for some days, is jeopardized by the almost certain previous urethral sepsis or trauma in such a case. If decompression of the patient's bladder in his home is unavoidable, it will be seen from the figures previously presented that a single careful catheterization and decompression of the bladder, followed by removal of the catheter, offers the smallest chance for infection to occur.

In hospital out-patient clinics, catheterization is sometimes employed in cases of chronic retention for the measurement of the residual urine. With this procedure, the risk not only of infection but also of haemorrhage from the prostatic plexus of veins occurs. Neither this nor the additional small incidence of superimposed acute retention leads to increased confidence on the part of the patient or to greater ease of management by the surgeon. Measurement of the residual urine is obviously not necessary in those cases in which the distended bladder is palpable above the pubis. When, however, the bladder cannot be felt, or in the obese, adequate information concerning the residual urine may be obtained from after-micturition x-ray films of the bladder region following excretion pyelography. Such films may demonstrate either complete emptying of the bladder or the dye shadow rising above the symphysis pubis—a residual urine of at least 5 oz. (140 ml.). In between these two categories the quantity of radio-opaque dye remaining in the bladder will give, with practice, a very fair estimate of the residual urine. Increasing distension of the bladder may be discerned by comparison with further after-micturition films taken at appropriate intervals. It is, of course, upon this increasing residual urine, together with the symptomatology, that the indications for elective prostatectomy usually depend.

If catheterization is so far avoided, it is pointless if the patient is catheterized on admission to hospital. This generally applies in cases of acute on chronic retention admitted as emergencies. The choice of which patients in this group are suitable for immediate prostatectomy necessitates careful assessment of the general physical state as well as of the condition of the urinary tract. The performance of the necessary investigations and the availability of the operating theatre may well cause delay. It is in these circumstances that catheterization is performed in the ward. The alternatives of suprapubic needling of the bladder or the insertion of the drainage tube described by Riches (1949) are often adopted. The presence of a sharp comparatively large needle in the collapsing bladder must entail some risk. The insertion of a Riches tube as a short-term measure of a few hours' duration hardly seems justifiable.

New Method of Temporary Suprapubic Drainage

A method of insertion of polythene tubing suprapubically into the bladder is therefore described for use in tiding the patient over any short waiting period before emergency prostatectomy can be performed. This method, like any form of blind suprapubic bladder puncture, is contraindicated if the bladder is not palpable well above the pubis, or if a previous suprapubic operation is likely to have bound the peritoneum low down on the anterior abdominal wall. With the foot of the bed raised, after preliminary infiltration of a small area of the skin with 2% procaine solution, a 7.5 (French catheter gauge) Lichtwitz antrum trocar and cannula is introduced into the bladder immediately above the symphysis pubis in the midline in a backwards direction. The trocar is removed and a No. 2 (Allen & Hanburys) polythene cannula (of 1 mm. bore and 0.25 mm. wall), which has had side holes made in it for the terminal 3 in. (7.5 cm.), is passed down the Lichtwitz cannula so that approximately 8 in. (20 cm.) of the polythene cannula lies in the bladder. The Lichtwitz cannula is then withdrawn, and the polythene tubing strapped firmly to the patient's abdominal wall at an appropriate site and an occlusive dressing applied to the puncture wound. The polythene cannula may then be connected to rubber tubing leading to a bottle by the side of the bed (the outer cannula of a Bateman needle is very suitable for the junction). Adequate drainage of urine is achieved, and may be continued if so desired for at least 24 hours in safety. No prevesical space leakage of urine

has been found when this area has been exposed during prostatectomy.

In this way not only is urinary and urethral infection avoided but urine is obtained for laboratory examination, and excretion pyelography may be proceeded with.

Conclusion.—By the use of these principles in the patient's home, and in hospital out-patient clinics and wards, it is felt that there will be a greater proportion of cases of retention of urine in which elective or immediate closed prostatectomy, with all its advantages, may be safely performed.

Summary

A review is made of 117 cases of retention of urine. Of those patients who had not been previously catheterized, 17% were found to have infected urine, while of those previously catheterized 52% had infected urine with a greatly increased proportion of mixed growths of pathogens. The place of catheterization is described in the management by the practitioner of acute on chronic retention of urine. The radiological method of measurement of residual urine, which avoids catheterization, is considered. A new method is described of temporary suprapubic drainage of the bladder by the insertion of a polythene cannula.

I wish to thank the surgical staff of the Peace Memorial Hospital and Shrodells Hospital, Watford, for permission to review their cases, and in particular Mr. J. E. Semple and Mr. A. S. Gough, under whose care most of the patients were admitted.

REFERENCES

- Harris, S. H. (1934). *Brit. J. Surg.*, **21**, 434.
 Hey, Wilson H. (1945). *Ibid.*, **33**, 41.
 Millin, T. (1945). *Lancet*, **2**, 693.
 Riches, E. W. (1949). *British Medical Journal*, **1**, 887.

Medical Memoranda

Two Cases of Abnormal Hymen

Congenital anomalies of the hymen are rare enough to make two further cases worth recording.

CASE 1. HAEMATO-COLPO-METRO-SALPINX

A girl aged 18 who had been married for five years was admitted with a rounded swelling protruding from her vagina. She had never menstruated, though she had felt rhythmical discomfort and pain in her lower abdomen at intervals of about one month for the past few years. At these times she also complained of the usual systemic symptoms of menstrual molimina. She had not been able to have coitus properly. During the past four months she had developed frequency of micturition and dysuria at times. Defaecation had been difficult during the past four months. Often she had to extract the stool with a finger or with the help of a rectal douche.

On examination she appeared to be a healthy young girl with secondary sex characters well developed. There was a palpable swelling in the pelvis, the size of a five-months gravid uterus; enlarged Fallopian tubes were palpable on each side of it. The mass was slightly tender. A firm and fluctuant swelling the size of an apple protruded outwards at the site of the vagina. The swelling was lined by modified vulval skin externally. The urethra was unusually large, admitting the thumb easily—undoubtedly owing to attempts at intercourse through the urethral opening. On rectal examination a semifluctuant mass in the vagina, and an enlarged uterus and tubes above it could be easily made out. There was no evidence of retro-uterine haematocoele or pelvic peritonitis.

At operation chocolate-coloured material was evacuated from the vagina by a crucial incision of the hymenal membrane. The cavity of the vagina was continuous with that

of the uterus. Vaginal mucosa formed the inner lining of the membrane, and erectile tissue was present between this and the outer lining of modified vulval skin. There was no bluish discoloration of the hymen as is usually seen in imperforate hymen. The vagina and the uterus were packed with iodoform gauze. The patient made an uneventful recovery, and was discharged in a fortnight.

Comment.—The points of interest in this case are: (a) The unusually large haemato-colpo-salpinx; it is amazing that the blood did not spill over the fimbriated end of the tubes. Probably the tubal ostia got closed by low-grade infection. It will be of interest to know if the patient becomes pregnant at a later date. At the time of writing she is menstruating regularly. (b) The extraordinary thickness of the hymenal membrane. It consisted of a vaginal mucosal lining on the inside and modified vulval skin on the outside, with connective and muscle tissue, intermingled, lying in between. (c) The large size of the external urethral meatus. This was remarked upon also by an English sister who was working in the theatre. In some reported cases it has been stated to be owing to attempts at intercourse through the urethra, the mucous membrane of which had been injured.

CASE 2. PINHOLE HYMEN

A Pakistani girl aged 18 was admitted to hospital complaining that she had no vagina and she wanted to get married. She stated that she had menstruated regularly and painlessly for the past four years, the periods lasting about four days each month. There were no urinary symptoms.

On examination she appeared to be a very healthy young girl. Secondary sex characters were well developed. Only the external urethral meatus could be seen and no other aperture was visible on gross examination. The uterus and the right ovary were palpable on rectal examination. It was decided to examine her under an anaesthetic (intravenous thiopentone). On stretching the hymenal membrane with the fingers I found a small pinhole aperture placed rather anteriorly. The hymen was rigid and resistant. The orifice was dilated with probes and then slit open antero-posteriorly. The vaginal mucous membrane was stitched to the skin in a transverse fashion in order to enlarge the vaginal orifice. She was discharged a fortnight later.

G. S. JANDA, M.D., M.Ch.Orth., F.R.C.S.Ed., F.A.C.S.,
Kumudini Hospital, Mirzapur, E. Pakistan.

Report on Use of "Dionosil" in Bronchograms in Children

This short report is based on experience obtained with "dionosil" in bronchograms in the Department of Child Health, Welsh National School of Medicine, Cardiff. The preparation was used in 15 cases.

According to the manufacturers' pamphlet dionosil is the *n*-propyl ester of 3:5-diiodo-4-pyridone-N-acetic acid suspended in water with the aid of sodium carboxymethyl-cellulose. In 20 ml. of dionosil there is about 6 g. of iodine, but there is no liberation of free iodine or inorganic iodide. Chemically it is closely akin to diiodone, but is more slowly absorbed, so that in radiographs shadows remain well defined for at least 30 minutes. The ester is slowly hydrolysed, absorbed from the lungs, and then excreted via the kidneys.

ADVANTAGES OF DIONOSIL OVER IODIZED POPPY-SEED OIL (B.P.)

Dionosil has two main advantages. First, it is fairly rapidly absorbed from the lungs and has almost completely disappeared from the lung fields within 48 hours. Iodized poppy-seed oil, on the other hand, is often still present in considerable quantity at the end of a month, and may give the radiographic appearance of miliary mottling for as long as six months. This is of particular importance in children with suspected bronchiectasis associated with primary tuberculosis, as, if a bronchogram is performed with poppy-seed oil, and miliary tuberculosis should happen to occur at a later date, the x-ray appearance may be confused by the oil remaining in the lung and the diagnosis be delayed.

The second advantage is that with dionosil there is almost no alveolar filling. This means that the element of urgency in performing the bronchogram is removed. Whereas, when using poppy-seed oil, the films had to be taken within seconds of the oil being injected owing to the rapidity with which alveolar filling occurred, it is possible with dionosil to fill the lungs more slowly and to take the films more deliberately. Indeed, if there is any doubt whether adequate filling has been obtained, the child can be screened before the film is exposed and more dionosil injected if required. This is of particular value on the right side, as the right middle lobe is best demonstrated by a right lateral film, and after opaque medium has been introduced into the left side this view is obscured. A dosage of 8 ml. per lung has been found adequate for children up to about 11 years. Older children require more.

DISADVANTAGES OF DIONOSIL

Being suspended in a watery base, dionosil irritates the trachea and bronchi to a greater extent than poppy-seed oil. Coughing, therefore, occurs more readily. It is interesting to note that, if the child does cough, the dionosil is not sprayed out into the alveoli as the oil would be, but may be coughed up into the throat and swallowed, with the result that subsequent films are sometimes spoiled by superimposition of the opaque medium in the oesophagus. The ease with which coughing is provoked means that skilful anaesthesia is required. A combination of basal narcotic (rectal paraldehyde), local analgesic (cocaine), and general anaesthetic (gas, oxygen, and trilene) is used in this department. The dionosil is given by a catheter introduced under direct vision into the trachea. Gallamine triethiodide has been used in some cases, but an endotracheal tube has then to be passed to control breathing, and this, with the tube for the opaque medium, may be too large for the trachea of a small child.

Another disadvantage of dionosil is that the suspension readily separates out. For this reason the bottle must be vigorously shaken before use and the syringe filled only at the last minute. After the injection has been made the syringe must be immediately disconnected, washed through, and not used again. A dry oiled syringe should be used. If there is any delay in dismantling it, the barrel will probably stick and the syringe is thereafter useless.

Bronchograms taken with dionosil do not show quite the same depth of contrast as those taken with poppy-seed oil, but allowance can be made for this in exposing the film.

SUMMARY AND CONCLUSIONS

The advantages of dionosil are: (a) The speed with which it is absorbed from the lungs. (b) Alveolar spread is slight. There is therefore no hurry to take the films, and the child can be screened to ensure perfect filling of all bronchi.

The disadvantages are: (a) Coughing may be troublesome unless anaesthesia is good. (b) Dionosil can easily gum up the syringe. A minimum of four 10-ml. syringes should be provided for each bronchogram—one for each lung and two extra in case further filling is required.

Dionosil has advantages over poppy-seed oil for bronchograms in children. It should always be used if the child has primary pulmonary tuberculosis.

Finally, it must be emphasized that, whatever opaque medium is used, bronchograms in children should be performed only by a practised team, otherwise complete filling of all lobes will not be obtained. Without a perfect bronchogram the thoracic surgeon is not in a position to advise whether surgery would be of value.

My thanks are due to the radiologist at Llandough Hospital, Dr. G. Hinde, and his staff, especially Miss Grange, for help in performing the bronchograms; to Dr. Barbara Roberts, who has given all the anaesthetics so skilfully; to Professor A. G. Watkins for helpful criticism; and to Messrs. Glaxo for the supply of dionosil.

JOHN RENDLE-SHORT, M.B., M.R.C.P., D.C.H.,
Senior Registrar to the Department of Child Health,
Welsh National School of Medicine.