To the Editor:

Most cardiovascular laboratories utilizing 35-mm cineradiographic techniques have the difficulty of not being able to project angiographic films to large audiences. One commercially available cineradiographic projector (Tagarno 35) provides relatively small images projected onto its own screen. When the screen is removed and the film is projected onto larger screens, a great deal of distortion takes place. Other projectors available to project these films onto large screens are not generally available and are expensive. Similarly, in the operating room, it is desirable to have a still image of the anatomy in order to better accomplish the surgical aims. This is particularly crucial when coronary bypass surgery is performed and the locations of the lesions and their severity dictate the location for the implantation of grafts. Otherwise, the surgeons have to carry the angiographic images in their memory, and this may lead to errors. When angiographic images are recorded on cut film or 105-mm photospots, they can usually be reviewed on standard x-ray viewing boxes. They have the ideal size for lectures and the operating room when viewed on standard viewing boxes. Not all laboratories utilize cut film or 105-mm photospots for a number of reasons which are beyond the scope of this communication.

We have recently developed a simple and inexpensive method to transfer cineangiographic images onto high-contrast subtraction film with reversal of black and white (Dupont 14 × 14-inch subtraction film). These images can then be placed on a viewing box and reviewed when necessary, including during open-heart surgery in the operating room. This report presents the details of this technique.

**Materials and Methods**

The cineradiographic projector (Tagarno 35) is moved into a dark room. The projector's screen is removed, and a 14 × 14-inch piece of white cardboard is placed on the back of the protective hood. The 35-mm cineangiographic film is...
then projected and focused on the modified screen. A given frame is selected for magnification. Only the light source of the projector is turned off; the other two switches (main power and drive switch) are left on. This is done to avoid motion of the selected frame when the exposure is made.

The subtraction film is placed in the projector path, immediately in front of the cardboard screen. Once the operator is confident that the film is in place, the light switch of the projector is turned on and off. The exposure time is critical, as with any x-ray film. In general, by turning the projector’s light on and off for approximately one-half second, an acceptable reproduction is obtained.

After the film has been exposed, it is then developed in a standard 90-second x-ray film developer (Kodak X-Omat). The subtraction film is handled in the dark throughout the technique to avoid film exposure to undesired light. It should be noted that the previously mentioned procedure can also be done by manually holding the subtraction film onto the projector’s screen. The use of a timer may enhance the product obtained. This will entail modification of the projector and obtaining a timer. We have tried to keep this technique as simple as possible to enable any cardiovascular laboratory to use it without the addition or modification of existing equipment.

Results and Discussion

A simple and inexpensive technique for the magnification and transfer of cineangiographic frames to large films is presented. The magnified frames, printed on the subtraction film, measure 9% × 7½ inches. Figure 1 presents a sequence of films from a patient being prepared for aortocoronary bypass. Furthermore, when the study is completed, the films can be included with the report of catheterization and sent to the referring physician for his review and record. Another advantage of this technique is the fact that no enlargers or expensive photographic equipment is needed, and the original film can remain in the cardiovascular laboratory. No splicing or cutting of the original film is necessary.

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"Low-Pressure" Cuffs and Tracheal Damage

To the Editor:

In the November 1975 issue of Chest, Lane and associates described six cases of tracheal-innominate artery fistula caused by cuffed tracheostomy tubes. "Low-pressure" cuffs were used in at least two of their patients. It should be pointed out that most of the new "low-pressure" cuffs may produce "high pressures" against the tracheal wall with relatively small increments of inflation after the airway seal has been established.

Ideally, the lateral pressure exerted by a cuff against the tracheal wall should not exceed the airway pressure it is intended to maintain. Such a cuff has recently been developed and tested, with good results both in the laboratory and clinically. This parachute-shaped cuff is inflated by positive airway pressure via openings at its distal end, rather than by external means. The pressure it exerts on the trachea, therefore, never exceeds airway pressure in either magnitude or duration. Use of such cuffs for prolonged intubation and ventilatory support greatly diminishes the possibility of tracheal pressure necrosis.

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References


Endobronchial Histiocytoma

To the Editor:

Pulmonary histiocytomas are uncommon and usually develop in lung parenchyma. A few grow within major bronchi or the trachea.

Case Report

Several days after an operation for spinal fusion, a 46-year-old white woman without a history of pulmonary disease suffered atelectasis and subsequent overexpansion of the left lung. Tomograms and bronchoscopic examination revealed a mass obstructing the left main bronchus. Thoracotomy was performed, and a tumor was removed from the upper lobar bronchus after the main bronchus had been opened and explored. Study of frozen sections suggested the possibility of a malignant mesodermal tumor, and the upper lobe was removed. The patient is well ten years later.

The tumor was a friable, greasy, yellow-gray sessile polyp 2 cm long. It had originated in the lingular bronchus and had prolapsed to obstruct larger bronchi. It was confined to the submucosa, with a covering of normal bronchial epithelium, and was formed of pleomorphic histiocytes and incom-