Note: This is Online Appendix 1 of Owete AC, Manirakiza E, Herndon LW, Cropsey JM. Early implementation of gonioscopy-assisted transluminal trabeculotomy for glaucoma in Kibagabaga District Hospital, Rwanda Afr Vision Eye Health. 2026;85(1), a1155. https://doi.org/10.4102/aveh.v85i1.1155.

Online Appendix 1

Surgical procedure

All GATT surgeries were conducted by one surgeon, John Cropsey. Surgical steps for the GATT surgery were as follows:

Anaesthesia was induced using general anaesthesia for the infant enrolled in the study and retro-bulbar injection using 5 mL of 2% lidocaine for all other children and adults. Gonioscopy-assisted transluminal trabeculotomy was always performed first in the setting of combined cases (GATT-Phacoemusification [phaco] or GATT-manual small incision cataract surgery [MSICS]). If the procedure was to be performed alone, pilocarpine 2% was placed in the pre-operative eye. If it was to be combined with cataract extraction, the pupil was dilated pharmacologically pre-operatively as per routine cataract surgery. The eye was prepped and draped in the standard Kibagabaga District Hospital fashion including 5% povidone on the ocular surface. A lid speculum was placed and two paracenteses were made using a 15-degree blade, one ~1.5 mm temporally (9:00 o'clock for the right eye, 3:00 o'clock for the left eye) and one ~0.5 mm nasally (4:30 o'clock for the right eye and 10:30 o'clock for the left eye). Blood was then refluxed into Schlemm's canal by lowering the IOP by burping the paracentesis temporally and massaging the conjunctiva nasally with the viscoelastic cannula in a posterior to anterior motion towards the limbus. Viscoelastic (hydroxypropyl methylcellulose 2%) was then used to gently form the anterior chamber without drastically elevating the IOP. A surgical, direct-viewing gonioscopy lens (Volk VTSVVG) was placed on the eye and a 23G needle was passed into the AC via the temporal paracentesis and used to perform a 2 mm–3 mm nasal goniotomy using blood in Schlemm's canal as the landmark for the incision. A low-temperature, battery powered cautery was then used to place a small flange at the proximal end of a 5-0 Prolene suture (needle removed) in order to blunt the suture tip. This flanged suture tip was then placed into the anterior chamber via the nasal paracentesis. It was then threaded into the goniotomy incision using 23G intraocular forceps. A mirrored gonioscopy lens was used to confirm the presence of the suture in Schemm's canal after passing the suture 180 degrees (roughly after 10 pushes with the 23G forceps). After confirmation, the suture was passed for the remaining 180 degrees until the proximal flanged end of the suture was retrieved at the goniotomy incision using the 23G forceps. While holding the flanged end intraocularly, the extraocular, distal end of the suture was grasped with a needle driver and pulled, tearing the intraocular suture through the trabecular meshwork. This created a 360-degree, ab interno goniotomy. Viscoelastic was then placed in the anterior chamber to tamponade any bleeding. Once haemostasis was achieved, combined procedures were then carried out as per routine. For stand-alone GATT, viscoelastic was removed from the anterior chamber using a Simcoe cannula and Ringer's lactate. Surgical wounds were checked for any leaks and closed with a single interrupted 10-0 nylon if required as in the case of the infant. A 0.5 mL of a 50/50 solution of gentamicin and dexamethasone was then injected into the superior conjunctiva. The lid speculum was removed and a drop of combined antibiotic-steroid solution was placed on the eye. The lids were then closed and covered with a patch and shield overnight.