

Transcanalicular Dacrocystorinosotomy With Diode Laser

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INTRODUCTION

Primary acquired NLD obstruction , with or with out dacrocystitis , is a common disorder.

It is more frequently affects women than men & most often in middle age.

Conventional external DCR is currently the most commonly performed surgical procedure for treatment of NLDO.

A more recent surgical approach for the treatment of NLDO is Transcanalicular (or endocanalicular) laser DCR(TCD CR).

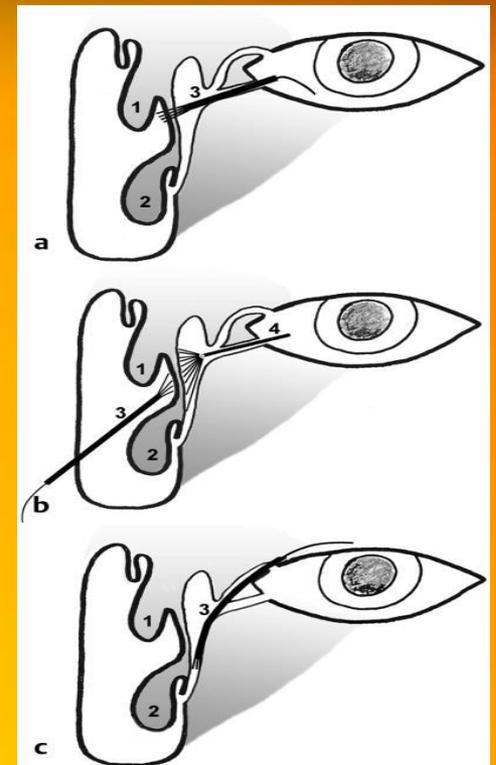
This technique is based on canalization of the upper lacrimal system.

The Objective of this study are to:

1-describe the technique

2-evaluate the effectiveness of TCDCR with diod laser in Rx of epiphoria in adults.

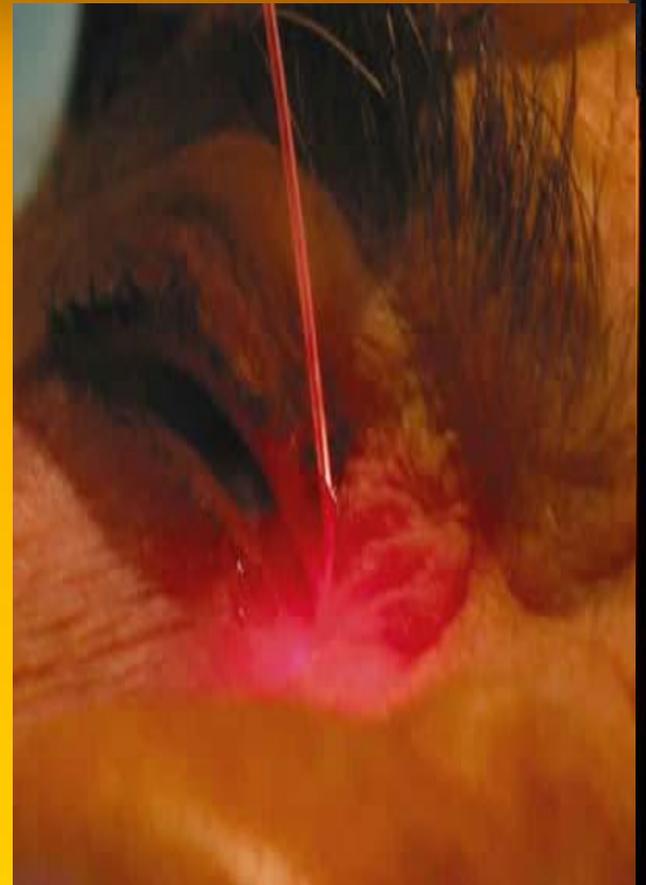
3- to review the publised results after TCDCR.



METHODS

A prospective, noncomparative, interventional case series was designed to evaluate the success of TCD CR in 25 patients presenting with epiphoria due to NLDO .

Surgery was performed under GA . Nasal topical anesthesia was applied for 10 mint to reduce the risk of bleeding.



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Canalicular dilation was performed & transcanalicular diode laser probe of 600 μm was inserted.

Nasal endoscopy to visually control the tip of laser probe was performed throughout the procedure .

The middle turbinate was infractured medially in most cases to enhance access to lateral wall of the nasal fossa.

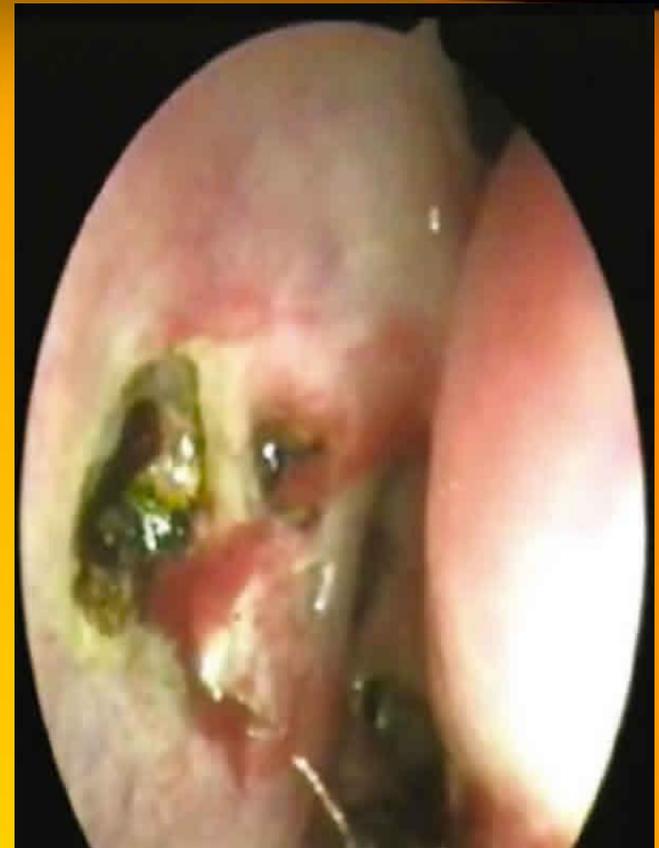


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The light of the laser probe was transnasally observed, just lateral and superior to the middle turbinate, at the upper $\frac{1}{3}$ of the maxillary line.

An 810nm diode laser was applied with continuous spots at 5 to 12 watts, obliterating the overlying nasal mucosa & creation an osteotomy until the size greater than 4×4mm was achieved.

After removal of the laser probe, lacrimal irrigation was performed with fluorescein stained



CONT.

Finally, silicone intubation stenting was placed , which would removed at 2 months postoperatively.

Postoperative follow up was done by both otolaryngologist and ophthalmologist with routine visits at 1 week , 1 month (when silicone intubation was removed), & 3 month intervals for 3 years.

At each visit , pt were evaluated for symptom improvement & patency testing after lacrimal system irrigation with flurescein saline .



RESULTS

There were 17 females & 8 males in this series of NLDO , with mean age 57 years .

The average procedure time for TCDCR was 14 mint (range,11-30).

Complications were minimal:

1- bleeding occurred in 4cases

..cauterization of nasal mucosa

2- difficulty in dilation& probing the canaliculi occur in 3case.

Cont.

Primary TCDCR was able to reestablish patency of lacrimal system in 88% of cases.

There were 3 failures: 1 case showed no improvement postop, whereas the other 2 cases demonstrated lacrimal patency at 3 month visit but failed thereafter.

Osteotomy size also evaluated by nasal endoscopy during the study. there was correlation between osteotomy size (<1 mm) and failure, whereas patient without epiphoria demonstrated osteotomy size (>3 mm).

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There were no statistically significant differences in outcome between early 12 month and late 36 month result.

The 3 pt who failed were offered a secondary TCDCR: 2 of them refused & Rx by endoscopic DCR with persistent failure .

The third pt demonstrated persistent NLDO after 2nd TCDCR & achieved patency & resolution after external DCR.

DISCUSSION

**Laser TCDCR is a minimally invasive procedure .
When compared with the conventional external or
endonasal DCR , the benefit of it include :**

- 1- decreasing operative time**
- 2- reducing morbidity.**
- 3-enhancing comesis.**
- 4- shortening functional recovery.**

cont.

The Diode laser system delivers laser energy via a true optical fiber for which the diameter varies from 400 to 1000 μ m.

The Energy is designed to be maximal at the tip of the laser probe , enabling use as a contact laser.

It operates at a wavelength of 810nm, in the near- infrared portion of the spectrum, inducing excellent hemostasis because of its high absorption of melanin & hemoglobin.

it also has been used operating at wavelength of 980nm with excellent hemostasis.

Cont.

The diode laser might be used with a power setting of 5 to 10 watts.

It will only perforate and enlarge the desired area of bone & mucosa.

After endoscopic DCR, ostia size usually decreases during the first month, but appears to stabilize. In this study, failures were related to smaller ostia, yet patients with a successful outcome showed patent ostia in the long term.

Nevertheless, some authors have tried to improve such results after TCDCR with the use of mitomycin-c over the lacrimal opening at the end of the procedure.

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This technique may be appropriate for difficult cases (e.g. Wegener granulomatosis, sarcoidosis ,etc).

Furthermore,TCDCR also has been reported as a successful procedure in revision cases, after external or endonasal DCR.

CONCLUSION

TCDCR with diode laser is a minimally invasive approach that has been shown to restore & maintain patency of NLD in 88% of selected patients with primary NLDO after 36 months of follow-up.

Thank you