Comparing outcomes of standard silicone tube lacrimal intubation techniques with modifications to reduce Covid-19 transmission risk in dacryocystorhinostomy

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RATIONALE

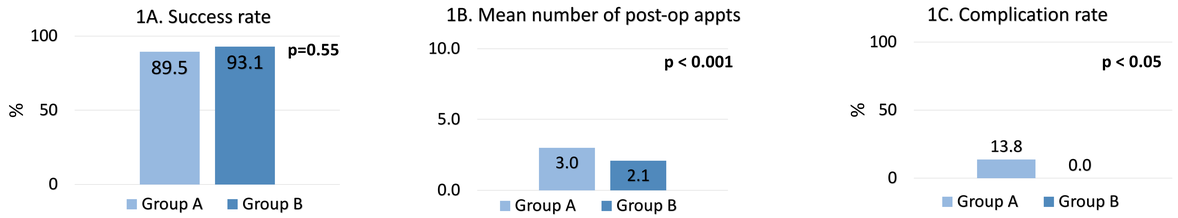
Modifications in dacryocystorhinostomy (DCR) intubation and skin closure became more prevalent during and post-COVID-19 to reduce the risk of viral transmission through exposure to nasal mucosa. DCR with lacrimal intubation carries a high risk of COVID-19 via aerosol and droplet contamination from nasal cavity mucous membranes (1). Modifications of the technique reduce viral transmission by reducing intranasal manipulation or endoscopic viewing during tube removal (2,3).

Efforts to increase efficiency in healthcare delivery have led to demand for approaches that reduce post-operative patient appointments without compromising care. We, therefore, assessed whether modifications in DCR surgery that reduce viral transmission were as successful and safe as standard techniques and whether modifications can increase efficiency by reducing post-operative appointments.

METHODS

1. Retrospective review of patients who underwent primary DCR for nasolacrimal duct obstruction (NLDO) at Moorfields Eye Hospital in 2019, 2020 and 2021
2. We compared clinical outcomes in two groups of patients who had DCR at Moorfields Eye Hospital:
   A. Group A (standard techniques): Lacrimal intubation requiring post-operative removal via nasal cavity – i.e. tied bicanalicular silicone tubes
   B. Group B (modified technique): Lacrimal intubation not requiring post-operative manipulation via nasal cavity – i.e. self-retaining monocanalicular tubes, untied bicanalicular silicone tubes with and without intranasal silicone sleeve
3. Outcomes were the functional success rate, complication rate and number of post-operative appointments
4. In external DCR, we assessed whether the complication rate and number of post-operative appointments differed when the skin was closed using sutures (standard technique) vs glue (modified technique)

RESULTS



1. Effect of type of intubation method on: A. Success rate (%) of DCR, B. Complication rate (%), and C. Mean number of post-operative appointments



2. Effect of skin closure method on: A. Mean number of post-operative appointments, and B. Complication rate (%)

	Variable	N (%)
Complications by surgical phase	**Intra-operative**	8 (22)
	a) Bleeding	7
	b) Cerebrospinal Fluid leak	1
	Post-operative	29 (78)
Post-operative complications by type	**Tube related**	16 (55)
	a) Cheese-wiring (Group A)	2
	b) Extruded tubes (Group A)	1
	c) Inflammation/discharge (Group A)	4
	d) Irritation from tubes (Group A)	7
	e) Tube-related granuloma (Group A)	2
	Skin wound-related	7 (24)
	a) Skin infection (1x Glue, 1x Sutures)	2
	b) Skin inflammation (1x Glue, 2x Sutures)	3
	c) Skin Granuloma (Glue)	1
	d) Non-cosmetic hypertrophic scarring (Sutures)	1
	Bleeding/Infection	5 (17)
	a) Epistaxis (2x Group A + Sutures, 2x Group A + endonasal)	4
	b) Pre-septal cellulitis not related to skin wound (Group A + Sutures)	1
	Nasal Mucosa Granuloma (Group A + Sutures)	1 (4)

3. Intraoperative and post-operative complications, with postoperative complication subdivided by type

CONCLUSION

Variations to DCR lacrimal intubation using tubes that do not require endonasal manipulation when removed, and skin closure with glue instead of sutures, can avoid high-risk exposure to nasal mucosa and reduce post-operative appointments. Modifications may have long-term value as they do not compromise success or complication rates.

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