mopped dry, but no indication of the cause of the bleeding was found. The left ovary and tube were adherent to the side wall of the pelvis, and their appearance suggested the development of an early endometriosis, so they were removed.

Meanwhile the patient was receiving a blood transfusion, as her condition was deteriorating. It was thought that she would not stand having the incision extended upwards for inspection of the upper abdomen, and as there was no further bleeding the abdominal wall was closed in layers. A large-bore rubber drainage-tube was left draining the abdomen, so that any further bleeding might be detected quickly. No further bleeding took place. The patient's condition improved after 2 pints (1.1 litres) of blood had been given, and her blood pressure rose from 60/40 to 100/75. The improvement continued.

The following are the results from blood investigations taken four days later: bleeding-time, $3\frac{1}{2}$ minutes; clotting-time, $4\frac{1}{2}$ minutes; haemoglobin, 85%; rhesus factor, "D" positive; white cells, 3,000 per c.mm.; Wassermann reaction, negative; Kahn test, negative.

The pathological report states that an early acute salpingitis and an acute peri-oophoritis were present. The lumen of the tube contained pus; the mucosal rugae, muscular coat, and serosa were infiltrated by polymorphs. The ovary contained a follicular cyst and a corpus luteum as well as a number of small cysts lined by columnar epithelium just beneath the surface. These cysts had resulted from peritoneal metaplasia due to peri-oophoritis.

The patient made an uneventful recovery, and was well when seen two months later.

I am indebted to Mr. Vivian H. Barnett for permission to publish this case.

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REFERENCE

Brewer, A. C., and Marcus, R. (1948). *Brit. J. Surg.*, 36, 198.

Obstruction of the Urethra by Sulphamerazine Crystals

Numerous cases of sulphonamide anuria have been recorded since the first report by Smith *et al.* (1940). Southworth and Cooke (1939) and Tsao *et al.* (1939) had previously reported marked oliguria, but had not appreciated the significance of it. This form of anuria is due to obstruction of the lower end of the ureter by a sludge composed of epithelial debris and possibly some crystals of the drug. In the male infant a similar obstruction can occur in the urethra, and, although it is apparently not a rare occurrence, it has as yet received little attention.

Rice-Edwards (1950) reported a case of retention of urine due to a collection of crystals in the urethra following the administration of "cremomerazine." Ellison Nash (1951) mentions this complication of sulphamerazine therapy in children and states that it may occur after four-hourly administration of the drug. The following case is reported in detail to draw attention to this complication and to emphasize the simple precautions necessary when administering sulphamerazine to children.

CASE REPORT

A boy aged 3 years and 10 months and weighing 2 st. 13 lb. (18.6 kg.) was admitted to Southmead Hospital under the care of Dr. Beryl Corner and referred to the genito-urinary department. He had developed pneumonia three days before admission, and this had been treated by sulphamerazine in the form of cremomerazine. Forty-eight hours after starting the course of treatment the child developed acute retention of urine, and had passed no urine for 24 hours before admission.

His mother stated that she had been instructed to give the child two teaspoonfuls of cremomerazine four-hourly, and had been supplied with enough for three days—that is, a 4-oz. (114-ml.) bottle, which contained 12 g. of sulphamera-

zine in suspension. She admitted that rather more than two teaspoonfuls had been given at each dose and that the bottle was emptied in less than 36 hours. The child had therefore received 12 g. of sulphamerazine in that time. His past medical history revealed nothing abnormal other than slight chronic bronchitis following whooping-cough 18 months previously.

On admission he was in great distress, with a tense distended bladder. The whole penis was swollen, and by separating the oedematous lips of the external urinary meatus a whitish paste could be seen in the urethra. A probe was inserted just inside the meatus and a small amount of the paste was dislodged. The child immediately passed about 50 ml. of urine, but the flow was then cut off with intense strangury, leaving the bladder still distended.

He was taken to the theatre and a general anaesthetic administered. The paste was removed by passing a fine rubber catheter through which the urethra was continuously irrigated with sterile water. It took three to four minutes to clear the penile urethra; then the catheter passed easily into the bladder and 150 ml. of opalescent fluid was withdrawn.

The oedema of the penis was less next morning, but did not disappear for two days.

The urine from the bladder was examined and found to contain sulphonamide crystals and large quantities of amorphous debris. Specimens of urine were collected at six-hourly intervals, and it is of interest to note that crystals were still present in the specimens taken six and twelve hours after operation in spite of a copious fluid intake and administration of alkalis.

COMMENT

The cause of this obstruction appears to be similar to that of obstruction of the ureter in adults, except that in the child there are more crystals and less epithelial debris in the sludge. The urethra in the male infant is so small that it can be blocked by sludge more readily than the ureter. It will be noticed that the point at which the sludge impacts is in the distal part of the penile urethra just before it opens out to form the navicular fossa.

Cremomerazine is a palatable suspension of sulphamerazine and is particularly suitable for children. It is easily administered and is a great asset to the doctor in general practice. However, like all other suspensions of sulphonamide drugs, it is not perfect and if allowed to stand even for a few hours a sediment will appear in the bottle. Unless the bottle is thoroughly shaken before each dose is given, the quantity of sulphamerazine received by the patient is apt to be increased as the bottle is emptied.

The dosage recommended for children of from 3 to 10 years of age is two teaspoonfuls—that is, 1 g. of sulphamerazine—every 12 hours. The interval of 12 hours is emphasized on all bottles supplied. It will be noticed that in our case the child was given two teaspoonfuls every four hours, making three times the recommended dose. Owing to the relatively slow excretion of sulphamerazine, an adequate blood level can be maintained with 12-hourly doses. If, however, it is given four- or eight-hourly, like most other sulphonamides, the dose must be reduced accordingly.

The further precautions necessary when administering this drug are those common to all the sulphonamide group. An output of at least 1,500 ml. of alkaline urine a day in an adult (less according to age) should be aimed at.

Usually a probe inserted in the external urinary meatus is enough to dislodge the sludge and promote a free flow of urine, but urethral irrigation may be necessary.

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REFERENCES

- Nash, D. F. Ellison (1951). *Ann. roy. Coll. Surg. Engl.*, 8, 193.
Rice-Edwards, J. T. (1950). *British Medical Journal*, 2, 1445.
Smith, E., Evelyn, K. A., and Nolan, J. F. (1940). *Canad. med. Ass. J.*, 42, 27.
Southworth, H., and Cooke, C. (1939). *J. Amer. med. Ass.*, 112, 1820.
Tsao, Y. F., McCracken, M. E., Chen, J., Kuo, P. T., and Dale, C. L. (1939). *Ibid.*, 113, 1316.