Endoscope-assisted goniotomy in primary congenital glaucoma with corneal opacification

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DESCRIPTION
The definitive management of primary congenital glaucoma is surgical. Angle surgery in the form of goniotomy was found to have good results as the initial surgical option in India.1 However, goniotomy requires a clear view of the anterior chamber angle with a surgical gonioscope and thus depends on the clarity of the cornea. Eyes with primary congenital glaucoma often have corneal opacification, which precludes the use of goniotomy for such cases and the surgeon has to perform an ab externo trabeculotomy alone or combined with trabeculectomy.2 Goniotomy scores over other surgical procedures as it is a minimally invasive surgery without the need for conjunctival dissection with good surgical outcomes.3 We describe here a novel surgical technique of goniotomy that was performed in a case of primary congenital glaucoma with corneal opacification using the assistance of an endoscope to view the angle structures during surgery.

A baby boy presented to us with parents reporting of whitish opacity only in the left eye and gradual enlargement of the globe noticed from 2 months of age. Sleeping intraocular pressure (IOP) measured with tonopen was 12 mm Hg in the right eye (R/E) and 36 mm Hg in the left eye (L/E). The child was provisionally diagnosed with unilateral primary congenital glaucoma and started on ocular hypotensive medications. On examination under anaesthesia, IOP was 10 mm Hg in R/E and 24 mm Hg (on e/d dorzolamide-timolol BD and pilocarpine 2% three times a day) in L/E, the corneal diameter was 11.0×11.0 mm in R/E and 14×14 mm in L/E. Axial length was 20.5 mm in R/E and 24 mm in L/E.

This confirmed the diagnosis of unilateral primary congenital glaucoma. An endoscope-assisted goniotomy was planned and the surgery was performed from the temporal side, treating the nasal angle to about 180 degrees. Pilocarpine 2% was injected into the anterior chamber to constrict the pupil. The cornea was very hazy obscuring the angle view (figure 1A,B) so a 23G laser endoscope probe of an ECP machine (Endo Optics E2 Ophthalmic Laser Endoscopy System-BVI Medical) was used to illuminate and view the angle structures (figure 1C,D) for performing goniotomy with microvitreoretinal blade (MVR 23G) (figure 1E). Successful goniotomy was indicated by the anteriorly inserted iris falling back with the formation of a cleft in the angle (figure 1F). In conclusion, goniotomy is first line treatment in eyes with congenital glaucoma in many parts of the world and can be performed in eyes with corneal opacification using this new innovation of endoscope-assisted surgery.

Learning points
- Goniotomy is the initial surgery of choice in cases of primary congenital glaucoma but requires a clear cornea for visualisation of the anterior chamber angle.
- Endoscope-assisted goniotomy is a new innovation which allows surgery to be performed even in buphthalmic eyes with corneal opacification.

Figure 1 (A) Clinical photo of the eye showing corneal opacity at the centre (white arrow). (B) Corneal opacity obscuring the gonioscopic angle view. (C) Visualisation of the angle using illumination of the endoscope (black arrow). (D) Anteriorly inserted iris seen on the screen of the machine (black arrow). (E) Goniotomy done with MVR blade shown with the black arrow. (F) Goniotomy cleft shown with the black arrow. MVR, microvitreoretinal.

Contributors TD contributed to the design of the work and revised for important intellectual content and gave final approval of the version to be published. KS contributed to design of work, monitored data collection, cleaned and analysed the data, and drafted the paper. She is the guarantor. ANB monitored data collection. SV cleaned and analysed the data.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Consent obtained from parent(s)/guardian(s).

Provenance and peer review Not commissioned; externally peer reviewed.

Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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