NEW APPLIANCES

Dependent Drainage Balloon Catheter

Mr. G. R. ROBERTS, consultant surgeon, Royal East Sussex Hospital, Hastings, writes: The 25-minute I.V.P. film of a patient's abdomen in which an indwelling balloon catheter has been left in the bladder will show a varying amount of residual dye. This residual dye occurs with the catheter on open drainage. The "eye" of the catheter lies above the blown-out balloon and drainage occurs only when the level of urine reaches the eye. There is thus a stagnant pool of urine below the eye (Fig. 1 A).

As catheters are usually inserted to provide drainage the problem is to devise a dependent drainage catheter, preferably of the self-retaining balloon variety.

A goose-necked catheter shaped like a blunt-nosed Tiemann, with a balloon moulded on the "neck," has the eye on the convexity below the balloon. When the balloon is blown up in the bladder the balloon surface on the concavity of the neck rests near the internal meatus and the eye is at the most dependent part. (Fig. 1 B.)

The catheter has to have a curved neck, as straight catheters with the eye below the balloon do not provide drainage, presumably because the eye lies in the upper urethra.

Sixteen patients admitted to hospital with acute retention due to benign prostatic hypertrophy, carcinoma of the prostate, or fibrous prostate were catheterized with one of three varieties of catheter. Two types of these catheters had the eye above the balloon and one type had a straight neck and the eye below the balloon. I.V.P. films with the catheters on open drainage showed residual urine. This was confirmed by cystography.

Sixteen patients admitted in acute retention were catheterized with the new catheter. The I.V.P. films showed no residual dye and thus complete drainage (Figs. 2 and 3). Cystogram studies confirmed these findings.

This catheter has been manufactured in various sizes, including a variety that will be

under trial soon as a post-prostatectomy catheter.

Bard-Davol Limited Specification: Bardco Foley catheter, pure latex of high modulus—

that is, a denser grade of latex—coudé tip with two side eyes, one above and one below the balloon; 5-ml. capacity balloon; inflation channel fitted with a Luer valve. Double packaged, sterile.

FIG. 1

FIG. 2

FIG. 3

FIG. 2.—25-minute I.V.P. film showing inadequate drainage with a conventional balloon catheter. FIG. 3.—25-minute I.V.P. film in the same patient showing complete drainage with the new catheter.

Plastering Table for Infants

Dr. P. B. McCOMISH, consultant anaesthetist, Oldchurch Hospital, Romford, Essex, writes: The application of plaster-of-Paris hip spicas and "frog" plasters to small children under anaesthesia presents a problem in supporting the child's body and maintaining the limbs in the correct position. In some cases the plastering is managed in a rather unsatisfactory way with makeshift apparatus and the services of an otherwise unnecessary number of assistants to hold the limbs and body. Often it is necessary to turn the anaesthetized child face down to complete the posterior part.

The apparatus described here was designed to make the plastering as easy and as safe as possible; it was constructed from odd bits and pieces of materials.

The apparatus consists of a head and shoulder rest and a pelvic rest; they are connected by two strips of an aluminium alloy which support the trunk. (The alloy is radio-

translucent enough not to interfere seriously with x rays.) The metal strips are 1 ft. 9 in. (53 cm.) long by $\frac{1}{2}$ in. (1.3 cm.) wide by $\frac{1}{8}$ in. (0.3 cm.) thick and are set about 2 in. (5 cm.) apart. These fittings are mounted on a piece of Formica-topped chipboard 2 ft. 3 in. (69 cm.) long by 12 in. (30 cm.) wide by 1 in. (2.5 cm.) thick which is fixed on an adapted bowl-stand at a convenient working height of 2 ft. 9 in. (84 cm.).

HEAD AND SHOULDER REST

The head rest was made from a rod of mild steel $\frac{1}{8}$ in. (0.3 cm.) in diameter curved into a U shape with the open ends pointing caudad and fixed under the shoulder plate. The space inside the U, where the head is positioned, is 6 $\frac{1}{2}$ in. (16.5 cm.) wide by 6 $\frac{1}{2}$ in. (16 cm.) long and is filled in with a folded piece of leather, with cotton-wool padding inside the fold. Eyeholes are punched round

the edge of the leather, which is cut to fit in the shape of the frame, and it is laced to the frame.

The shoulder rest is a metal plate 9 in. (23 cm.) wide by 3 $\frac{1}{4}$ in. (8.3 cm.) long and $\frac{1}{8}$ in. (0.3 cm.) thick covered with leather and suitably padded; its top is 9 $\frac{1}{2}$ in. (24 cm.) above the chipboard. It is supported on a vertical cylindrical pillar $\frac{5}{8}$ in. (1.6 cm.) in diameter and 3 $\frac{1}{4}$ in. (8.3 cm.) long with two short rods projecting at right angles near its lower end. These two rods, which are opposite each other, locate in slots in a vertical tubular pillar 1 $\frac{3}{8}$ in. (3.5 cm.) long with an internal diameter of 11/16 in. (1.7 cm.) so that the upper pillar can fit into it.

The support was made in two parts so that the head and shoulder rest can be easily and quickly detached with the child still on it. The lower end of this vertical supporting pillar arises from the centre of a metal frame shaped like a D lying on its straight side—

that is, rotated anticlockwise through 90 degrees. It is set transversely across the table. The lower cross-member is rectangular in section $\frac{3}{8}$ in. (1.9 cm.) high by $\frac{5}{8}$ in. (1.6 cm.) thick and has two holes pierced in it for two longitudinally running bars to pass through. These bars are $\frac{1}{2}$ in. (1.3 cm.) in diameter, $4\frac{1}{2}$ in. (11 cm.) apart (centre to centre), and have a clearance of 1 in. (2.5 cm.) above the base board; they are parallel and form a slide on which the head and

shoulder rest can be moved to adjust for the length of the patient. The frame can be clamped firmly at the selected position by tightening the wing-headed screws which are threaded through the cross-member from above so as to screw down on to the longitudinal bars. The bars are 1 ft. 11 in. (58 cm.) long and are held at the head end in a vertical steel plate 6 in. (15 cm.) wide by $2\frac{1}{2}$ in. (6.4 cm.) high which is screwed on to the edge of the table, and at the lower end are

brazed to a bar fixed on the table.

A vertical post is screwed to the right side of the D frame. It is 1 ft. 6 in. (46 cm.) high and has a horizontal extension across the patient. From the cross-arm is suspended an arm holder made of a rectangular piece of leather 8 by 5 in. (20 by 12.5 cm.) which can be wrapped around the arms and held with Velcro straps.

PELVIC REST

The pelvic support was made from a commercially available support of the type equipped with a clamp to fix it to the edge of a table. For our apparatus the clamp was sawn off and the base was screwed on to the foot end of the table. The pelvis does not rest direct on the metal of the support; a special fitting was built up on the expanded metal pelvic rest from pieces of Perspex to give the following facilities: (1) a slot to hold x-ray films for anteroposterior views, (2) a housing to take the lower ends of the two metal strips which support the lumbar and thoracic regions, and (3) a socket for the detachable vertical post which fits up against the perineum.

This part of the apparatus is best understood by reference to Figs. 1 and 2. Films for lateral x-ray pictures can be held in a clamp fitted to the upright of the pelvic rest. The two x-ray film holders enable pictures to be taken easily and conveniently without exposing anyone to irradiation.

APPARATUS IN USE

The anaesthetized child is placed on the table in the supine position with the perineum against the post. The arms are put in the sling and require no further watching. The surgeon holds the legs in the required position while the plaster is put on by the plaster sister or technician. At the conclusion the pegs which hold the body support strips in place are removed, the head and shoulder rest is lifted clear of its socket in the lower part of the upright, and the child is moved cephalad and slid off the pelvic support, the arms having been released from the suspended sling. The sacral part of the plaster can be trimmed and finished off later when the child is awake.

The Formica top of the table is easily cleaned of splashes of plaster that fall on it.

The apparatus was designed by Mr. A. E. Collins, charge nurse in the orthopaedic operating-theatre, and was made by members of the engineering and radiotherapy departments of the hospital. The photograph was prepared by Mr. Sheppard, the hospital photographer.

FIG. 1.—Diagram of pelvic support.

FIG. 2.—Photograph of infant plastering table.

Disposable Operative Cholangiogram Cannula

Mr. J. MCKENZIE BUCHANAN, consultant surgeon, North Staffordshire Hospital Centre, Stoke-on-Trent, writes: The first operative cholangiogram carried out during the course of a cholecystectomy was reported by Mirizzi in 1932. Primary or pre-exploratory operative cholangiography is now acknowledged by many surgeons as an essential preliminary to cholecystectomy or to exploration of the bile ducts. There are several methods of introducing a radio-opaque dye into the biliary system; they include needling

and cannulating techniques via the cystic duct, the gall bladder, the common bile duct, or the liver itself.

For several years we carried out primary operative cholangiography using an ordinary intravenous type of nylon catheter inserted into the cystic duct. The disadvantage, however, was that it would readily slip out of the duct when abdominal retractors and packs were removed immediately before filming. It was therefore obvious that this minor but annoying complication could be

overcome by expanding the tip of the catheter in such a way that, once inserted into the duct, it could then be held securely by means of an encircling ligature without fear of dislodgement.

In the past three years we have been experimenting with several modifications of cannulae, and eventually have been satisfied with one made from a surgical grade of flexible nylon having a bore of 0.039 in. (1 mm.) and an outside diameter of 0.052 in. (1.3 mm.). The cannula is 24 in. (61 cm.)