Medical Memoranda

Spontaneous Rupture of Bladder Associated with Unusual Congenital Anomalies

In this case a diverticulum of the bladder, which ruptured, was associated with unusual congenital defects. Taylor (1948) reported a case of spontaneous rupture of the bladder and reviewed the literature.

CASE REPORT

An unmarried garage storekeeper aged 23 was admitted to the Radcliffe Infirmary suffering from severe abdominal pain. The previous day he had had an intermittent pain in the right lower quadrant of the abdomen; he had passed urine normally before retiring. Soon after rising at 7 a.m., feeling perfectly well, he passed urine normally and had a normal bowel action. He was then immediately seized by a sudden violent pain in the hypogastrium, which spread over the entire abdomen. He did not vomit. Four months previously he had had a similar but less severe attack which lasted only half an hour. He had never had any difficulty in micturating, and considered his stream of urine satisfactory. He had been operated on for hare-lip while an infant, and his hands and feet had always been deformed. He had had blepharitis for years and otitis media as a child: there was no other relevant personal or family history.

On examination his temperature was 98° F. (36.7° C.) and pulse 96. He appeared shocked; his tongue was furred and his breath foul. There was generalized abdominal rigidity and recoil tenderness, and the pelvic peritoneum was tender on rectal examination. There was hyperaesthesia in the right iliac fossa, and tenderness seemed to be maximal in this area. There was no obvious abnormality in the nervous system. A diagnosis was made of general peritonitis due to a perforated appendix, and an intravenous saline drip was started.

Operation.—Seven hours after the onset of the pain the abdomen was opened under general anaesthesia by a right iliac muscle-split incision. Over a pint (570 ml.) of urine was sucked from the peritoneal cavity. The bladder was felt to be distended, and a thin-walled diverticulum bulging from its superior surface on the right side was seen to be leaking urine. This bullous sac measured some 7.5 by 10 cm. and had a thin, bluish, translucent wall apparently consisting for the most part of mucous membrane only; the small rupture, less than 1 cm. across, was clamped off. A right paramedian incision was made. The bladder still contained about 500 ml. of urine. The right ureter was 3 cm. in diameter, but the left was not clearly seen. The diverticulum was now excised: it opened into the bladder by a wide mouth, and had no real neck. The interior of the bladder appeared to be normal, but the external urinary meatus was the size of a pin-hole, and there was a glandular hypospadias. After dilatation an indwelling urethral catheter was passed. The bladder was closed with two layers of catgut around a small rubber tube through a separate suprapubic stab incision. The peritoneum was closed over the bladder, and the wound was closed in layers.

Pathological Report.—The specimen consisted of a flattened ovoid diverticulum (9 by 6 cm.) with a wall almost constantly 0.2 cm. in thickness. All sections of the diverticulum examined were lined throughout by squamous epithelium, with varying degrees of keratinization. No transitional epithelium was seen. The squamous layer was flattened and did not show the degree of irregularity usually seen after metaplasia. The wall consisted of fibrous tissue showing scanty diffuse round-cell infiltration, much less than might be expected in a bladder when extensive squamous metaplasia had occurred. In the fibrous layer were widely separated small bundles of smooth muscle fibres, but there was no evidence of a complete muscular coat.

Convalescence was protracted by a urinary-tract infection (culture: *Pseudomonas pyocyanea*) and a persistent residual urine, but three months after operation the patient was in good health and his stream was satisfactory. He still had some frequency of micturition, however, and his urine contained pus cells and grew *Ps. pyocyanea* on culture. An intravenous pyelogram two weeks after operation showed good concentration of the dye on both sides and some degree of dilatation of both renal tracts, especially the right.

Congenital Anomalies.—These added interest to the case. A complete cleft palate and hare-lip were operated on when the patient was 14 weeks old; the premaxilla was excised and the hare-lip sutured. The hands showed two most unusual anomalies (Fig. 1). The index finger of the right hand was fused with the thumb, the first phalanx crossing the thenar space (Figs. 2 and 3). In the left hand the first phalanges of the ring and middle fingers united to articulate in true syndactyly with a single second phalanx (Fig. 4). The ring and middle fingers of the right hand were webbed together in zygodactyly, and showed a flexion contracture, and the left index finger did not extend beyond its first phalanx. In both hands there was an abortive attempt to form a further finger at the head of the second metacarpal. The feet also showed zygodactyly and an extra bone at the head of the second metatarsal. The patient did not wish for any plastic or reconstructive surgery. Where congenital anomalies are found there is usually a relevant family history, but none could be obtained in the present case.

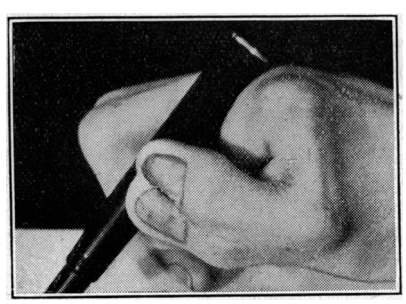

FIG. 2.—Right hand in use, showing index finger fused with thumb.

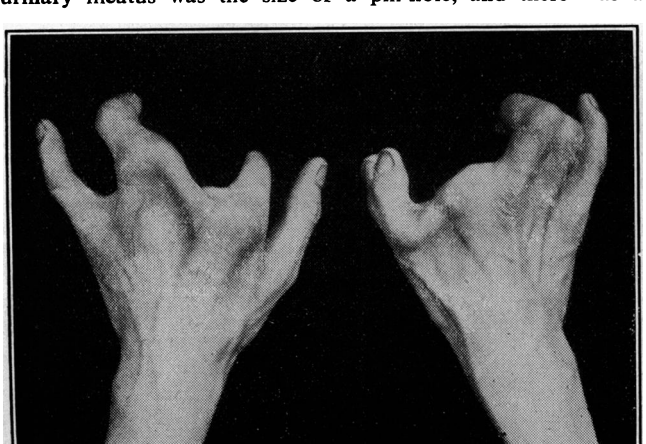

FIG. 1.—Dorsal view of both hands.

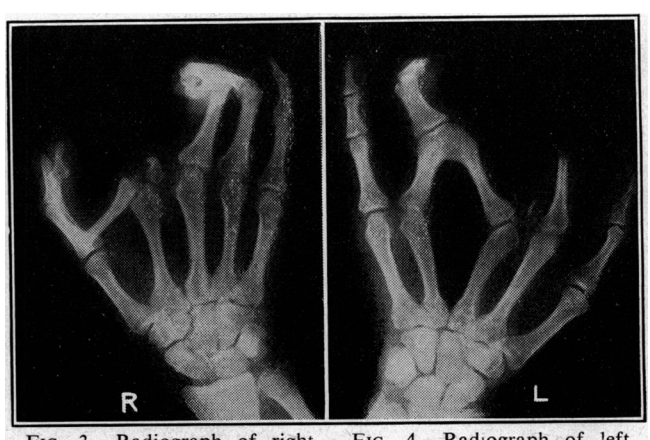

FIG. 3.—Radiograph of right hand.

FIG. 4.—Radiograph of left hand.

COMMENT

Spontaneous rupture of a diverticulum of the bladder was noted in three cases quoted by Lipow and Vogel (1942). The remarkable features in the present case were the absence of history, signs, or symptoms incriminating the urinary system, and the associated congenital anomalies. The usual feature of vomiting was also absent. The only identified cause of obstruction was the pin-hole meatus, and it seems that this was the cause of the urinary obstruction. Chronic distension of the bladder, a diverticulum which eventually ruptured under the strain of defaecation, and bilateral infected hydronephroses followed.

I am indebted to Mr. A. Elliot-Smith for permission to publish this case, to Dr. R. H. Cowdell for the pathological report, to Dr. F. H. Kemp for the radiographs, and to Mr. E. L. P. Tugwell for the photographs.

NEIL WARD-MCQUAID, M.B., F.R.C.S.,
Surgical Tutor, Radcliffe Infirmary, Oxford.

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Fatal Air Embolism Due to Vaginal Douching in Pregnancy

It would be interesting to know how general is the knowledge, among both practitioners and gynaecologists, that vaginal douching and insufflation during pregnancy may be a dangerous procedure.

Forbes (1944) reviewed the causes of air embolism in general, described a case of his own, and mentioned fatalities during therapeutic vaginal insufflation recorded by Peirce (1936), Latham Brown (1943), and Partridge (1943).

Brown's case was that of a primipara aged 25 who had been douched and insufflated in the sixth and seventh months of pregnancy and who died within a few minutes of the start of a further insufflation seven days before her expected date of delivery. At necropsy, the cervix was drawn up and dilated to two fingers; the edge of the placenta was stripped about 1 in. (2.5 cm.) deep, the membranes were completely free on that side, and there had been slight haemorrhage; in the heart, the right ventricle contained large bubbles but very little blood.

Partridge gave the warning that air insufflation of the vagina near term is a very dangerous procedure. His case was that of a 1-para aged 21. Two days before her expected delivery she was insufflated with "picrotal" for trichomonas; after about 10 pumps the insufflator was withdrawn; then the patient had a convulsion, became cyanosed, dyspnoeic, and died in about three minutes. At necropsy frothy blood was found in the right heart, and air in the veins of the neck, the cerebral sinuses, and the pampiniform plexus; the cervix was large, patulous, and eroded; there was no evidence of bleeding, or of separation of the placenta or membranes. The placenta was placed high and "air was found on its maternal surface."

Forbes (1944) considered his case to be the first in which simple vaginal douching led to air embolism from detachment of the placenta. A woman of 34, with three previous pregnancies, started an apparently normal period on July 1, 1943. The next night she collapsed on her way to bed and died soon after. At necropsy, 17 hours later, Forbes found a blood-stained pad between her legs, an open cervical canal with an erosion round the external os, "no injury," but the placenta placed low and with its lower edge detached to a depth of 1 in., and the membranes separated to a depth of 2½ in. (6.3 cm.); a 3-months foetus in intact membranes; fine froth in the trachea; oedematous lungs; and the right chambers of the heart dilated and filled with frothy blood. Microscopically, there were numerous small infarcts in the lungs. Forbes was doubtful whether even the woman knew that she was pregnant, but as she was accustomed to using a Higginson syringe to douche her vagina, he thought it fairly certain that she had done so on this occasion and accidentally killed herself.

Benjamin (1946) reported the case of a girl aged 17, about five months pregnant, who died shortly after her paramour had blown strongly from his mouth into her vagina. In the absence of a demonstrable *corpus delicti* the man was released by the court.

Breyfogle (1945) reported the case of a 3-gravida aged 21 who was insufflated with silver picrate compound for vaginal discharge when seven months pregnant; symptoms of collapse did not start until five minutes after insufflation had been completed, and she died within 30 minutes. She had been insufflated also in the fifth month. Breyfogle found frothy blood in the right heart but not elsewhere. The placenta and membranes were intact. He thought that at least 500 c.cm. of air must have been forced into the pregnant uterus. After writing his paper he noted the report of another fatal case following insufflation in pregnancy (*Amer. J. Surg.*, 1945, **130**, 164).

The following case occurred recently.

CASE REPORT

The patient, aged 35, had had four previous pregnancies, including twins 1 year old. Her last period was towards the end of April, 1949, but she had been very irregular before that. On the night of June 29 she prepared to have a bath before going to bed, and was found at 10.15 p.m. collapsed on the bathroom floor, with a Higginson syringe lying between her legs; she was alive, but could not speak, and died shortly after. At necropsy 13 hours later a few drops of fluid were found just inside the vagina; this fluid contained traces of soap, similar to the teaspoonful of fluid that remained in the Higginson syringe.

A 49-mm.-long foetus was found in an intact and apparently undisturbed uterus; the cervical canal contained a mucous plug, the external os showed a complete delicate pink ring of erosion, and there was no sign of the slightest haemorrhage. On cutting the uterine wall in several places the blood which escaped was frothy.

When examined *in situ* the right ventricle of the heart was almost distended by finely frothed blood. Apart from generalized left pleural adhesions and congestion of both lungs, there was no other clear abnormality in the body.

A report was sent to the coroner that death had been due to air embolism from the use of a Higginson syringe, and that even if deceased knew that she was pregnant (which was doubtful), she might have been merely douching herself for hygienic purposes.

Thanks are due to Mr. Norman Graham, the coroner, for permission to report the case.

R. T. COOKE, M.D.

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Information about nursing as a career is being given at the Schoolgirls' Exhibition at the New Horticultural Hall, London, S.W.1. There are displays from ten hospital groups and two regional hospital boards, with demonstrations of the nurse's work and training. Nursery nursing is demonstrated, and also mothercraft training. The exhibition will close on June 3.