ABSTRACT

Introduction: Paediatric acute dacryocystitis (PAD) is a special subset with features that are unique and distinct from those of adults. There are few studies on paediatric dacryocystitis, hence the present study was undertaken to see the incidence of various microbial pathogens causing paediatric dacryocystitis, to identify and study their antibiogram.

Material and Methods: Retrospective study of 168 patients of pediatric age group, attending outpatient department of a tertiary care eye hospital, clinically diagnosed as dacryocystitis was done. Discharge from lacrimal punctum was collected by 2 sterile swabs, one was used for staining and another was inoculated onto Blood agar, Chocolate agar, Mac Conkey agar and Sabouraud’s dextrose agar (SDA). The isolated organisms were identified using standard procedures. Sensitivity was tested by Kirby – Bauer’s disc diffusion method.

Results: Out of the 168 samples collected, majority cases were between 1 month to 3 years, dacryocystitis was common in right eye, 72.6% were culture positive and 27.3% were negative. Staphylococcus epidermidis was the predominant organism. Fungal isolates were three, Aspergillus spp 2 and Fusarium spp 1. Majority of S. epidermidis were sensitive to Gatifloxacin, least sensitivity was to Ca, Staph. aureus were sensitive to Mo and Tb, Enterococci, Streptococci and Micrococci were sensitive to all antibiotics except Ca. In case of Pseudomonas, Oflaxacin and Gatifloxacin showed 100% sensitivity.

Conclusions: Paediatric dacryocystitis is a distinct entity with unique features of its own. In the era of antibiotic resistance, microbiological work up of paediatric acute dacryocystitis is very useful for subsequent treatment.

Keywords: Dacryocystitis, paediatric, antibiotic sensitivity.

INTRODUCTION

Dacryocystitis is caused by obstruction of nasolacrimal duct. It is due to malformation of tear duct, infection of eye, tarunna or injury. Clinically patient presents with swelling over the inner aspect of the lower eyelid, redness and pain.¹ There are 2 forms of Dacryocystitis, acute and chronic.² The acute form could be associated with severe morbidity and primarily related to the lacrimal sacs abscess and spread of infection.³,⁴ There is a varied spectrum of its clinical presentations ranging from tenderness and erythema of the overlying tissues to a frank lacrimal abscess.⁴ Untreated lacrimal abscess can progress to orbital cellulitis, superior ophthalmic vein thrombosis, and cavernous sinus thrombosis.⁵,⁶ Acute dacryocystitis can present as a medical emergency with sudden pain, erythema and swelling, below the medial canthal tendon. Infection of lacrimal sac and peri-sac tissues can lead to epiphora.⁶ Clinically Paediatric acute dacryocystitis (PAD) presents as dacryocele in neonates. It can lead to complications like orbital cellulitis, orbital abscess, meningitis and loss of vision.⁶,⁷,⁸,⁹ There are few studies on paediatric dacryocystitis, hence the present study was undertaken to see the incidence of various microbial pathogens causing paediatric dacryocystitis, to identify various bacterial isolates and study their antibiogram.

MATERIAL AND METHODS

A retrospective study of 168 patients of paediatric age group of either sex, attending outpatient department of a tertiary care eye hospital, clinically diagnosed as dacryocystitis by ophthalmologists was done after ethical board clearance.

Specimen Collection: After cleaning with normal saline swab, pressure was applied at medial epicanthic fold, the regurgitated pus or serosanguinous fluid was collected by sterile swab, two sterile cotton swabs moistened with physiological saline were used for collection of discharge from lacrimal punctum.

Specimen processing: One swab was spread on glass slide to prepare smear and stained by Grams stain. The second swab was used for inoculation onto culture media like Blood agar, Chocolate agar, Mac Conkey agar and Sabouraud’s dextrose agar (SDA). The inoculated media were incubated at 37°C for 24hrs to 48 hrs for aerobic cultures and SDA at room temperature for 3 weeks. The stained smears were screened for presence or absence of pus cells and bacteria, KOH mount for fungal elements. The isolated organisms were identified using standard procedures. Antibiotic sensitivity of organisms was tested by Kirby Bauer’s disc diffusion method on Muller hinton agar using the following antibiotics, 30Mcg-Chloramphenical (C), 30Mcg Cefazidime (CA), 5Mcg Ciprofloxacin (CF), 5Mcg Oxacillin (OF), 5Mcg Gatifloxacin (GF), 10Mcg Gentamycin (G), 5Mcg Moxifloxacin (MO), 10Mcg Tobramycin (TB).

RESULTS

Out of the 168 samples collected over a period of one year, 85 were in the age group of 1 month -1year, 36 were between 1-2years, 23 were between 2-3years and 25 were between 3-5years. Out of 168 patients boys were 92, girls were 76, da-

¹Assistant professor, ²Professor, Department of Microbiology, Sarojinidevi Eye Hospital, ³Assistant professor, Department of Microbiology, Sir Ronald Ross Institute of Tropical and Communicable Diseases, Osmania Medical College, Hyderabad, ⁴Associate Professor, Department of Microbiology, Kakatiya Medical College, Warangal, Telangana State, India

Corresponding author: Dr. V. Sudha Rani, M.B.B.S., M.D. (Microbiology), Associate Professor of Microbiology, Kakatiya Medical College, Warangal, Telangana State. H. No.11-13-716, Road No.4, Green Hills Colony, Hyderabad, 500035, Telangana State, India

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Dacryocystitis in Paediatric Age Group

Sensitivity patterns: In case of S. epidermidis 78 isolates were sensitive to Gatifloxacin, least sensitivity was to Ca, next CF, in case of Staph.aureus out of 17, Mo and Tb shown high sensitivity, CF least sensitive, for Enterococci sensitivity almost same for all antibiotics, Streptococci were almost sensitive to all antibiotics except Ca. In case of Pseudomonas Oflaxacin and Gatifloxacin showed good sensitivity of 100%. Micrococci were resistant only to Ca and sensitive to all. (Table 2)

DISCUSSION

In the present study out of 168 samples collected, male children were 92 and female children were 76, in 93 right eye was affected and in 75 left eye showed infection, right eye infection was common. In a study done by Mohammad Javed Ali et al, the female to male ratio was approximately 1.7:1, there was no preponderance of laterality. In a study done by Yared Assefa, Feleke Moges, Mengistu Endris, Banchamlak Zereay et al from the total 51 dacryocystitis cases, bacterial origins were isolated among 31 (60.8%) cases. In an interesting study of 47 children, Kuchar et al., observed that Gram positive bacteria were more frequently isolated in the samples obtained, S. pneumonia being the predominant microorganism in 36.4% of cases, followed by H. influenzae (19.6%). Mohammed Javed Ali, Swapan R Motukupally, Surbhi D Joshi and Milind N Naik observed in their study that the microbiological profile was not found to be different in the paediatric subset of their study group with S. aureus being the most common organism followed by S. pneumonia. In our study Staphylococcus epidermidis was the predominant organism 86 (70.4%), followed by Staphylococcus aureus 17 (14.2%), and the only Gram negative organism isolated was Pseudomonas aeruginosa. We have isolated 3 fungi (3.4%). As for fungi, they have been reported to be present in 4% to 7% of cases, the most commonly isolated genus being Candida, although Aspergillus and Mucor may also be found. In a study done by Supriya Ghose, VM Mahajan fungal isolates were 12 (13.95%). C. albicans and 5 were A. niger. Our study showed 3 fungi, 2 Aspergillus and 1 Fusarium. Antibiotic sensitivity results showed that in case of S. epidermidis 78 isolates were sensitive to Gatifloxacin, least sensitivity was to Ca, next CF, in case of Staph.aureus out of 17, Mo and Tb shown high sensitivity, CF least sensitive, for Enterococci sensitivity almost same for all antibiotics, Streptococci were almost sensitive to all antibiotics except Ca. In case of Pseudomonas Oflaxacin and Gatifloxacin showed good sensitivity of 100%. Micrococci were resistant only to Ca and sensitive to all. In a study done by Yadav Assefa, Feleke Moges, Mengistu Endris, Banchamlak Zereay et al the antimicrobial susceptibility tests revealed that ceftriaxone (95.3%), erythromycin (84.2%), nalidixic acid (87.1%), gentamycin (83.3%) were more effective than other antibiotics tested to all bacterial isolates.

CONCLUSIONS

Paediatric dacryocystitis is a distinct entity with unique features of its own. It is a serious infection that needs careful
evaluation and immediate management. In the era of antibiotic resistance, microbiological work up of paediatric acute dacryocystitis is very useful for subsequent treatment.

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