

**It is easy to pass the specially prepared blunt end 24-G needle with optical fiber into the lacrimal passage. Only care to be taken is to prevent the formation of false passage.** —Anand Shroff, MS, DO

with the objective of finding out the usefulness of Laser DCR in terms of time consumed, bleeding and success rate. "The aim was to give a better treatment option to the patients and also to allieviate the 'DCR phobia' from the minds of ophthalmic surgeons," says Dr. Shroff. Forty-seven patients, between 13 and 70 years of age, were included in the study. There were a total of 15 males and 32 females. The right eye was involved in 21 cases while left side was in 26 cases. While eight patients had deviated nasal septum, four patients had undergone conventional DCR previously (two skin approach and two endonasal) but the lacrimal passage remained blocked. The follow-up period was between three and 19 months.

#### TREATMENT PROCEDURE

The treatment was done using a diode laser with 980nm wavelength (Quanta System). The optical fiber used was 360 micron-thick. The procedure was done on continuous mode "and could be used on contact only". Dr. Shroff explains the procedure:

\* 2cc of 4% xylocaine was injected at sac site under the skin near medial canthus.

\* Nasal packing with gauze soaked in 4% xylocaine was done 15/20 minutes prior to the surgery.

\* After proper painting and draping, lower punctum was dilated with dilator and then lower canaliculus was also gently dilated using different size of lacrimal probes.

\* Laser fiber optic cord was passed through 24-G one-and-a-half-inch-long hypodermic needle with specially prepared blunt end. It was then gently introduced through lower canaliculus into the sac until some resistance by bone was felt. Meanwhile,

an ENT surgeon, who introduced the endonasal probe with CCTV camera, identified and cleaned the middle turbinate.

\* When the fiber probe reached close to the bone, laser shots were fired intermittently till the opening was created, as seen by an ENT surgeon, so as to ensure the correct position of the opening in the superoanterior part of the middle turbinate.

\* By gentle to and fro movements of the hypodermic needle, the fiber optic end could be seen as the lighted end through the nasal mucosa. Laser energy was used only for couple of minutes. The opening was gently enlarged by giving some more laser shots on the margin. Charred tissue pieces were removed with the help of suction by the ENT surgeon. It was also made sure that there was no bleeding. Syringing was done to make sure that the passage was patent.

\* Procedure was concluded by putting a sterile pad over the eye for 10-15 minutes.

Post-operatively, patients were given systemic antibiotics, analgesics, local antibiotic-steroid eye drops and nasal decongestant drops for one month. They were followed up the next day, after one week, one month and 3 months.

"All the patients were comfortable from the very next day," says Dr. Shroff. Edema over medial canthus was reported for 1-2 days. There was no bleeding from the nose in any patient. "Syringing could be done easily in all patients suggesting patency of the passage," he adds.

In 45 (95.74%) patients, watering disappeared completely. However, in two patients, there was blockage of the opening as it was made inside the middle turbi-

nate. "The procedure was repeated to create the hole at the proper place that cured the condition," says Dr. Shroff.

#### DISCUSSION

"This procedure has advantages over conventional ones as incisions are not required," says Dr. Shroff. Apart from this, there is no cumbersome post-operative dressing and treatment schedule requirement. It is not time-consuming, yet the results are "excellent".

However, Dr. Shroff points out that it is a "blind" procedure that requires skill with the construction of passage.

Dilatation of lacrimal passage is not at all difficult and any eye surgeon can do it, says Dr. Shroff. "It is easy to pass the specially prepared blunt end 24-G needle with optical fiber into the lacrimal passage. Only care to be taken is to prevent the formation of false passage," he stresses.

The end of the fiber optic is slightly kept outside the needle, so that illumination can be appreciated through the skin after putting off the room lights. The laser shots are applied using contact and continuous mode. It acts by cutting and coagulating the tissue, simultaneously producing haemostasis. Laser delivery is also easy and, with experience, tissue charring and space making can be sensed by the doctor. "Though it is slightly difficult, it becomes easy to even break through the bone," says Dr. Shroff.

The presence of an ENT surgeon is vital, says Dr. Shroff. He should be ready with the endonasal probe so that he can guide constantly where the opening in the nasal cavity should be created. "Only care should be taken that the probe does not pierce the opposite wall or structure," he adds.

The laser source itself is harmless to the patients as well as the doctor. The laser unit is portable, hence can be taken from one place to another. "The procedure is so simple that there is no learning curve," says Dr. Shroff, stressing that "you need to be assisted by an ENT surgeon all along." **wa**

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