



Non-Surgical Persian Medicine-Based Treatment of Chronic Refractory Congenital Nasolacrimal Duct Obstruction in a Surgical Candidate (Thirteen-month-old) Infant

Fatemeh Nejatbakhsh¹, Laila Shirbeigi¹, Ali Masoudi²,
Zahra Niktabe¹, Nematollah Masoudi^{3*}

¹Department of Iranian Traditional Medicine, School of Persian Medicine, Tehran University of Medical Sciences, Tehran, Iran

²Department of Psychology, Faculty of Educational Sciences and Psychology, Mohaghegh Ardabili University, Ardabil, Iran

³Baqiyatallah University of Medical Sciences, Tehran, Iran

Received: 12 Apr 2019

Revised: 4 May 2019

Accepted: 7 May 2019

Abstract

Congenital or acquired obstruction is the most common anomaly of nasolacrimal duct (NLD). NLD obstruction (NLDO) is one of the most common problems in pediatric ophthalmology. Some symptoms of NLDO are seen in 6-20% of infants. NLDO creates two problems; first is disruption in the flow of tears that is due to epiphora. Another is the infection leading to stasis of fluid in the lacrimal system. Surgery is the choice treatment of chronic congenital NLDO in the refractory infants to massage and antibiotics. Dam-e is a watery discharge of eyes that has different reasons in Persian Medicine (PM). Based on the symptoms which was seen in patients with NLDO, it could be one of the subgroups of Dam-e. Conforming to Persian Medicine, residue of materials that moves from brain to the eyes and sediments in the NLD, can be the main reason of NLDO. Our case is the thirteen-month-old infant with congenital NLDO unresponsive to antibiotics and massage and has been a candidate for surgery. In PM view, to open the lacrimal duct obstruction, we use the properties of Persian Medicine's drugs (including Honey, camphor, vinegar and sesame oil) such as fragmentation of excreta (are Moghatte in PM), anti-obstruction (Mofatteh in PM), cleansing (Monaghi in PM) and descaling (Jali in PM) effects, and the patient's symptoms were nonsurgically relieved. In the discussion of this paper, the properties of these drugs also check point of view of contemporary medicine's viewpoints compared to Persian Medicine.

Keywords: Nasolacrimal duct obstruction; Epiphora; Dam-e; Persian medicine

Citation: Nejatbakhsh F, Shirbeigi L, Masoudi A, Niktabe Z, Masoudi N. **Non-Surgical Persian Medicine-Based Treatment of Chronic Refractory Congenital Nasolacrimal Duct Obstruction in a Surgical Candidate (Thirteen-month-old) Infant.** Trad Integr Med 2019; 4(2): 72-77.

*Corresponding Author: Nematollah Masoudi
Baqiyatallah University of Medical Sciences, Tehran, Iran
Tel: 09141528381
Email: salman.farsy@gmail.com

Introduction

Increasing secretion of tear is either primary, which is rare, or secondary that will be made by two factors: obstruction of nasolacrimal duct (NLD) or due to stimulating of superficial epithelial or cornea [1]. Six to twenty percent of infants are experiencing nasolacrimal duct obstruction (NLDO). Congenital or acquired obstruction is the most common anomaly of nasolacrimal duct (NLD) and one of the prevalent problems in the pediatric ophthalmology. NLDO creates two problems; disruption in the flow of tears that is due to epiphora and infection which leads to stasis of fluid in the lacrimal system. This obstruction may cause symptoms of acute and chronic epiphora and dacryocystitis [2]. Treatment of some cases of infants with congenital NLDO which takes long more than 6 months will be followed in one of two ways as below: one way is probing with local anesthesia and the other way is to continue following up in non-surgical procedures involved in local anti-biotic and massage [3]. If it wasn't improved till one year, she/he would be operated by probing via membrane [1]. It would be better to apply non-surgical and non-invasive methods for treatment of the patient with surgery indication. Our destination in this article is the report of non-surgical procedures upon principles of PM for it.

Case report

Patient was a thirteen-month-old girl who was referred to ophthalmologist several months ago with purulent discharge from

inner corner of right eye with NLDO. Since the patient did not respond to current treatment (antibiotic and massage) during the maximum opportunities for non-surgical treatment, had been recommended to surgery (probing). Patient's parents didn't have interest in surgery. They consulted with Persian Medicine (PM) clinic in Ardabil. On arrival in baby's right eye watery discharge and intense green purulent discharge with redness was evident. There was not any other signs and symptoms of a red eye such as swelling, conjunctivitis, pruritus or irritation. Also there was no any signs and symptoms of other diseases of the lacrimal system such as swelling and inflammation of the eyelids or lacrimal vesicles, lacrimal lymphadenopathy, lymphadenopathy or swelling under the sub mandibles.

Describing the medication

- 1- On the first visit parents were instructed how to rub honey over baby's eyelashes three times daily.
- 2- They were ordered to massage the NLD and corner of the eye with one drop sesame oil 5-7 minutes 4 times daily.
- 3- A vinegar-based solution containing camphor was made upon Iranian traditional pharmacy books [4]. Parents rubbed it twice daily with cotton swab over lower pore in inner corner of eye cautiously and carefully. For protecting cornea, lower eyelid was estranged from inner corner of eye for a few moments after rubbing cotton swab to the pore.

Outcomes

Two weeks after treatment, mother reported 40-50% reduction of purulent discharge and tearing. Assessing disease severity and response to treatment was based on symptoms and diagnosis of ophthalmologist and patient's idea [5]. It was recommended to continue rubbing combination of camphor and vinegar with half of previous dose to avoid possible complications of treatment. The other orders were repeated. Four weeks after treatment patient symptoms of right eye was fully improved. The reason of next visit was for consulting about low weight of baby. Then patient's mother reported watery discharge from left eye caused by wind and coldness. The physician recommended the use of sesame oil over the nose, cheeks, around the eyes and forehead at nights. In the next visit, watery discharge of left eye was treated completely during 3 weeks. In follow-up, there was no relapse after one year.

Discussion

NLDO may occur due to congenital or acquired causes [6]. In contemporary medicine, if congenital NLDO of babies become chronic and doesn't respond to nonsurgical methods (massage and topical antibiotics) till one year, it would be operated by probing via membrane [1,3]. In PM, brain is the source of the moistures which flow to the eye. Avicenna and the other PM physicians explained a disease called "Dam-e". Dam-e is a watery discharge of eyes whith different

reasons that have been explained in PM. Filling the waste of head is one of the causes create Dam-e in PM perspective. If the cleansing power of these substances in the brain is low, this material moves towards the eye. If the eye cannot clean these wastes, they accumulate in the course of nasolacrimal duct and cause duct obstruction. This blockage can affect the process of tearing and cause eye infectious discharge. NLDO is one of the manifestations of this disease in contemporary medicine [2,7,8]. According to PM, density of materials that moves from brain towards the eyes and sediment in the NLD, is the main reason of NLDO [7,8]. This was the reason of NLDO in mentioned patient as well. So by correct recognition about functional properties of PM's drugs, these kinds of obstructions can be treated without surgery. In investigating the effect of drugs used in the present case upon PM view and comparing with contemporary medicine the following findings were obtained:

1- According to PM, honey shattered the waste that integrated in the ducts of body and it can open and clean the walls of the ducts with clearing the waste. (Is "Moghatte", "Monaghghi", "Mofatteh" and "Jali" in PM). Topical use of honey in the corner of the eye can clean tear duct route from obstructing materials. Honey conveys effects of drugs all over the body as well as vinegar. It can be a carrier of camphor for more penetration to obstruction site. (Mobadreg in PM). From the perspective of contemporary medicine, it could be said that convoys increased uptake,

metabolism and pharmacological activities of the drug along with them. [9] In PM, not only honey can open the obstructions but also it is effective for eye irritation and many other eye diseases used alone or in combination with other medicines [10]. In contemporary medicine studies Honey is a natural product with anti-bacterial properties and without causing drug resistance. It is applicable in the treatment of chronic infected wounds. It has some applications in ophthalmology. Honey can be effective to treat dry eye syndrome, bullous keratopathy and opacities of the cornea after herpetic keratitis successfully. It also reduces redness, swelling and the eradication of bacterial eye infections in conjunctivitis [11]. In one study it was reported that usage of honey in the treatment of corneal ulcer caused by contact lens was successful [12].

2- Camphor can dissolve materials which induce obstruction (Mohallel in PM) and it is useful in local eye drugs prescriptions [10]. Survey the effects of a poly herbal formulation contains camphor on the eyes, was shown antiangiogenic, anti-inflammatory and anti-cataract effects. The combination had intraocular penetration significantly [13]. Obviously, incorrect and unscientific use of camphor can cause damage to the cornea and anterior chamber reaction in the eye [14].

3-Vinegar penetrates expressing effects of drugs along with it to the organs fast (convoys in PM as well as carrier in contemporary medicine) [9] and fragments the excreta (is Moghatte in PM). Vinegar exists in combination of eye topical drugs in the

prescriptions of PM [7] Vinegars are the alteration of ethanol into acetic acid [15]. Gossypol acetic acid (GAA) is a crystallized form of Gossypol including of gossypol and acetic acid. It can inhibit lipid peroxidation, exhibits anti oxidative behavior and act as an anticancer drug. Also upon US Food and Drug Administration (FDA) approved drugs/natural products library, it can prevent oxidative stress-induced pre cell death. Gossypol is a naturally occurring polyphenolic compound isolated from cottonseed [16] that has high medical importance. Gossypol engrossed anticancer and antiviral activities. Also Gossypol is weighed as a male birth control agent [17]. GAA is able to prevent stress induced necrosis in the macular cells in the pre cell die stage in dry eye – related macular degeneration disease. Its effect exerts by inhibiting the intrinsic necrotic pathway due to oxidative stress [16] it seems adding the Gossypol to acetic acid increases the potency of Gossypol.

In this patient with vinegar-based solution containing camphor which made upon Iranian traditional pharmacy accounts [4], we used solving effect (as Mohallel in PM) of camphor for unblocking (aim of solving is destroying materials completely without wastages) and vinegar enhanced penetration of camphor in obstruction and fragmented the excreta (is Mobadreg and Moghatte in PM) [10].

4- Sesame oil is warm-natured and is anti-obstruction (Mofatteh in PM). In this patient sesame oil is used for increasing the effect of rubbing in tear duct route by its mentioned properties, and rubbing increases penetration

of sesame oil in route of tear's outfall, so obstruction disappears slowly [10]. In a study that surveys the effect of oil massage on healthy term infants, the results showed that among the various oils that were used in the study, Sesame oil has obvious effects on growth, sleep improving and increasing the blood flow of the femoral artery [18]. It seems that in the present case also sesame oil could be useful to increase circulation of the massage area. Also it probably has helped to improve patient by increasing the speed of movement of the material inside the duct. In presented case the treatment duration was about 4 weeks. This time was significantly shorter than other nonsurgical treatments in some studies [19, 20]. For example, one study designed to survey the rate of suggestive development of congenital NLDO in infants cured with conservative administration in the first year of age. The patients were separated into two groups. Group 1 (28 eyes of 24 patients) was involved of the patients who were applied efficient lacrimal sac massage regularly throughout the follow-up time, and group 2 whose parents did not apply a regular lacrimal channel regularly (8 eyes of 7 patients). Thirty-three eyes of 31 patients (18 rights and 15 left) efficaciously resolved with simply conservative management (91.6 %). In these thirty-three eyes, one eye (3 %) resolved in the middle of 0 and 3 months, fourteen eyes (42.5 %) resolved among 4 and 6 months [20]. In addition, surgical treatments have not been fully successful. This is reported from a study which 10% of the cases led to re-surgical procedures [5]. Upon "honey, vinegar,

camphor, sesame oil, Persian medicine, herbal and NLDO" keywords searching in the Google Scholar and PubMed databases, in the best of our knowledge, using honey, vinegar, camphor and sesame oil was not found in researches for the treatment of NLDO. According to this matter, the probability of improvement acceleration and reduction in surgical indications with these medical methods since onset of the disease will be reinforced. This study was based upon an evaluation of the mechanisms of a disease called "Dam-e" in PM and NLDO in contemporary medicine that leads to treatment of the patient candidate for surgery.

Conclusion

Because of association between etiologies of NLDO in two views of contemporary medicine and PM, we can establish an easier, faster and safer method for the treatment of diseases. It is recommended to planning studies that accelerate effect of treatment in patients to reduce the cost and side effects.

Competing Interests

The authors have no conflict of interest in the publication of this article.

Acknowledgments

The authors of this paper appreciate the patient's parent's cooperation in participating and completing all treatment processes.

Financial support and sponsorship

None.

References

- [1] Jeffrey JH. The Lacrimal Drainage System. In: *Ophthalmology*. Eds, M Yanoff, JS Duker. Elsevier, China, 2014; pp 1346-1348.
- [2] Lueder GT. The association of neonatal dacryocystoceles and infantile dacryocystitis with nasolacrimal duct cysts. *Trans Am Ophthalmol Soc* 2012;110:74-93.
- [3] Lee KA, Chandler DL, Repka MX, Melia M, Beck RW, Summers CG. A comparison of treatment approaches for bilateral congenital nasolacrimal duct obstruction. *Am J Ophthalmol* 2013;156:1045-1050.
- [4] Shirazi EE. *Kefaye Mansoori*. 1st ed. Iran University of medical sciences. Tehran 2003; p 280.
- [5] Ojaghi H, Masoomi R, Mazaherigarangh N, Sagha M. Survey the results of nasolacrimal duct probing and related factors in children with congenital nasolacrimal duct obstruction in Alavi Hospital. *Journal of Ardabil University of Medical Sciences* 2004;5:213-219.
- [6] Biswarup R, Saumendra NB, Debabrata D, Bivas A. A rare cause of nasolacrimal duct obstruction: Dentigerous cyst in the maxillary sinus. *Indian J Ophthalmol* 2009;57:465-467.
- [7] Sina I. *Al-Qanun fi Tibb*. 1st ed. Al-Alami Library. Beirut 2005; pp 379-380.
- [8] Arzani M. *Tebbe Akbari*. 1st ed. Jalal-aladin. Tehran 2008; pp 217-219.
- [9] Sadati SN, Shams Ardekani MR, Ebadi N, Yakhchali M, Raees Dana A, Masoomi F, Khanavi M, Ramezany F. Review of scientific evidence of medicinalconvoy plants in Traditional Persian Medicine. *Pharmacogn Rev* 2016;10:33-38.
- [10] Aghili MH. *Makhzan-al,-advieh*. 2nd ed. Sabzaarang. Tehran 2011; pp 70-71, 469, 545-546, 649-650.
- [11] Majtanova N, Cernak MA, Majtan J. Honey: a natural remedy for eye diseases. *Forsch Complementa Med* 2016;23:364-369.
- [12] Majtanova N, Vodrazkova E, Kurilova V, Horniackova M, Cernak M, Cernak A. Complementary treatment of contact lens-induced corneal ulcer using honey: A case report. *Cont Lens Anterior Ey* 2015;38:61-63.
- [13] Velpandian T, Gupta P, Kumar Ravi A, Prasad Sharma H, Ranjan Biswas N. Evaluation of pharmacological activities and assessment of intraocular penetration of an ayurvedic polyherbal eye drop (Itone™) in experimental models. *BMC Complem Altern Med* 2013;13:1-12.
- [14] Lim GC, Chen YF, Liu L, Huang SC, Lin KK, Hsiao CH. Camphor-related self-inflicted keratoconjunctivitis complicating delusions of parasitosis. *Cornea* 2006;25:1254-1256.
- [15] Mas A, Jesús Torija M, Carmen García-Parrilla M, Troncoso AM. Acetic Acid Bacteria and the Production and Quality of Wine Vinegar. *Sci World J* 2014;394671
- [16] Hanus J, Zhang H, Chen DH, Zhou Q, Jin P, Liu Q, Wang S. Gossypol acetic acid prevents oxidative stress-induced retinal pigment epithelial necrosis by regulating the foxO3/sestrin2 pathway. *Mol Cell Biol* 2015;35:1952-1963.
- [17] Li C, Zhao T, Li C, Mei L, Yu E, Dong Y, Chen J, Zhub S. Determination of gossypol content in cottonseeds by near infrared spectroscopy based on Monte Carlo uninformative variable elimination and nonlinear calibration methods. *Food Chem* 2017;221:990-996.
- [18] Agarwal KN, Gupta A, Pushkarna R, Bhargava SK, Faridi MM, Prabhu MK. Effects of massage & use of oil on growth, blood flow & sleep pattern in infants. *Indian J Med Res* 2000;112:212-217.
- [19] Pediatric Eye Disease Investigator Group. Resolution of congenital nasolacrimal duct obstruction with nonsurgical management. *Arch Ophthalmol* 2012;130:730-734.
- [20] Karti O, Karahan E, Acan D, Kusbeci T. The natural process of congenital nasolacrimal duct obstruction and effect of lacrimal sac massage. *Int Ophthalmol* 2016;36:845-849.