

The Effect of Breastfeeding on Massage Therapy in Congenital Nasolacrimal Duct Obstruction

Short Communication

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Received: September 12, 2015

Accepted: October 13, 2015

Published: October 16, 2015

Citation: Yuksel N, Kalkan Akcay E, Mutlu M, Duru N, Ozturk F (2015) The Effect of Breastfeeding on Massage Therapy in Congenital Nasolacrimal Duct Obstruction. *Int J Ophthalmol Eye Res* 03(9), 148-149. **doi:** <http://dx.doi.org/10.19070/2332-290X-1500031>

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Introduction

Congenital nasolacrimal duct obstruction (CNLDO) is one of the most common congenital abnormalities, with a varied incidence of between 1.2% and 30% [1]. It is caused by an imperforate membrane at the Hasner's valve (HV). Spontaneous resolution of the obstruction occurs within 12 months in 32% to 95% of cases [2]. The treatment recommended by most ophthalmologists is lacrimal sac massage and, when necessary, topical antibiotics. Applying lacrimal sac massage adequately and effectively reduces the need for further interventions such as probing or silicone intubation. However, it can be difficult to restrain an infant in order to perform lacrimal sac massage. In our clinical practice, mothers always state that performing lacrimal sac massage is much easier while breastfeeding. In this study we compared the breastfeeding durations for patients with CNLDO who improved with only lacrimal sac massage with those for patients who required probing.

Methods

This study was performed in accordance with the principles of the Declaration of Helsinki. Approval was obtained from the local Medical Ethics Committee.

The medical records of patients diagnosed with CNLDO at the Ankara Ataturk Education and Research Hospital Department

of Ophthalmology between 2008 and 2014 were reviewed. Each patient's age at first visit, sex, and laterality were recorded. The patients' parents were contacted by telephone to ascertain the mode of delivery, the total duration of breastfeeding, and any current complaints of epiphora and matting of the lashes.

Patients were divided into two groups. Group 1 comprised 44 patients who were treated successfully with lacrimal sac massage and did not require further intervention. Group 2 comprised 51 patients who required one probing. Only patients who were followed up at least one year after either lacrimal sac massage or probing were included in the study. We did not include patients with bilateral CNLDO.

Statistical Analysis

All statistical tests were performed using SPSS, version 16 (Statistical Package for the Social Sciences). The normality of the data was confirmed using the Kolmogorov-Smirnov test ($p > 0.05$). Data were analyzed using Fisher's exact test and an independent samples t test. A p value of less than 0.05 was considered significant.

Results

Table 1 summarizes the characteristic properties of the study groups.

There were no statistically significant differences between Group 1 and 2 in terms of sex, age at first visit, laterality of obstruction, mode of delivery, and follow-up duration ($p > 0.05$). The mean duration of breastfeeding was significantly higher in Group 1 (15.4 ± 6.31 months) than in Group 2 (9.41 ± 6.2) ($p < 0.001$).

The mean time of resolution of CNLDO in Group 1 was 10.7 (7-13) months.

In Group 2, all patients had only one probing procedure. The mean age at the time of probing was 13.4 (13-16) months.

All study patients were symptom free for epiphora and matting of the lashes at the time of telephone contact.

Discussion

Nearly every day, a new benefit of breastfeeding is added to the

Table 1. Characteristic properties of study groups.

	Group 1 (n: 44)	Group 2 (n:51)	<i>p</i> value
Sex			
Female	25	24	0.412*
Male	19	27	
Laterality of CNLDO			
Right	24	29	0.920*
Left	20	22	
Age at first visit (mo)	4.8±2.9 (1-10)	5.4±3.4 (1-10)	0.345†
Follow-up duration (year)	2.1±1.1 (1-5)	2.8±1.1 (1-5)	0.524†
Mode of delivery			
C/S	20	32	0.103*
Vaginal birth	24	19	
Duration of breastfeeding (mo)	15.4±6.31 (4-28)	9.41±6.2 (2-24)	0.0008 †

CNLDO: Congenital nasolacrimal duct obstruction, C/S: Cesarean Section

*: Fischer exact test

†: Independent samples test

literature. This study was designed to investigate the effect of breastfeeding on lacrimal sac massage in patients with CNLDO.

Most ophthalmologists prefer using massage to treat CNLDO in children under one year of age [2, 3]. Applying massage therapy effectively may present difficulties because of the baby's head movements and increased irritability during massage. Many mothers state that they do lacrimal sac massage more safely during breastfeeding while the baby is happy and calm.

CNLDO signs may be exacerbated by the presence of an upper respiratory illness [2]. Prolonged or frequent illnesses may cause a delay in canalization of the nasolacrimal duct because of close proximity or may promote fibrosis of the obstructed areas. Breastfeeding supplies excellent immunological defenses and protects infants against infections.

Also, breastfeeding enhances development of the breathing pattern by increasing nasal breathing [4]. This is important for craniofacial development, including the nasolacrimal duct system [5]. Nasal breathing may induce a pressure in the nasal area that may result in perforation of the membrane at the HV.

Spaniol et al. noted the role of collagenolytic enzymes such as matrix metalloproteinases (MMPs) in amniotic fluid [6]. Newborns swallow amniotic fluid, which flows into the nasal cavity where the MMPs contact the Hasner membrane and facilitate its open-

ing. It is worth noting that human milk also contains MMPs [7]. The positive effect of breastfeeding on the resolution of CNLDO with nonsurgical treatments may be related to these mechanisms. To the best of our knowledge, this is the first study that demonstrates the possible favorable effect of breastfeeding on lacrimal sac massage for CNLDO. These results need to be confirmed by studies with larger samples sizes.

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