

20G silicone rod as monocalicular stent in repair of canalicular lacerations: Experience from a tertiary eye care centre

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To evaluate the outcome of 20G silicone rod as monocalicular stent in canalicular lacerations. Retrospective case series involving patients between July 2006 and June 2010. Fourteen canalicular repairs in 12 consecutive patients were done in the study period. Eleven were male and mean age was 30.5 years. A single canaliculus was involved in 10 patients and associated injury to the globe was noted in 3 patients. The median lag time between injury and repair was 3 (range 1-9) days. The mean duration of stenting was 6.9 (SD 3.2) weeks. Spontaneous extrusion of monocalicular stent occurred in 3 patients. Patency on syringing was noted in 10 (70%) canaliculi over a median follow up of 7 (range 2-17) months. 20G silicone rod may be used as an effective and economical alternative in canalicular laceration repairs.

Key word: 20G Silicone rod, monocalicular stent, canalicular laceration repair

Canalicular lacerations may involve either the upper or lower canaliculus or rarely both canaliculi leading to troublesome epiphora.^[1-3] Success rates with Mini-Monoka[®] monocalicular stent have been good.^[3,4] The cost of Mini-Monoka[®] monocalicular intubation sets or its counterparts led to our search for an economical yet effective alternative. We retrospectively analysed our outcome in all consecutive patients who refused repair with standard Mini-Monoka[®] stent and underwent repair with 20 G silicone rod between July 2006 and June 2010. Outcome was defined as patency on syringing. The surgical technique was similar to that described in our previous report with the exception that 20G silicone rod (AuroSling-Aurolab) was used for stenting.^[4] The distal end of the silicone rod was fixed to the medial eyelid with 6/0 polypropylene

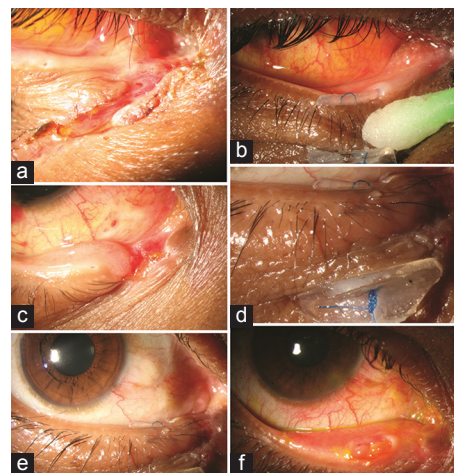


Figure 1: (a) A 32 year old healthy male sustained trauma from a bicycle handle. Clinical photograph of the right eye showed a linear laceration involving the canaliculus in medial third of right lower eyelid with (b) The same patient one week after repair showing the 20G silicone rod stent *in situ*. The lower eyelid is everted with cotton tipped applicator. (c) A 29 year old male sustained a lower canalicular laceration after an animal attack. (d and e) The same patient one week after repair shows the 20G silicone rod in-situ. The stent is fixed with 6/0 polypropylene sutures which are exteriorized onto the medial eyelid skin and tied over a bolster. The medial eyelid margin is well apposed to the eyeball. (f) Eight weeks after removal of stent, the same patient shows a granuloma at the punctum

sutures over a bolster. Fourteen canalicular repairs in 12 consecutive patients were done in the study period. Eleven were male and mean age was 30.5 (SD 14.9) years. A single canaliculus (lower-9; upper-1) was involved in 10 patients. Injury to the globe was noted in 3 patients. The details of all patients are presented in Table 1. The median lag time between injury and repair was 3 (range 1-9) days. The mean duration of stenting was 6.9 (SD 3.2) weeks. Spontaneous extrusion of monocalicular stent occurred in 3 patients. Patency on syringing was noted in 10 (70%) canaliculi over a median follow up of 7 (range 2-17) months.

Historically, stent materials used in repair of canalicular lacerations include those that are naturally occurring organic, metal or synthetic materials.^[5] Amongst synthetic materials are nylon, polyethylene, silicone and even Supramid and Teflon.^[5] First introduced in 1960 in lacrimal surgery, silicone is the most preferred material today owing to its soft, pliable and inert nature.^[5] Our series aims to offer an economical and effective alternative in monocalicular stenting and adds to the current understanding on canalicular repairs in literature. Several authors propound that early intervention (9-32 h) is the key to success in canalicular repair.^[3,4,6] Tint *et al.*, attributed poor outcome in 6 out of 40 patients to the delay in repair (2-3 days).^[6] Our mean lag time for surgical repair was 3 days. Five patients who presented between 2 and 4 days had a successful outcome. Tint and Liebovitch recommended stenting for 5-6 months.^[3,6] We reported mean stent duration of about 3 months with Mini-Monoka stents.^[3] In the current series the mean duration of stenting was 7 weeks. Therefore, shorter stent durations may be as effective in maintaining

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Table 1: Demographics, type of injury with duration, time of surgery with 20G silicone as stent and outcome in 12 patients with canalicular laceration

Age/ gender	Type of injury	Canaliculus involved	Lag time before repair	Stent removal (weeks)	Outcome		Complication	Follow up (months)
					Syringing	Epiphora		
19 yrs/M	Indirect (iron rod)	Lower	1 day	10	Patent	Absent	Nil	17
28 yrs/F	Indirect (bucket handle)	Upper	7 days	2	Partially patent	Absent	Spontaneous extrusion	17
29 yrs/M	Indirect (cow horn)	Lower [Fig. 1d-e]	6 days	8	Patent	Absent	Punctal granuloma, corneal abrasion	5
41 yrs/M	Indirect (cow horn)	Lower	3 days	6	Not patent	Present	Partial extrusion	9
60 yrs/M	Indirect (bull horn)	Lower	3 days	7	Not patent	Present	Canalicular obstruction	8
28 yrs/M	Indirect (bear paw)	Upper and lower	3 days	7	Both patent	Absent	Nil	2
34 yrs/M	Indirect (cracker injury)	Lower	2 days	8	Patent	Absent	Nil	9
5 yrs/M	Indirect (iron rod)	Lower	4 days	8	Patent	Absent	Nil	6
32 yrs/M	Indirect (bicycle handle)	Lower [Fig. 1a,b]	3 days	6	Patent	Absent	Nil	5
44 yrs/M	Indirect (road traffic accident)	Lower	9 days	2	Not patent	Present	Spontaneous extrusion, canalicular obstruction	2
15 yrs/M	Direct (bamboo)	Upper	3 days	15	Patent	Absent	Nil	15
32 yrs/M	Indirect (road traffic accident)	Lower	5 days	5	Not patent	Absent	Tube migration	5

yrs: Years, M: Male, F: Female

patency. Finally the 20G silicone rod offers a significant cost advantage compared to standard mono-canalicular stents. This may be relevant to developing countries with large underprivileged sections in the society and poor access to affordable health care. In our experience the 20G silicone rod was an effective and economical alternative in canalicular lacerations with reasonable success.

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