

NEW METHODS

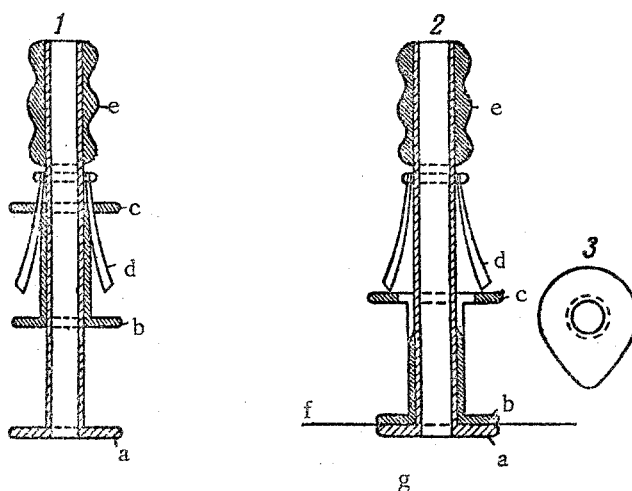
A CANNULA FOR DETERMINING LATERAL PRESSURE IN ARTERIES, VEINS, VENOUS SINUSES, AND IN THE SUBDURAL SPACE

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(Received 24 June 1955. Presented by V. N. Chernigovsky Member of the Acad. Med. Sci. USSR)

It is of importance that in measuring the pressure within blood vessels the flow of blood within the given vessel should not be impeded. We have devised a cannula (see sketch) in our laboratory, which permits of the measurement of lateral blood pressure without interfering with the blood flow.



Cannula for measuring lateral pressure (longitudinal section).

1) Before introduction into the lumen of the vessel; 2) in position;
3) shape of flanges of the external and internal tubes.

a) Flange of internal tube; b) flange of external sleeve (tube);
c) ring of external sleeve; d) springs; e) end-piece of internal
tube, for attachment to a rubber tube connected with the
manometer; f) wall of vessel; g) lumen of vessel.

The cannula consists of a thick-walled brass tube (length 50 mm), of internal diameter equal to that of the vessel. At one end of the tube is a thin flange (0.3 mm thick), oval in shape. A second, shorter tube (sleeve) slides freely over this tube (length 20 mm), with a similar flange. The walls of the tubes are 0.3 mm thick.

A short length of blood vessel is dissected free of underlying tissues, and clamped at both ends. A short longitudinal incision is made, into which is inserted the flange of the internal tube of the cannula, which is

then rotated so that the long diameter of the flange lies parallel to the incision. The cannula is then raised slightly, and the sleeve is pushed down, so that the margins of the incision are caught between the two flanges. Leek-proof fitting is assured by the pressure of two steel springs, one end of which is fixed to a special ring attached to the internal tube. The free ends of the springs rest on a broad ring on the sleeve, preventing its displacement.

The manometer tube is fitted over the end-piece of the internal tube. The clamps are then released, and normal blood flow is restored.

In those cases in which it is not possible to apply clamps to the vessel, and when it cannot be dissected free of underlying tissue (for example, in a brain venous sinus), only a small part of the vessel is exposed for incision, which is immediately followed by introduction of the cannula as described above, without interrupting the flow of blood. A similar technique is applied to measurement of c.s.f. pressure in the subdural spaces, the cannula being in this case fixed to the dura mater. A set of cannulae should be available, of different internal diameters, for use with vessels of different sizes; the length may be the same for all of them.