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Ophthacare in Pterygium and Dacryocystitis

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ABSTRACT
Dacryocystitis and pterygium are common ophthalmic disorders encountered in daily practice. Effective local antibacterial and anti-inflammatory therapy brings down the inflammation and infection and avoids the risks associated with surgery. Ophthacare, a herbal preparation, with its proven anti-inflammatory and antibacterial activity was used in the management of acute/chronic dacryocystitis and pterygium. The results showed that it was effective in relieving the symptoms within 8-10 days in dacryocystitis and within 15 days in case of pterygium. Thus Ophthacare can be safely used in conservative management of acute/chronic dacryocystitis and pterygium.

Key words: Ophthacare, dacryocystitis, pterygium

INTRODUCTION
The lacrimal apparatus, which include lacrimal gland and the lacrimal passage, plays an important role in keeping the eye in its optimal functional capacity. The lacrimal secretion which is alkaline in nature is reported to have bacteriostatic properties, owing to the presence of an enzyme, lysozyme. When the lacrimal passages are functioning normally, protection is provided by the flow of tears as the mucosa is resistant to infection. Sometimes the lacrimal gland gets inflamed and the inflammation gets aggravated, specially when it is exposed to wind[1]. Stasis within the sac is prerequisite for the development of the infection and swelling, which lead to blockage within the confines of the narrow bony canal[2]. This condition is known as dacryocystitis. Many times dacryocystitis is associated with infections.

Another condition, which is commonly encountered in ophthalmic practice is pterygium. The cause is not known, basically it is an inflammation of a conjunctiva aggravated with exposure to environmental extremes, pollution, dust etc. It is a degenerative and hyperplasmic process in which the conjunctiva becomes adherent to the underlined tissue. Pterygium contains all types of inflammatory cells such as lymphocytes, plasma cells and immunoglobulins[3]. On many occasions, it is associated with infection[4]. Since both the above conditions are basically inflammatory reactions followed by secondary infections, we decided to conduct a clinical trial in people suffering from dacryocystitis and pterygium. The medication used in the trial is a herbal preparation known as Ophthacare, which contains basic principles of different herbs such as (a) *Carum copticum* (Yawani) which has been shown to possess antibiotic activity against *Salmonella typhi, Micrococcus pyogenes*, *Var. aureus* and *Escherichia coli*[5,6], it is also a potential source of natural antioxidant[7], (b) *Terminalia bellerica* extract combined with honey acts as an antibacterial and antifungal agent in various eye disorders[8,9], (c) *Emblica officinalis* (Amalaki) is found to have a potent anti-oxidant activity. Aqueous extract was found to be potent inhibitor of liquid peroxide formation and scavenger of hydroxyl and superoxide radical[10]. (d) *Curcuma longa* (Haridra) is an anti-inflammatory agent. The activity of this plant was comparable to hydrocortisone acetate and phenylbutazone[11]. The antibacterial activity was comparable to penicillin

and streptomycin on gram-positive and gram-negative organisms[12], (e) *Ocimum sanctum* (Tulasi) possesses antimicrobial and anti-inflammatory activity and helps in healing tissues[13,14], (f) Ethanolic extract (50%) of Cinnamomum camphora (Camphor) showed antibacterial activity against several gram-positive and gram-negative bacteria[15], (g) Mel despumatum (Honey) has been recommended as an effective remedy in conjunctivitis. It is reported to prevent infection and promote healing as its ingredients are similar to that of antibiotics. Honey also gets easily absorbed into the tissues[16]. Honey is not only bactericidal but also bacteriostatic. It inhibits the growth of *Escherichia coli*, Haemophilus influenzae, Proteus, Pseudomonas aeruginosa, *Staphylococcus aureus, Streptococcus pyogenes,* Salmonella species and Vibrio cholerae[17,18].

The following stability procedure was followed for the preparation of the eye drops under aseptic conditions. The above individual herbs were standardised by gas chromatographic method by using Netel Chromatograph. A 10% carbowax 20 M (3 metre, 1/8 inch IP) stainless steel column was used for the separation. Nitrogen was used as carrier gas at the flow rate of 30 ml/min and the compounds were detected using Flame Ionisation Detector (FID).

The filling of the eye drops prepared by the above method was done under sterile conditions in an aseptic area using 0.2H sterile filtration units.

MATERIAL AND METHODS

Thirty six patients, both male and female suffering from dacryocystitis attending the OPD were selected for the trial, of which 14 patients had acute episodes and 22 cases had chronic dacryocystitis. They complained of pain and swelling of both the eyes (Table). On examination, there was oedema overlying the skin, lower eyelid and cheek. The conjunctiva revealed signs of inflammation. The discharge was watery in certain patients while in others it was mucopurulent. Routine ophthalmic examination with fundoscopy was done to eliminate any other pathology of the eye. The conjunctiva of these patients were given a thorough wash with sterile normal saline and later dispensed Ophthacare eye drops with instructions that they had to instill 2-3 eye drops 4-5 times a day for 15 days. They were requested to come for follow-up on alternate days.

Table: Complaints (n=36)

	No. of patients	Oedema	Pain	Redness	Discharge	
					Watery	Mucopurulent
Acute	14	6	12	14	9	5
Chronic	22	15	19	20	4	18

Eighteen patients with pterygium, who were not indicated or contraindicated for surgery were selected for the trial. They were dispensed Ophthacare eye drops with instruction to instill 2-3 drops 3-4 times a day.

RESULTS

In the study, it was observed that out of 14 patients who were suffering from acute dacryocystitis, 8 of them had improved and relieved from the symptoms from day 2 onwards and were symptomatically free after 8-10 days. Remaining 4 patients had mild to moderate relief from symptoms from day 10. They were again given a conjunctival wash with advice to continue the eye drops medication. It was observed that they were totally free from symptoms after 5-6 days of treatment.

In chronic dacryocystitis, especially with mucopurulent discharge, it was seen that 14 patients had no symptoms after using the eye drops for 8 days and 5 patients had to use the medication for 15 days for

complete relief from the signs and symptoms of dacryocystitis. In another 3 patients, the symptoms did not progress further after 10 days of therapy. Later on they were given surgical treatment and then advised to instill the eye drops to prevent recurrence of the symptoms

In case of pterygium, inflammation stopped after using the eye drops for 15 days. The signs and symptoms of inflammation reduced from day 5 onwards.

DISCUSSION

In many cases of dacryocystitis, irrigation of the lacrimal sac with topical antibiotic application gives better results[19]. Many studies have shown that the cause of dacryocystitis could be due to bacteria or fungus[20]. Probing of the lacrimal passage with a probe of greater size may be useful, but often relief is transient and the procedure is painful[21].

Previous studies have shown that Ophthacare possess antibacterial and anti-inflammatory properties[22]. This study shows that Ophthacare can be a useful drug in inflammatory dacryocystitis.

The pathogenesis of pterygium could be due to an inflammatory response, as massive amounts of infiltrating lymphocytes predominantly T-cells (CD^{3+}), were found in the substantia propria of the pterygial specimens. These results indicate that an immunologic mechanism, possibly of Types of 1, 3 and 4 hypersensitivity may contribute to the pathogenesis of pterygium[23]. At present pterygium are removed surgically, but studies have shown that there was 50% chance of recurrence within first 120 days of surgery and 97% chance within 12 months of its removal[24]. Many cases of pterygium have been treated with medication alone[25]. Ophthacare helps arrest the progress of the pterygium and is a useful drug in patients who are contraindicated for surgery. Many times pterygium is accompanied by mild conjunctivitis. Since Ophthacare has been proved useful in conjunctivitis it can be safely used for pterygium.

CONCLUSION

Based on the results of the study, it can be concluded that Ophthacare can be a useful drug in the treatment of uncomplicated acute and chronic dacryocystitis. Conservative management of pterygium can be effectively carried out with topical application of Ophthacare eye drops.

REFERENCES

1. Stephen, J.H.M., (1996) Parsons' diseases of the eye, 8th Edn. pp. 374-377. New York: Churchill Living Stone Publications.
2. Pepore, J.S., Holland G.N. and Wilhelmus, (1998) Ocular infection and immunity pp 1341-1345. Missouri L: Mosbey Year Book Inc.
3. Frank W.N., (1986) Ophthalmology: Principals and concepts 6th Edn. pp 221 Missouri: Mosbey Corp.
4. Harold G and Scheie M.D., (1997) Text book of Ophthalmology 9th Edn. pp 383-384. Philadelphia: WB Saunder Corp.
5. Krishna and Badhwar, (1953) J. Sci. Industr. Res. Vol. 12A, No. 2, pp. 288.
6. Bhatnagar *et al.* (1961) Ind. J. Med. Res. Vol. 49, pp. 799.
7. Mehta R.L. Zayas, J.f. and Yang, S.S., (1994) Ajowain as a source of natural lipid antioxidant J. Agri. Food Chem. Vol. 42, No. 7, pp. 1420-1422.

8. Kapil, V.B., Sinha, A.K. and Sinha, G.K. (1983) Antibacterial and antifungal study of some essential oils and their constituents from the plants of Kumaon and its Tarai tract – Bull. Med. Ethnobot. Res. Vol. 4, No. 3 pp. 124-129.

9. Valsaraj R. *et al.*, (1994) Screening of Indian medicinal plants for antimicrobial activity – Fourth Internat. Cong. Ethnobiol. NBRI., Lucknow, Vol. 17, No. 21, pp. 49.

10. Jose, J.K. and Kuttan, R (1955) Inhibition of oxygen free radical by *Emblica officinalis* extract and Chyavanaprasa – Amala Res. Bull. Vol. 15, pp. 46-52.

11. Arora, R.B., Basu Kapoor, V. and Jain, A.P. (1971) Anti-inflammatory studies on *Curcuma longa.* Ind. J. Med. Res. Vol. 59, pp. 1289.

12. Amon, H.P.T. and Wahl, M.A., (1991) Pharmacology of Curcuma longa. Planta Medica, Vol. 7, No. 1, pp. 1-7.

13. Thaker, A.M. and Anjaria, J.V. (1986) Antimicrobial and infected wound healing response of some traditional drugs. Ind. J. Pharmacol. Vol. 18, No. 3, pp. 171-174.

14. Varde, A.B., Ainapure, S.S., Naik, S.R. and Amladi, S.R. (1998). Anti-inflammatory activity of coconut oil extract of *Acorus calamus, Ocimum sanctum* and *Ocimum basilicum* in rats. Indian Drugs, Vol. 25, No. 6, pp. 226-228.

15. Adhikari *et al.,* (1976) J. Inst. Chem. India, Vol. 48, pp. 223.

16. Schweisheimer (1982) Indian Boc J. Vol. 44, pp. 82.

17. Molan (1992) Bee Word Vol. 73, pp. 5.

18. Matheson (1993) ibid, Vol. 44, pp. 144.

19. Cahill, K.v. and Burns, J.A. (1993) Management of acute dacryocystitis, Plast Reconstr. Surg. Vol. 9, pp. 38-42.

20. Codere, F. and Anderson, R.L. (1982) Bacterial *Candida albicans* dacryocystitis with facial cellulitis, Can. J. Ophthalmol., Vol. 17, pp. 176-177.

21. Frank, W.N. (1982) Ophthalmology – Principal and concepts, 6th Edn. pp. 261, Missiouri; Mosbi Co.

22. Satya Prema Kumari *et al.*, (1997) Efficacy of E-7 eye drops (Ophthacare) in acute conjunctivitis. Ind. J. Clin. Pract., Vol. 9, No. 7, pp. 19-21.

23. Liu, L. and Yang, D. (1993) Immunological studies on the pathogenesis of pterygium, Chin. Med. Sci. J., Vol. 8, No. 2, pp. 84-88.

24. Hirst, L.W., Sebban, A. and Chant, D., (1994) Pterygium recurrence time, Ophthalmology, Vol. 191, No. 4, pp. 755-758.

25. Frucht, P.T. *et al.,* (1997) Treatment of inflammed pterygium and pinguecula with topical indomethacin 0.1% solution, Cornea, Vol. 16, No. 1, 42-47.