

APPLIANCES

A NON-MAGNETIC FOREIGN-BODY EXTRACTOR*

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It is now known that some non-magnetic metal alloys do not remain inert when lodged inside the eye. When such a foreign-body causes irritation, and also when its position in the vitreous seriously interferes with vision, its removal is necessary and justifiable.

The surgical approach is through a scleral incision and the instrument passed through this is guided to the foreign-body under ophthalmoscopic view.

The disadvantage of cross-action forceps for this purpose is that some vitreous is likely to leak through the scleral incision and to pass the shanks of the forceps when the jaws of this instrument are opened.

An alternative is to use a wire-snare made from a hypodermic needle style, the loop of the snare projects from the lumen of an intravenous needle the point of which has been cut off. The free ends of the snare are controlled where these leave the other end of the needle, held in the operator's hand. It is often difficult to engage the snare over the foreign-body and to hold it securely whilst withdrawing the instrument from the vitreous.

It is therefore desirable to have an extractor which :

- (1) takes up the minimum of room,
- (2) has neat lines with the extractor jaws flush with the hollow shaft through which they pass.
- (3) is easy to manipulate without moving the shaft of the instrument,
- (4) has a shaft which will exactly fit the scleral incision, thus allowing no leakage of vitreous whilst the instrument is in the eye. The incision in the sclera is made equal to the circumference of the shaft.

Instrument

Fig. 1 shows two sizes of an extractor, one open and the other closed, which I designed during the 1939-45 war. It consists of a hollow shaft, 3 mm. in diameter in one size and 1.5 mm. in the other. Through the shaft passes a steel style and the free end of this is split and fashioned to form two spring jaws with concave opposed surfaces roughened by criss-cross grooves. The tip of each jaw is slightly inverted for better retention of the foreign body. The slot on the handle advances and withdraws the spring-jaws from and into the hollow shaft. The jaws are withdrawn into the shaft for passage through the scleral incision and through the vitreous to the site of the foreign body when the slide is moved forwards under ophthalmoscopic view so that the jaws may open and envelop the foreign body. The jaws are then withdrawn by moving

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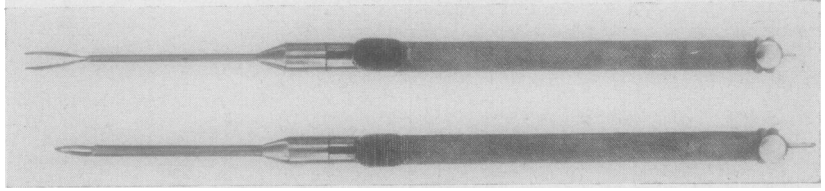


FIG. 1.—Extractors made by Down Bros., and Mayer and Phelps, Ltd.

the slide backwards and in so doing close over the foreign body and hold it either around or within the entrance of the hollow shaft.

Technique

The site on the sclera is chosen which gives best access to the foreign body, and in front of this a conjunctival flap is cut with an incision convex towards the limbus. The flap is held reflected by two sutures of 0 black silk which are clamped to the head towel. Diathermy, 80 milliamperes for 5 seconds is applied to the sclera at the site for incision. The length of the incision is carefully measured and marked in gentian violet. The eye is steadied with a scleral hook inserted just in front of the anterior limit of the incision. Half the thickness of the sclera is incised with a No. 15 Bard-Parker knife. The edges of the scleral incision are now retracted by scleral hooks and an interrupted suture of 000 black silk, knotted at one end, is passed across the wound. The knot is drawn against the sclera and that part of the stitch which traverses the wound is pulled out into a loop, the arms of which are held in two pairs of plane forceps so as to

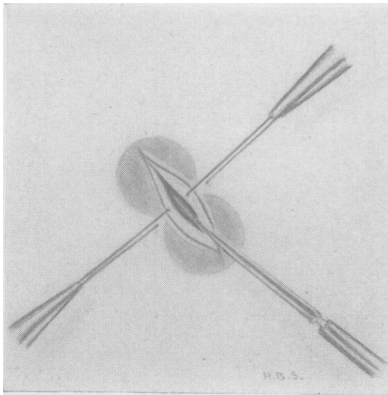


FIG. 2.

To avoid pushing the foreign body about in the vitreous just in front of the tips of the extractor blades, and so being unable to grasp it, it is well to open the blades behind the foreign body and then swing these forward to engage it. The slide on the handle is moved back and the jaws close on the foreign body. When a secure grasp is obtained the shaft of the instrument is drawn to the scleral incision. It is essential to cause the minimum of disturbance in the vitreous. Frequent thrusts through it with the extractor damage its structure and render the field around the foreign body increasingly turbid. Immediately the tip is clear of the sclera, the scleral suture is pulled upon quickly to close the wound at once. There should be little or no vitreous loss for the shaft of the extractor fits the scleral incision exactly, the length of the incision being equal to the circumference of the shaft. The suture is then tied with a surgical knot, penicillin is instilled into the wound, and the conjunctival incision is closed with a continuous key-pattern suture.

retract the edges of the wound (Fig. 2). The scleral incision is now completed down to the choroid with the tip of a small cataract knife. The head is turned so that the scleral wound may be uppermost, a quick stab incision is made through the choroid and retina with a cataract knife, and the foreign-body extractor is immediately introduced through this so that its shaft fits the scleral wound exactly before any vitreous appears. The head is now gently turned so that the eye looks in the primary position, that is up to the ceiling. The surgeon holds an ophthalmoscope in his other hand, which is covered with a sterile linen glove.

The extractor is passed across the vitreous with the jaws closed and flush with the shaft. In this position the jaws make a blunt point which is aimed deliberately behind the foreign body to allow for the refraction of the vitreous.