

## An audit of 3-snip procedures performed at the Aga Khan University Hospital, Karachi, Pakistan

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### Abstract

**Objective:** To assess the functional outcome of three-snip punctoplasty procedure for punctal stenosis at a tertiary care hospital.

**Methods:** The retrospective study was conducted at the Aga Khan University Hospital Karachi, and comprised medical records of all patients aged >18 years who underwent three-snip punctoplasty between January 2013 and December 2017. Data was retrieved on age, gender, diagnosis, signs and symptoms, laterality, date of procedure, resolution of symptoms post-procedure, date of last eye follow-up, symptoms at last follow-up, functional outcome (epiphora at 1 month). SPSS 20 was used for data analysis.

**Results:** Of the 30 patients, 22(73.3%) were females. Overall mean age at the time of punctoplasty was  $57.5 \pm 15.57$  years. Of all the cases, 17(56.7%) had undergone bilateral punctoplasty. At one month, 20(66.7%) patients were completely symptom-free. Females had better results than males but the difference was not significant ( $p=0.078$ ).

**Conclusion:** Three-snip punctoplasty was found to be a minimally invasive procedure with good functional outcome that was comparable to other procedures.

**Keywords:** Punctal stenosis, 3-snip procedure, Epiphora, Functional outcome, Lacrimal apparatus disease, Retrospective, Aged above 18 years, Pakistan. (JPMA 70: 494; 2020).

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### Introduction

Punctal stenosis (PS), which is abnormal narrowing of the lacrimal punctum, was a common and treatable cause of epiphora, or watery eyes. It was often caused by inflammation. Punctoplasty, a procedure to widen the punctal opening to allow the tears to drain with ease, was indicated for excessive epiphora that was secondary to outflow obstruction from punctal stenosis. Several surgical approaches to punctoplasty have been described, the most common being the 3-snip procedure and its modern form has also been introduced.<sup>1-4</sup> It can be further subdivided into a rectangular and triangular variation. The triangular 3-snip procedure consists of a vertical incision through the posterior wall of the punctum and vertical canaliculus, a horizontal incision along 2mm of the horizontal canaliculus, and a diagonal incision connecting the start of the vertical incision with the end of the horizontal incision, resulting in a triangular excision

of tissue.<sup>5-9</sup> Rectangular 3-snip procedure, also termed posterior ampullectomy, features two snips in the vertical canaliculus and a final snip at the base, with removal of the posterior wall of the ampulla.<sup>5,9</sup>

The functional outcomes of 3-snip punctoplasty for punctal stenosis has been studied in different settings in both developing and developed countries.<sup>10,11</sup> However, there has been insufficient data from Pakistan on the outcomes of this procedure. The current study was planned to address this gap.

### Patients and Methods

The retrospective study was conducted at the Aga Khan University Hospital (AKUH), Karachi, and comprised medical records of consecutive patients aged >18 years who underwent 3-snip punctoplasty between January 2013 and December 2017 and who had at least a one-month follow-up. Patients with incomplete / missing medical records and those who underwent other surgical procedure for epiphora were excluded. Approval was obtained from the institutional ethics review committee.

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**Table:** Comparison of current data with previous studies.

Author	Year	Country	Mean follow-up (in months)	Sample size	Resolution of epiphora n (%)
Current study	2018	Pakistan	1 month & more	47eyes(n=30)	29 (66.7)
Singh <sup>1</sup>	2018	India	6 months	34 eyes(n=18)	24 (70.0)
Ali <sup>10</sup>	2015	India	6 months	87 eyes(n=56)	65 (74.7)
Chak <sup>5</sup>	2008	UK	6 days to 27.6 months	108 eyes(n=75)	93 (86.0)
Caesar <sup>11</sup>	2004	UK	1 week	n=53*	49 (92.0)

n=number, \*=number of eyes not available

Hospital information management system was used to retrieve the medical records, and a structured proforma was used to collect data on age, gender, diagnosis, signs and symptoms, laterality, date of procedure, resolution of symptoms post-procedure, date of last eye follow-up, symptoms at the last follow-up, and functional outcome in terms of epiphora at 1 month. Data was analysed using SPSS 20. Means with standard deviation (SD) were computed to describe continuous data, while frequencies and percentages were calculated to describe categorical data.  $P < 0.05$  was considered significant.

## Results

Of the 100 patients who underwent surgical correction of punctal stenosis, 47(47%) were excluded. Of the 53(53%) patients who underwent 3-snip punctoplasty, 30(56.6%) had a follow-up of one month or more and represented the final sample. Of them, 22(73.3%) were females. The overall mean age at time of punctoplasty was  $57.5 \pm 15.57$  years. Of all the cases, 17(56.7%) had undergone bilateral punctoplasty. At one month, 20(66.7%) patients were completely symptom-free and 10(33.3%) didn't feel any difference. Females had better resolution compared to males but the difference was not significant ( $p=0.078$ ).

## Discussion

The study found that epiphora at 1 month of 3-snip punctoplasty was 66.7% which makes it a good functional outcome. Multiple studies have been conducted comparing 3-snip punctoplasty with other procedures.<sup>12</sup> One such study<sup>1</sup> compared it with monocular intubation with simple punctal dilation and showed comparable outcomes between the two procedures and the punctal dilation with monocular intubation group had less re-stenosis and functional outcome was also good, but the difference was not statistically significant. In another study,<sup>11</sup> 53 patients underwent 3-snip punctoplasty and 92% of them had functional success but their postoperative evaluation time was only 1 week

which is a limitation. Nowadays the most commonly used technique for punctal stenosis is triangular or rectangular 3-snip punctoplasty. A 2009 study<sup>5</sup> found that rectangular 3-snip punctoplasty is a simple, safe, and quick procedure which maintains normal canalicular function and structure. Another study<sup>10</sup> also found that 82% cases showed complete resolution of symptoms post-rectangular 3-snip punctoplasty. Our findings are comparable with the studies shown in the Table.

The limitations of the current study included a small sample size and being a single-centre retrospective study, severity of punctal stenosis was also not graded and the resolution of symptoms had been self-reported. We recommend further studies to fill the gap left by the current study owing to its limitations.

## Conclusions

Three-snip punctoplasty was found to be a minimally invasive procedure with a good functional outcome that was comparable to other procedures.

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**Conflict of Interest:** None.

**Source of Funding:** None.

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