Canalicular laceration visualisation using chandelier illumination

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DESCRIPTION

A 45-year-old male patient rushed to ocular emergency for right upper and lower eyelid laceration following a road traffic accident. Examination revealed a visual acuity of 20/20 with normal anterior and posterior segments in both the eyes. Right upper and lower eyelids showed full thickness discontinuity just medial to the caruncle. After obtaining consent for surgical repair under local anaesthesia, the extent of canalicular injury was delineated but the torn medial and lateral ends were not completely made out. Thus, after punctal dilatation, a chandelier illumination probe was introduced through the lower punctum. As the probe was advanced, the lateral torn end of the lower canalculus became more visible (figure 1A). Thereafter further advancement, the probe was negotiated through the torn end, and the bright illumination helped to confirm the actual location of the lateral torn margin of the canalculus (figure 1B). In the same manner the upper punctum was visualised (figure 1C,D).

Now, to identify the medial end, the illuminated chandelier probe was passed through one of the visible medial ends of the torn canalculus. The other end was visualised as a prominent dull red slit-shaped inferior opening in the background of uniformly red soft tissue

(figure 1E). The same was confirmed following the removal of the illumination probe (figure 1F). The stent was placed, and the lacerations were closed.

In ocular emergencies, eyelid injuries are routinely encountered. Each case poses a different challenge for the surgeon. Therefore, it is very important to tackle these cases with extra care and innovation every time.

While repairing complex canalicular lacerations, careful observation of the torn end to achieve perfect apposition is very crucial to achieve symptom-free post-operative outcomes. Injecting air, fluorescein dye or viscoelastic substances from one punctum to identify the other end has been described traditionally.¹ However, this may not be effective under all circumstances.

Peng *et al* described a method to identify torn ends of the canalculus using a 23 Ga fibre optic probe. However, the technique was demonstrated via diagrams instead of clinical photographs of practical cases.² The basic concept in both the methods remains the same, that is, exploration of the torn end of the canalculus with the help of an illuminating source, but the intra-operative challenges need a detailed discussion with the help of a practical case. Therefore, here in this report, using a chandelier illumination, we have demonstrated the identification of medial and lateral torn ends of the canalculus in a systematic way. This report proposes to further explore the role of these techniques in canalicular injuries.

Figure 1 (A) Chandelier illumination-guided visualisation of the lateral torn end of the lower canalculus. (B) The illumination probe guided through the lower canalculus. (C) Lateral torn end of the upper canalculus visualisation through the illumination probe. (D) After passing the probe through the torn lateral end. (E) Through the medial upper torn canalculus, the illumination was placed, and the lower end was confirmed. (F) Clinical visualisation of the lower medial canalculus.

Learning points

- ▶ Complex canalicular laceration repair is always a challenge.
- ▶ In addition to routine modalities, chandelier illumination can be used for the identification of torn lateral and medial ends in cases of bicanalicular laceration.

Contributors AP, PS, SA and MSB have evaluated the case in detail followed by optimal intervention to a good outcome. AP, PS, SA and MSB after critically analysing the case wrote the report together.

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