

Self-regurgitation on pressure over lacrimal sac in cases of primary-acquired nasolacrimal duct obstruction: Correlation with physician examination and patients' perceptions

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Abstract:

PURPOSE: To analyze the correlation between patient-reported regurgitation on pressure over lacrimal sac (ROPLAS) with the physician's examination in diagnosing primary-acquired nasolacrimal duct obstruction (PANDO).

METHODS: A cross-sectional study was done over 5 months (March–July 2018). All cases diagnosed as PANDO were included in the study. The maneuver of pressing over the lacrimal sac area and noticing the egress of mucoid or clear fluid from the surrounding area by the patient was termed as self-ROPLAS. A specific patient history of performance of this maneuver was compared with a clinician-performed ROPLAS and subsequent objective lacrimal drainage evaluation. The various reasons for performing self-ROPLAS by the patients were documented.

RESULTS: A total of 134 patients were included in the study, out of which 59 (44.02%) were males and 75 (55.9%) were females. History of self-ROPLAS was present in 64 (47.8%) of the patients, whereas the physician examination revealed ROPLAS to be positive in 92 (68.6%) of the patients. All patients (100%) with a positive history of self-ROPLAS had nasolacrimal duct obstruction on subsequent examination. The most common reason for performing self-ROPLAS was for emptying the discharge from the medial canthal region to reduce the painless swelling.

CONCLUSION: Self-ROPLAS is highly suggestive of an obstructed nasolacrimal duct and can be used as a screening tool by the primary physician to triage the patients toward ophthalmic plastic clinics or consult.

Keywords:

Primary-acquired nasolacrimal duct obstruction, regurgitation on pressure over lacrimal sac, self-regurgitation on pressure over lacrimal sac

INTRODUCTION

Primary-acquired nasolacrimal duct obstruction (PANDO) accounts for nearly half of the patients presenting with lacrimal drainage disorders.^[1] Regurgitation on pressure over lacrimal sac (ROPLAS) is an easy, noninvasive, and effective clinical test of adjunctive value in the diagnosis of nasolacrimal duct obstruction (NLDO). In this test, the inferior orbital rim is traced superiorly and medially, and pressure is applied behind the anterior lacrimal crest where the lacrimal sac

is normally located.^[2] In cases of NLDO, the fluid collected in the lacrimal sac regurgitates out through one or both of the canaliculi and puncta. Though not present in 100% of the cases, ROPLAS has been reported to be a highly sensitive and specific test for diagnosing NLDO.^[2] Some patients with PANDO also complain of regurgitation of mucoid fluid from the medial canthal region on pressing over the lacrimal sac area. This maneuver was termed as self-ROPLAS. A pilot study was conducted earlier to analyze the diagnostic accuracy of this maneuver.^[3] The present study was conducted to further validate the accuracy of this particular maneuver in diagnosing NLDO

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in a larger sample and to analyze the reasons of patients performing it.

METHODS

This was a cross-sectional study carried out in the outpatient oculoplastic clinic of a tertiary eye care center from March to July 2018. The institutional review board approval was obtained and the study adhered to the Tenets of the Declaration of Helsinki. Patients gave consent for publication of their photographs for research purposes. All patients diagnosed to have PANDO during this period were included in the study. Patients with congenital and secondary NLDO and those below 16 years of age were excluded. The diagnosis of PANDO was made after a history of epiphora or discharge and complete epiphora workup which included the examination of the tear film height, position of the puncta, lids, and anterior segment examination along with ROPLAS (performed by the physician), lacrimal sac irrigation, and diagnostic probing. History of self-ROPLAS was elicited from every patient, and if positive, the reasons for performing the maneuver were also recorded [Figure 1]. The positive history of self-ROPLAS was then compared with the physician's ROPLAS.

RESULTS

A total of 134 patients were included in the study, out of which 75 (56%) were female and 59 were (44%) male. The mean age of the patients was 48.03 ± 14.96 years (range 17–75 years). The right eye was affected in 66 (49.2%) patients and the left eye was affected in 53 patients (39.5%), and 15 (27.7%) patients had bilateral involvement. History of self-ROPLAS was positive in 64 (47.76%) of the patients, while the physician could elicit it in 92 (68.6%) patients [Table 1]. All patients (100%) who gave a positive history of self-ROPLAS were found to have NLDO. Fifteen patients (11.2%) had lacrimal sac mucocele, and interestingly, all (100%) of these cases gave a positive history of self-ROPLAS. The most common reason for performing self-ROPLAS was for emptying the accumulated discharge and reducing the fullness at the medial canthus (31, 48.4%). Fourteen (21.8%) patients were performing self-ROPLAS on the advice of their previous treating physician, and all these patients were under the impression that the blocked nasolacrimal duct would gradually open up if they kept performing it.

DISCUSSION

PANDO is most commonly seen in adult females and is a very common cause of epiphora.^[4,5] ROPLAS is a very simple test for accurately diagnosing NLDO. It has a sensitivity of 93.2% and specificity of 99.3%.^[2] The positive and negative predictive values are 93.89% and 99.2%, respectively.^[2] This means that a negative ROPLAS does not rule out NLDO, but a positive ROPLAS is a strong indicator of NLDO's presence. Acquired NLDO requires surgical intervention in the form of dacryocystorhinostomy (DCR).^[6]

Table 1: Demographic profile and clinical details of the study population

Parameters	n (%)
Sample size	134
Age (years)	48.03±14.96
Sex	
Males	59 (44)
Females	75 (56)
Laterality	
Right	66 (49.2)
Left	53 (39.5)
Bilateral	15 (27.7)
Self-ROPLAS positive	64 (47.76)
Clinician's ROPLAS positive	92 (68.6)
NLDO in self-ROPLAS-positive cases	100% cases
Self-ROPLAS in mucoceles	100% cases
Reasons for performing self-ROPLAS	
Clearing discharge	31 (48.4)
Advised by physician	14 (21.8)
Flattening mucocele	5 (7.8)

ROPLAS: Regurgitation on pressure over lacrimal sac,
NLDO: Nasolacrimal duct obstruction



Figure 1: External photograph of a patient performing self-regurgitation on pressure over lacrimal sac

Cataract is the leading cause of blindness in India with an annual incidence of 3.8 million.^[7] It is imperative to rule out the presence of NLDO before cataract or any other intraocular procedure to prevent postoperative endophthalmitis.^[8] ROPLAS is a simple, time-efficient, and noninvasive maneuver for diagnosing NLDO. It is therefore a potential screening tool. In a questionnaire-based study conducted by Nair *et al.*, it was seen that 59.6% of the clinicians felt that ROPLAS is sufficient to rule out NLDO before cataract surgery.^[9] While this can be a good starting tool to ascertain the further direction of clinical assessments, it does not obviate the need for a complete lacrimal drainage evaluation. It is obvious that self-ROPLAS needs to be confirmed by lacrimal irrigation and probing before taking a surgical decision.

There are several situations when ROPLAS can be negative even in the presence of NLDO. This can happen if it is not

done correctly, or in cases of encysted mucocele, fibrosed lacrimal sac, or if the patient has emptied the sac him/herself just before the examination. The present study also had six cases where the ROPLAS performed by the physician was negative, following self-ROPLAS by the patient. All these six patients were diagnosed with NLDO on further lacrimal evaluation. In a pilot study of 20 patients conducted by Alam and Amitava, 100% of the cases with a positive history of self-ROPLAS had NLDO.^[3] The present study further validates these findings.

Patients had used this technique for clearing their discharge or for reducing the fullness or frank swelling at the medial canthus. Some patients had even been advised by their primary physicians to do so. All these patients were under the impression that the blocked nasolacrimal duct would gradually get better, if they kept on performing it. This only gave temporary relief to the patient and a false sense of belief that this may lead to an eventual cure. Although a history of self-ROPLAS by the patient is almost conclusive of NLDO, it is imperative for the surgeon to carry out a lacrimal examination before planning any surgical intervention.

The limitations of the current study are its small sample size and inclusion of only patients with PANDO. A study with larger sample size with the inclusion of other causes of NLDO or coexisting lacrimal disorders with PANDO is likely to further substantiate the utility of this maneuver and will also help in better assessing its sensitivity and specificity.

CONCLUSION

Self-ROPLAS is a simple and effective clinical screening tool for diagnosing NLDO. In developing countries, which are under-staffed with poor resources, this simple history will help the primary physician in guiding the further direction of clinical assessment. It is also a useful tool for tele-ophthalmology, as a health worker can get a fair idea of the system involved and triage the patient for an ophthalmic plastic consult. The maneuver can be utilized for clearing the accumulated discharge near the medial canthus or reducing the swelling at the medial canthus, but patients should be made

aware that the blocked nasolacrimal duct would not get better, and they would eventually require surgery in the form of a DCR.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed consent

Informed consent was obtained from all individual participants included in the study.

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Conflicts of interest

There are no conflicts of interest.

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