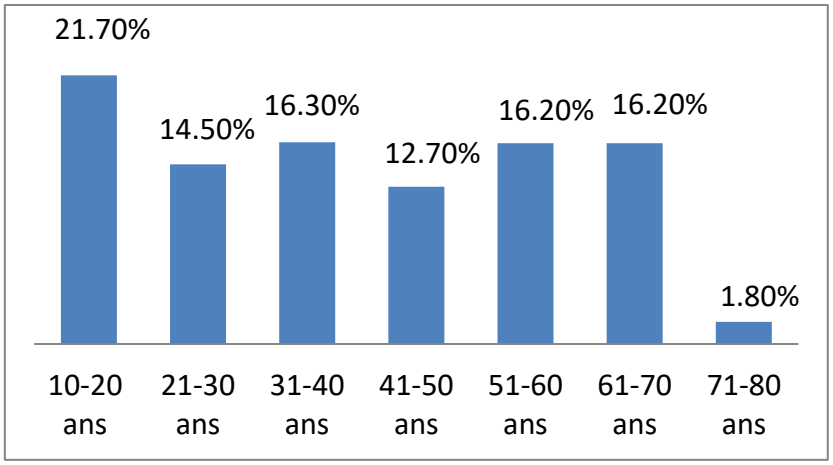

Figure 1: Distribution of patients according to age group

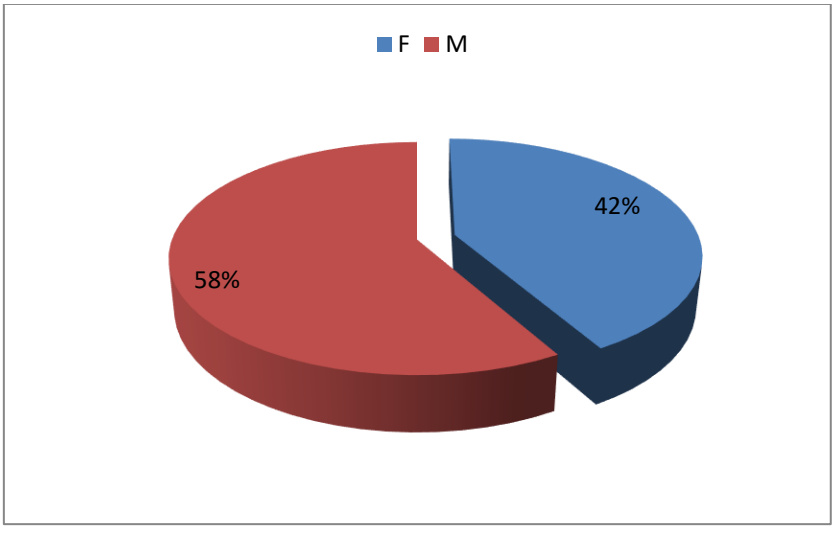

Figure 2: Distribution of patients by gender

Farmers were the most affected by this condition (Table 1). More than 50% of our patients had a consultation time of more than one week. Ocular trauma was the most

common etiology with 78.2% of cases (Table 2), and all our patients had visual acuity less than 1/10 on admission. Eye pain, photophobia and tearing were the functional signs most reported by our patients. Among the physical signs, conjunctival hyperemia and hypopyon were the most represented (Table 3). Gram-positive bacteria were the most common germs (Table 4). More than half of the patients had sufficient visual acuity for their autonomy on day 90 with correction (Table 5).

Table 1: Distribution of patients by profession

Occupation	Number (n)	Percentage (%)
Tradespeople	6	10,9
Cultivators	13	23,7
Pupils and Students	12	21,8
Workers	12	21,8
Housewives	12	21,8
Total	55	100,0

Table 2: Distribution of patients according to the etiology of endolpthalmitis.

Etiologies	Number(n)	Percentage (%)
Endogenous	3	5,4
Post-cataract surgery	9	16,4
Posttraumatic	43	78,2
Total	55	100,0

Table 3: Distribution of patients according to physical signs

Physical signs	Number (n)	Percentage (%)
Corneal abscess	31	57,4
Hypopyon	55	100
Conjunctival hyperemia	55	100
Tyndall of CA	8	14,8
Corneal dystrophy	30	54,5
Corneal ulcer	44	80
corneal edema	4	7,3
eyelid edema	22	41,5
conjunctival edema	11	20,0
Purulent secretions	42	80,8
Hyalite	2	3,6
Vitreous hemorrhage	1	1,8

Table 4: Distribution of patients according to germs found in endopthalmitis

Sprouts	Number (n)	Percentage (%)
Gram positive	26	47,3
Gram négative	5	9,1
Staphyloccocus epidermidis	2	3,6
Herpès	3	5,5
None	18	32,7
Mushrooms	1	1,8
Total	55	100,0

Table 5: Distribution of patients according to visual acuity with correction on the 90th day post-surgery

AVLac	Number (n)	Percentage (%)
< 1/10	26	47,3
[1-3/10]	20	36,4
>3/10	9	16,4
Total	55	100

DISCUSSION

From January to June 2020, we recorded 55 cases of endophthalmitis out of 20,843 consultations at IOTA University Hospital, i.e. a frequency of 0.26%. Marcil S. et al. [4] in their study collected 20 cases of endophthalmitis over a period of ten (10) months in Rabat.

The average age was 39 years with extremes of 10 years and 74 years. The age group of 10 to 20 years was the most represented, i.e. 21.70%. This result is close to that of Marcil S. et al. [4] who found an age range of 4 to 84 years with an average age of 43.4 years.

The male sex dominated in our series with a sex ratio of 1.3. This result agrees with those of Chehab H. et al. [1], Marcil S. et al. [4] and FRIENDS group. [8]. This male predominance could be explained by the fact that it is men who engage more in manual activities and violent games, unlike women.

Farmers occupied the highest frequency of the sample, i.e. a frequency of 23.7% followed by housewives, students and pupils with a similar frequency of 21.8%. This could be explained by the fact that farmers are constantly exposed to trauma in the practice of their profession.

Eye trauma represented the highest frequency, at 78.2%. This result is higher than that of Chehab H. et al. [1] who found a frequency of 13% in his study. Endophthalmitis after cataract surgery represented 16.4%. This result is significantly higher than that of Chérif T. and Isabelle C. [3] who found 0.014%. Endogenous etiology was represented in 5.4%. Landré C. and Baillif S. [9] found 6.20% of endogenous cause out of 323 cases in their study.

On admission, 100% of our patients had visual acuity less than 1/10; the most common signs were pain and decreased visual acuity (BAV). Marcil S. et al. had found BAV, pain in all patients. FRIENDS group. [8] also reported 100% BAV and 60% ocular pain.

Hypopyon and conjunctival hyperemia were found in all our patients. Sari AE found the same signs in her study. FRIENDS group [8] found 90% hypopyon, 10% corneal abscess and 50% corneal ulcer.

In our study, 32.7% of the examinations requested came back sterile, which could be explained by the notion of previous treatment received by our patients. Gram-positive germs represented almost half of the positive cultures with 47.3%. This result corroborated those of Barry P. and Marcil S. et al. [10,4] who reported a high rate of Gram positive in their studies, i.e. 69% and 85% respectively. FRIENDS group [8] reported a clear predominance of Gram Positive at 90%.

The eyeball was preserved in 92.8% (n=51) and four (4) cases had been eviscerated or 7.2%. Endophthalmitis sometimes involves the anatomy of the globe, thus Marcil S. et al. [4] in Rabat had reported 10% evisceration; Landré C. [11] in Nice reported 20% evisceration and enucleation each in France.

On admission, all our patients had visual acuity less than 1/10. Thus, we witnessed a significantly favorable evolution of this visual acuity at 90 days after initiation of treatment: 36.4% of patients had a final AVLac of between 1-3/10, 16.4% of patients had a Final AVLac greater than 3/10, 47.3% of patients had a final AVLac less than 1/10. Marcil S. et al. [4] in Rabat the average visual acuity had only evolved in “sees hand move” and “counts fingers at 2 m”

CONCLUSION

The hospital frequency of endophthalmitis was 0.26%. Early management adapted to the antibiogram would be decisive for a better anatomical and functional prognosis.

Conflict of Interest Declaration

The authors declare that they have no conflicts of interest in relation to this article.

REFERENCES

1. El Chehab H. et al. Post-traumatic endophthalmitis. Ophthalmology department, Desgenettes army training hospital, 108, boulevard Pinel, 69003 Lyon, France, ophthalmology department, Val-de-Grâce army training hospital, Paris, France.EMC, JFO Vol 39- N °1, P. 98-106 – January 2016.
2. Nuwan N. and Norwich University Hospital. Acute endophthalmitis. RSOC Vol. 16 No. 21 2019 pp 12-13. Published online August 1, 2019.
3. Titah C, Cochereau I. Ophthalmology notebooks. Endophthalmitis. May 2018; n°219;41-3.
4. Marcil S. et AL. Bacterial endophthalmitis: Retrospective clinical and microbiological study at the Rabbat specialty hospital. 2012, JFO, vol. 35-N°7-P.499-502
5. Holladay J.T. Visual acuity measurements. J Cataract Refract Surg, 2004;30:287-90.

6. Salvanet BA. Forestier F, Coscas G, Adenis JP, Denis F. Bacterial endophthalmitis. Ophthalmological results of a national multicenter prospective survey. J Fr Ophthalmol, 1992; 15:669-78.

7. AA saree. Endophthalmitis at TLEMCEN University Hospital in the ophthalmology department. 2013-2014

8. FRIENDS Group. Post-traumatic endophthalmitis. April 2008. JFO 31:28-28

9. Search engines: www.google.fr, www.wikipédia.com, www.vulgaris-medical.com, EMC handouts on www.em-consulte.com, www.fasciicules.fr.

10. Barry P et al. ESCRS study of prophylaxis of postoperative endophthalmitis after cataract surgery. Preliminary report of principal results from a European multicenter study. J Cataract Refract Surg, 2006;32:407-410.

11. Landré C., Baillif S. Endogenous bacterial and fungal endophthalmitis at Nice University Hospital: Review of cases over 15 years, 2015.