Closed reservoir system for angiography.

G V O'Reilly, S B Hammerschlag and M H Naheedy

AJNR Am J Neuroradiol 1982, 3 (6) 683-684
http://www.ajnr.org/content/3/6/683.citation

Closed Reservoir System for Angiography

Gerald V. O'Reilly,[1] Steven B. Hammerschlag, and Mohammed H. Naheedy

For many years, radiologists kept saline and contrast material in open basins for use during angiographic procedures. More recently, closed systems have been advocated to avoid contamination by foreign bodies such as cotton fibers or talc [1, 2]. Such arrangements use intravenous sets hung on a trolley, which is often positioned behind the radiologist and requires that an assistant turn his back to the source of radiation in order to clean and refill syringes. In doing so, he may inadvertently be irradiated unless he is wearing a double-sided lead apron. Furthermore, he is unable to observe the procedure simultaneously. The closed reservoir system described below allows continuous refilling of syringes with a minimum of effort, as well as making the reloading of the contrast pressure injector easier.

Technique

Containers of contrast material and flushing solution are hung on an intravenous pole attached to the far side of the angiographic table. The assembly is double three-way plastic manifold with two delivery lines and one exhaust line (Medical Parameters, Inc., Woburn, MA) (fig. 1). The proximal delivery line, which is identified by a green stripe, is plugged into the bottle containing contrast material. The second delivery line is connected to the flushing solution. The exhaust outlet line is run to an empty intravenous solution bag (Travenol Labs., Inc., Deerfield, IL), which is hung below and usually on the far side of the angiographic table. The discarded blood and fluid are thus stored in a closed container.

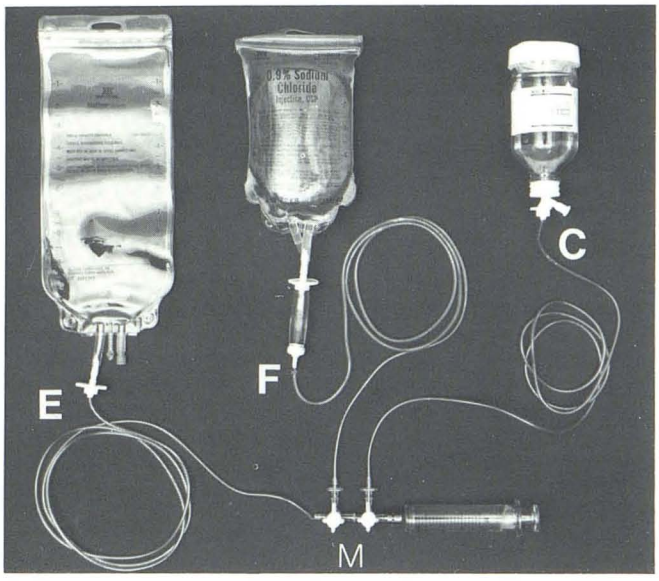

Fig. 1.—Reservoir system and its attachments. Proximal line to manifold (M) is connected to bottle of contrast material (C); middle line is connected to bag of flushing fluid (F); and exhaust line is coupled to empty intravenous solution bag (E) hung just below level of angiographic table.

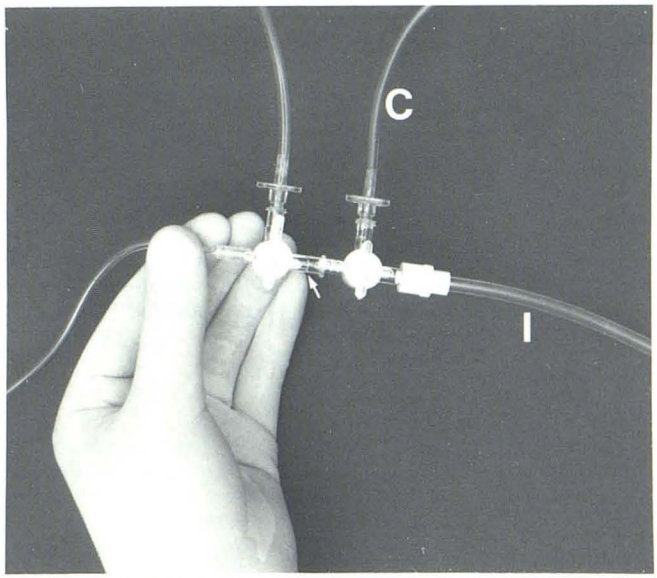

Fig. 2.—To refill contrast pressure injector: pressure injector tubing (I) is connected directly to reservoir manifold. Manifold is held upright and contrast material in pressure tubing is run forward past proximal "contrast" stopcock to clear air (*arrow*). Stopcock is then adjusted to allow flow of contrast material from reservoir (C) to injector. Pressure injector should be reversed slowly.

Received January 14, 1982; accepted May 19, 1982.

[1]All authors: Department of Radiology, Harvard Medical School, Beth Israel Hospital, 330 Brookline Ave., Boston, MA 02215. Address reprint requests to G. V. O'Reilly.

AJNR **3:683–684, November/December 1982** 0195-6108/82/0306-0683 $00.00

When refilling the pressure injector becomes necessary, it can be coupled directly to the manifold. After air has been cleared from the pressure injector tubing, the manifold is adjusted to allow the flow of contrast material into the injector (fig. 2).

The reservoir system can expedite angiography by simplifying syringe cleaning and refilling, and by permitting assistants to face and observe the procedure continuously.

REFERENCES

1. Adams DF, Olin TB, Kosek J. Cotten fiber embolization during angiography. A clinical and experimental study. *Radiology* **1965**;84:678–681
2. Mishkin MM. Petechial reactions in angiography. *Acta Radiol [Diagn]* (Stockh) **1966**;5:413–423