

In order to assist beginners in microsurgery in practicing microvascular suturing without the use of an animal model, we devised an apparatus composed of a Lucite disc with Lucite cylinders attached to either side. On the one side, a piece of rubber glove can be attached for practice of either continuous or interrupted suturing. On the other side, four slots in the cylinder permit suture material or simulated blood vessel to be placed and held for practice in tying knots or end-to-end anastomosis. The disc apparatus is very inexpensive, durable, and easily obtained.

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A MICROVASCULAR SURGICAL PRACTICE DISC FOR BEGINNERS

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We have previously described a practice apparatus that beginners in microvascular surgery can use to practice knot-tying and suturing under the operating microscope.¹ We have since modified this apparatus to increase its convenience in knot-tying, suturing glove material, and approximating the severed ends of simulated blood vessels.

The apparatus consists of a circular Lucite plate 10 cm in diameter and 0.4 cm thick with small Lucite cylinders located at the center on each side. On the first side (F-1), the small cylinder is 3.8 cm in outside diameter and 0.6 cm thick and has a groove 0.25 cm deep located 0.25 cm from the top on the outside. This cylinder can be covered with a piece of rubber glove. On the other side of the disc (F-2), the small cylinder is 3.8 cm in (Fig. 2) outside diameter and 0.6 cm thick and has four small slots at the 12, 3, 6, and 9 o'clock positions (Fig. 2). The heights of the F-1 and F-2 cylinders are 1.2 and 0.8 cm, respectively. To prevent light reflection during surgery, all surfaces are either painted or sandblasted. In addition, background materials, such as colored balloon rubber or thin styrofoam, may be placed within the cylinders to further reduce glare.

During initial instruction, the F-2 side is positioned to face the objective lens of the operating microscope and 2-0 silk is fastened in the slots at the 9 and 3 o'clock positions and tying knots is practiced. After a sufficient period of knot-tying practice, the thread is discarded and Silicone Elastomer Surgical Tape (REtract-O-Tape; Quest Med, Inc., Carrollton, TX) which has diameters of 1.2 to 1.7 mm, is fastened at the 12 and 6 o'clock positions. The tension of this simulated blood vessel may be adjusted by loosely or tightly stretching the tubing between the slots. The vascular approximator is then placed on the simulated blood vessel and, after the tubing is divided, anastomosis practice can begin.

A piece of surgical glove or balloon rubber is used to cover the F-1 cylinder. The glove material is fastened with a rubber band that fits into the groove. An incision 0.5 to 1.5 cm long is then made in the rubber with a sharp knife and either interrupted or continuous suturing is practiced.

The apparatus facilitates microsurgical practice and is ideal for beginners. In addition, the production and use of this device are inexpensive. Fresh or stored blood vessels, vas deferens, nerves or Fallopian tubes may be fastened on grooves, divided and sewn.

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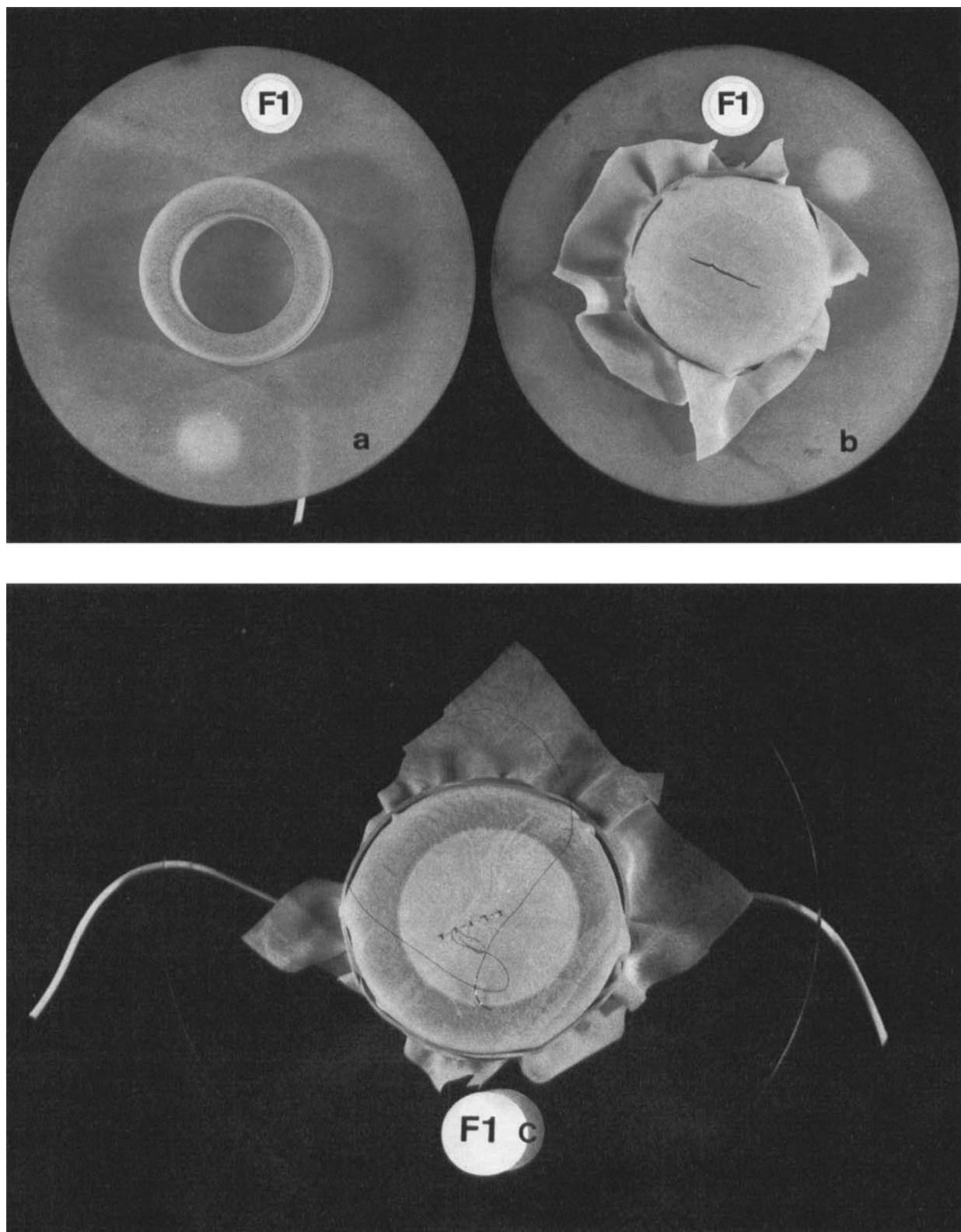


Figure 1. F-1 side of practice disc (A) before being covered with rubber glove, (B) after rubber glove is secured, and (C) after five interrupted sutures have been applied to close incision.

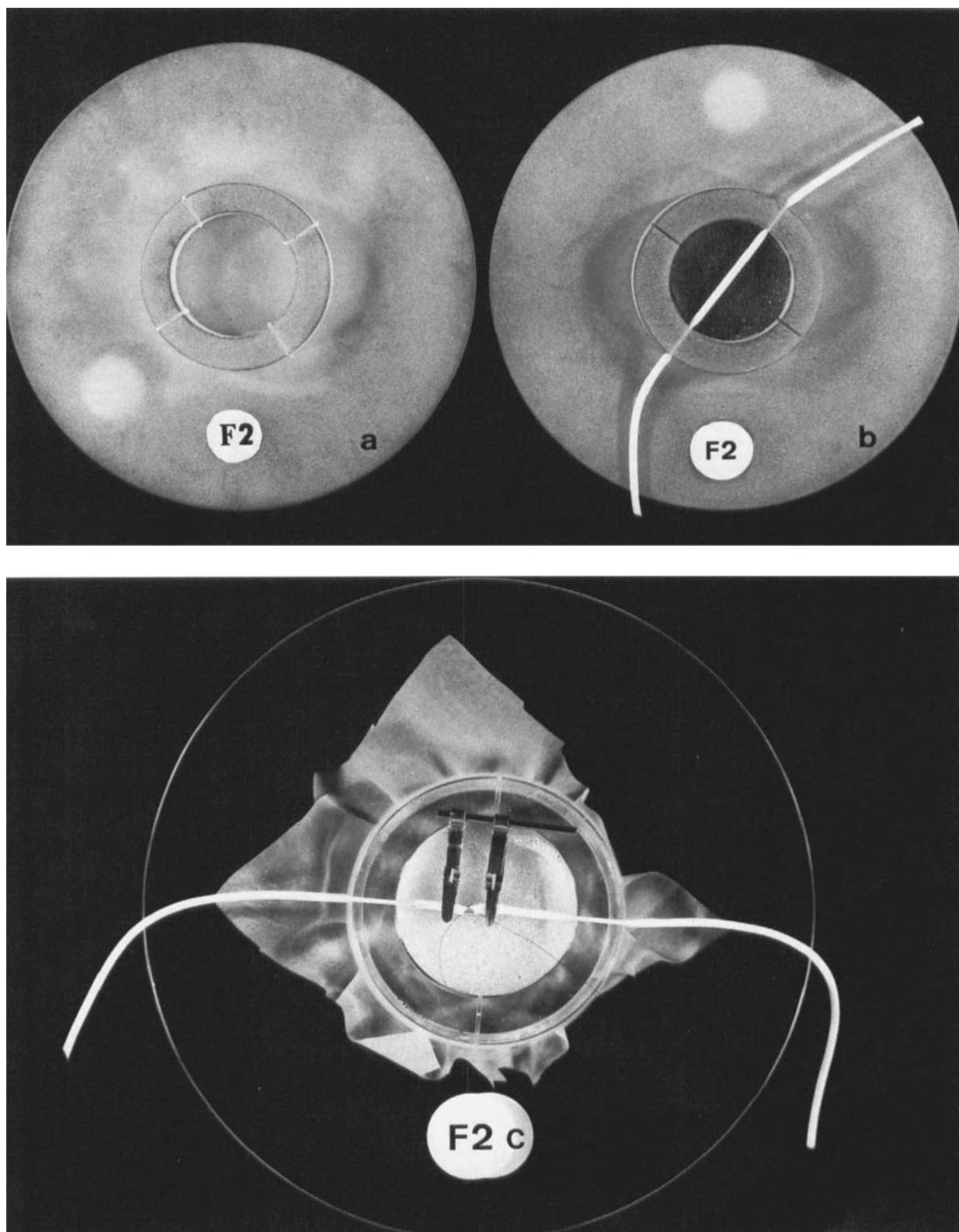


Figure 2. F-2 side of practice disc (A) before simulated vessel is placed in slots, (B) after placement of simulated vessel, and (C) after ends of vessel have been approximated and two stay sutures have been placed.