

Simplified cataract aspirator

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This instrument has been developed to carry out the operation of cataract aspiration in children with particular reference to the need to retain the lens matter for virus culture or biochemical analysis. It is much lighter and smaller than most other instruments devised for this purpose and is particularly suitable for work under the microscope especially for operating on very small eyes that might otherwise be considered unsuitable for surgery at an early age.

Apparatus*

The handle consists of a 1 ml. tuberculin syringe, either plastic or glass, with a metal needle mount. Into this are threaded two lengths of nylon tubing about 30 cm. long, internal diameter 0.75 mm. external diameter 0.94 mm. (Flexynylon Size 1). The two ends are fixed into the mount with epoxy resin and cut so that the ends are flush with the end of the mount (Fig. 1). To the other ends of the tubing are fixed two Luer mounts. Each can be made by cutting the shaft of a stainless steel number 1 hypodermic needle to about 5 mm. and inserting it into the end of the tubing. A cannula is made similarly for the aspiration by blunting and shortening the bevel of a No. 1 hypodermic steel needle. An improved cannula has been made by using a 21-gauge (No. 1) thin-wall needle with a 20-gauge bore; it is hoped that this will be commercially available.

If the apparatus is made with a glass syringe it can be sterilized by autoclaving, but models made with polypropylene syringes have to be sterilized with bacteriocidal solutions.

Procedure

To prepare the apparatus for use, two 10-ml. plastic disposable syringes are attached to the Luer mounts on the ends of the tubing (Fig. 2), one containing approximately 2 ml. and the other 10 ml. of sterile saline. All air bubbles are eliminated from the aspirator. The operation is best carried out using a microscope. An incision is made in the cornea with a Saunders needle at a convenient position 2 mm. in front of the limbus, and the capsule of the lens is opened with a cruciate incision. The needle is then removed and the cannula introduced. On the surgeon's instructions, saline is injected from one syringe, or aspirated with the other by the assistant, all the surgeon's attention being devoted to the position of the cannula and the lens matter. Aspiration and irrigation is continued until as much lens matter as possible is aspirated; it may not be feasible to remove it all at one session, but the procedure can be repeated at a later date if necessary. The material from the aspirating syringe may be emptied into a sterile container for virus culture or biochemical analysis if desired. During the operation, it may be necessary to refill or empty one or both syringes, and it is sometimes necessary to withdraw the cannula from the anterior chamber, but it can easily be re-introduced by injecting continuously while re-inserting it. Usually no iridectomy is performed, but this could be carried out quite simply by enlarging the incision. The incision is closed with 10-0 nylon sutures or virgin silk on a 5-mm. needle, and air is injected into the anterior chamber.

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The latest model of this instrument can be autoclaved freely as it is made with the glass-steel syringe, silicone rubber tubing, 1 mm diameter, and blunted 22G (No. 2) stainless steel luer fitting needles as connectors for the syringes

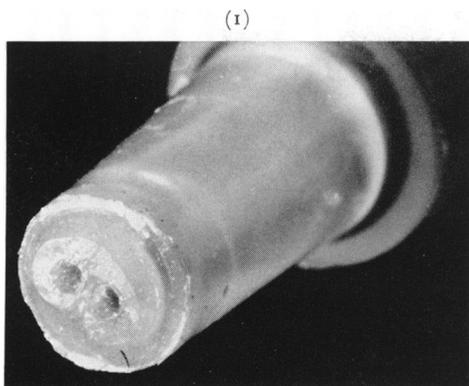
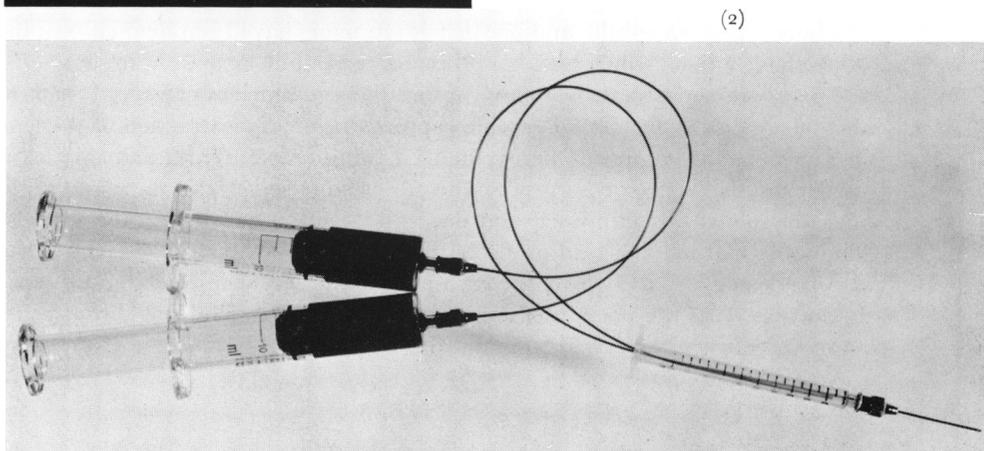


FIG. 1. Luer mount of plastic syringe, with two tubes of nylon fixed in epoxy resin and cut flush with the end of the mount.

FIG. 2. Aspirator ready for use. It has been filled with coloured fluid for photographic purposes only.



Conclusion

The advantages of this apparatus are that it is very light to handle, very cheap, and easy to make. It is also easy to collect material for analysis and the surgeon is able to concentrate entirely on the events in the anterior chamber.

This apparatus has proved useful in dealing with traumatic cataracts and also for the discission of membranes when a sharp-pointed needle replaces the cannula.

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