



A Rare Complication of External Dacryocystorhinostomy: Transient Orbicularis Muscle Weakness

Eksternal Dakriyosistorinostominin Nadir Bir Komplikasyonu: Geçici Orbikularis Kas Güçsüzlüğü

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Summary

In this study, we present 4 patients with transient orbicularis oculi muscle weakness following external dacryocystorhinostomy (DCR). Preoperative and postoperative records of 4 patients who presented with either a delay in blinking or lagophthalmos on the first postoperative day were evaluated. None of the patients had a history of facial palsy or any symptom of lagophthalmos. All 4 patients had undergone external DCR without silicone intubation under general anesthesia. Three of the patients had a delay in blinking, while one patient developed a 4-mm lagophthalmos postoperatively. A mild punctate keratopathy was observed in one patient. The condition resolved in all patients after an average of 8 weeks. (Turk J Ophthalmol 2014; 44: 413-5)

Key Words: Eksternal dacryocystorhinostomy, lagophthalmos

Özet

Bu çalışmada eksternal dakriyosistorinostomi (DSR) ameliyatı sonrası geçici orbikularis okülü kas zayıflığı gelişen 4 olguyu sunduk. Ameliyat sonrası ilk gün göz kapağında kapanmada gecikme veya lağoftalmus tespit edilen 4 olgunun ameliyat öncesi ve sonrasında tıbbi kayıtları irdelendi. Hiçbir olguda ameliyat öncesi fasiyal sinir felci veya lağoftalmus bulgusu yoktu. Dört olguya da genel anestezi altında eksternal DSR ameliyatı uygulandı ve silikon entübasyon yapılmadı. Ameliyat sonrası dönemde üç olguda göz kapağının kapanmasında gecikme varken, bir olguda 4 mm lağoftalmus vardı. Bir olguda hafif punktat keratopati gözlemlendi. Tüm olgularda bu tablo ortalama 8 hafta da düzelmiştir. (Turk J Ophthalmol 2014; 44: 413-5)

Anahtar Kelimeler: Eksternal dakriyosistorinostomi, lağoftalmus

Introduction

External dacryocystorhinostomy (DCR) is an efficient surgical procedure for the treatment of nasolacrimal duct obstruction and stenosis.¹ Different intraoperative and postoperative complications have been reported such as bleeding, cerebrospinal fluid leakage, orbital hemorrhage, infections, meningitis, pneumocephalus, scar formation, and restenosis.² Another rare complication of external DCR is transient orbicularis oculi muscle weakness ranging from delayed lid closure to lagophthalmos. To our knowledge, there are only two reports^{2,3} on this issue in the literature. Herein, we discuss 4 patients who presented with this complication.

Case Report

We evaluated the charts of 4 patients who presented with either lagophthalmos or delayed or incomplete blinking of

the upper eyelid after external DCR. Before the operation, none of the patients had a history of facial nerve palsy or prior lacrimal surgery. All patients had an acquired nasolacrimal duct obstruction. In all patients, we performed external DCR under general anesthesia. Adrenalin-containing local anesthetics were injected to the operation sides to reduce intraoperative bleeding. A semicurved vertical skin incision was placed approximately 1 cm medial to the medial canthus extending 10 to 15 mm. We used a radiofrequency unit at cutting mode for skin incision. None of the patients had an intraoperative complication. We did not perform silicone intubation in any of the patients.

Three of the patients had a delay in blinking, while one patient developed a 4-mm lagophthalmos. We diagnosed the orbicularis oculi muscle weakness on the first postoperative day in all patients. Punctate keratopathy was observed in only one patient. We prescribed artificial tear drops to all patients and

additional closure of the eye at night was recommended for the patient with lagophthalmos. No additional corneal complication occurred in any of the patients, and the condition resolved in all patients after an average of 8 weeks (Figure 1, 2, 3, 4, 5, 6). The patient data are summarized in (Table 1).



Figure 1. Patient 2, Postoperative 1st week



Figure 2. Patient 2, Postoperative 8th week



Figure 3. Patient 3, Postoperative 2nd week

Discussion

Lagophthalmos or incomplete closure of the eyelids may result in serious corneal problems such as epithelial defects, corneal ulcer, or even perforation. To our knowledge, there are only two reports about transient orbicularis oculi muscle weakness following external DCR. Fayet et al.³ were the first to report this complication and they suggested that it may be related to the disinsertion of the nasal portion of the orbicularis



Figure 4. Patient 3, Postoperative 7th week



Figure 5. Patient 4, Postoperative 5th day



Figure 6. Patient 4, Postoperative 8th week

Patient	Age	Gender	Side	Lagophthalmos	Delayed blinking	Punctate keratopathy	Complete resolution of symptoms	Time to complete resolution (weeks)
1	27	Female	R	None	Yes	None	Yes	7
2	48	Male	L	None	Yes	None	Yes	7
3	68	Female	R	None	Yes	Yes	Yes	10
4	72	Male	R	4 mm	Yes	None	Yes	8

oculi muscle and periosteum at the time of periosteal cleavage. Lagophthalmos disappeared progressively over 3 months in both cases in their report. In 2001, Nemoto et al.⁴ demonstrated in a cadaver study that the superficial buccal branches of the facial nerve pass around the inferior nasal margin of the orbicularis oculi muscle and cross over the medial canthal ligament to innervate the procerus, the corrugator supercilii, and the orbicularis oculi muscles in the nasal periorbit in 94% of the specimens. Vagefi et al.² identified 16 cases with postoperative orbicularis oculi muscle weakness among 247 surgeries (7.4%) and suggested that the damage to peripheral fibers of the zygomatic and buccal branches of the facial nerve as they passed through the medial canthal region may be responsible for this complication. They reported that these findings were temporary, but resolution of lagophthalmos was observed on average by 14 weeks. The longest time to resolution in their series was 32 weeks, and four patients developed punctate keratopathy.

Another reason for this complication may be the toxicity of local anesthetics to the peripheral fibers of the facial nerve or orbicularis oculi muscle fibers. In a study by Nourette-Gaulain et al.⁵ it was reported that local anesthetics interact with cell physiology in mammalian cells, leading to overproduction of

reactive oxygen species which results in dysfunction, apoptosis or necrosis in myocytes and neurons.

Even though orbicularis oculi muscle weakness was transient and innocent in our series, more serious complications of corneal exposure may develop in these patients. The oculoplastic surgeon should be aware of this rarely reported complication of external DCR and follow up the patients until orbicularis oculi muscle function returns to normal.

References

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