ON AN OPERATION
FOR
PERVIOUS URACHUS,
WITH STILLICIDIUM URINÆ.

BY
THOMAS PAGET, F.R.C.S.,
SURGEON TO THE INFIRMARY AND COUNTY LUNATIC ASYLUM, LEICESTER.

COMMUNICATED BY
WILLIAM BOWMAN, F.R.S.

Received Dec. 11th, 1860.—Read Jan. 22nd, 1861.

THE thirty-third volume of the 'Transactions' of the Royal Medical and Chirurgical Society contains a case in which, by the finger passed into the bladder through the navel, and along the urachus, which had remained open from birth, I had extracted a ring-shaped calculus, formed on a pubic hair as its nucleus.

I have since accomplished perfect closure in this and another case of the same congenital defect; and though the operation by which it has been effected is, perhaps, an obvious one, certainly simple in principle and easy of execution, the cases, too, extremely rare, yet the disgust excited by a continual escape of urine, and the wretchedness of life thus entailed by the malformation, seem to render a notice of its readiness of cure worthy of record.

The case first operated on for open urachus was introduced to me by Mr. Spencer Edmonds, of Appleby, in this county, who wrote that he had in his practice a female infant, little more than four months old, in whom an escape

of urine at the umbilicus was keeping its clothing in a constant state of soak ; and that the grievous anxiety of the parents of the child had been much increased by hearing that two metropolitan surgeons of extended experience and unquestionable science, who had been applied to, had never known such a case, and could not suggest anything for it.

The age of the little patient, and the expectation of help from the *nisus formativus*, stimulated by nature's love of perfect works, strongly impelled me to wish to try a course which had suggested itself in the other case after extraction of the stone through the umbilicus, but which was declined on account of the age of the man and the responsibility attending the operation, when he had so long lived a healthy and useful, though a miserable life. In the present case there was no such responsibility, and hope was more buoyant. I therefore proposed the paring of the edges of the umbilical opening, and their adaptation by a suture-pin and lint. This was promptly acceded to by Mr. Edmonds and the parents, and the child was brought for the purpose.

June 29th, 1858.—I find that, on drawing asunder the folds of the umbilicus by the fingers, an aperture is seen which would admit a common-sized cedar pencil. The skin is inverted, and proceeds along the opening to the level of the posterior surface of the abdominal parietes, where it meets the mucous membrane of the bladder extended along the urachus. Every occasion of thus drawing the skin is accompanied by a gush of urine. The child is well developed, thriving, and lively.

The operation is simply to seize with toothed forceps the integuments at the juncture of the skin and mucous membrane, and hold them while free decortication of the whole circumference of the aperture is made with a small scalpel. Adaptation is effected by a suture-pin and a strip of lint wound on it, as for harelip, first in an 8 form, then elliptically, until sufficient breadth of pressure is given.

A thin, flexible catheter, an inch and a half long, is confined in the bladder.

30th.—The child has been very restless, and screamed

much, which state opium has not been able to control. Bloody urine has escaped by the side of the catheter, but none through it, nor at the umbilicus, which is free from swelling and redness. The catheter is taken out, and found plugged with mucus.

July 6th.—Almost immediately after the removal of the catheter, the child ceased to cry, and micturated naturally, and it has gone on well. On the third day the pin was withdrawn, the lint still adhering; this, however, was washed away within twenty-four hours by urine, which again escaped, though in a very small stream. To-day, on separating the plicæ of the umbilicus, the aperture is found scarcely large enough to admit the bulb of a probe, and in a granulating state.

At this point the patient returned into the country to await the result, and return for future operation, if necessary. In about three weeks, however, I heard from Mr. Edmonds that "for the last ten days no escape of urine had taken place." Again January 3rd, 1859, he writes:—"I am very glad to inform you that the infant upon whom you operated for open urachus continues perfectly well. To support a slight umbilical protrusion, she still wears an elastic belt." On June 30th, 1860, he again says:—"The protrusion is certainly less; the child very strong and hearty."

The satisfactory issue of the preceding operation induced me to recommend it to John Conquest, the subject of the ring-shaped calculus, before alluded to as being reported in the thirty-third volume of the Society's 'Transactions;' and after long hesitation he enters the Infirmary, May 22nd, 1860, now fifty-five years old. The subsequent operation was done with the approval and aid of my colleagues, Mr. Macaulay and Mr. Benfield.

The hernial protrusion, and other points of his case, remain as previously described (vol. xxxiii, p. 294). The opening in the linea alba is elliptical, and admits three fingers in its longer axis, which is horizontal, and two in its vertical.

May 24th.—During the state of chloroform excitement, his struggles produced a hernial tumour, larger than a man's

fist, sonorous on percussion, and therefore containing intestine; its surface was formed of mucous membrane.

After passing the finger to ascertain that no calculus was again in the bladder (for I have extracted a second—this time of disc shape—since the one previously reported), the operation was proceeded with. It was a repetition of that on the child, except that the decortication was here carried to the extent of the third of an inch in thickness, and two thirds in breadth; also, three common curved needles were used instead of straight pins, for the sake of the deeper hold the curve would take of the parietes without strain. A catheter was introduced and fixed.

25th and 26th.—No complaint; blood deeply tinges the urine, and settles as a purple syrup in the chamber-pot.

27th.—Had a rigor this morning. The urine to-day deposits a glairy mucus, scarcely coloured; no escape at the wound. Catheter removed.

29th.—Needles removed; the opening effectually closed. A pad of lint and oiled silk applied, with a bandage round the body.

June 1st.—Urine quite clear; allowed to get up.

19th.—Discharged; cicatrization perfect for the last few days.

In September a slight orchitis brought the man to me, and gave me an opportunity of ascertaining that the umbilical tumour, in its peripheral extent, was bounded by the opening in the tendinous sheet of the linea alba, and protruded to the size of half a hen's egg. These dimensions are not now increased by any exertion, nor does the tumour yield any sound on percussion. In short, the protrusion is entirely vesical, or rather urachous, and the closed front affords sufficient support to enable the posterior layer to resist any intestinal hernia.

In the first of these operations the catheter was entirely useless; in the second the necessity for it may be doubted; should a third case offer itself, I shall be satisfied with the use of the catheter only when it is indicated.

Rokitansky (p. 219, vol. ii, of the Sydenham Society's

edition) says:—"The urachus may remain patent to a certain distance, or throughout its entire extent."

Cruveilhier ('Library of Medicine,' edited by Dr. Tweedie, vol. vii, p. 592) has the following notice:—"In new-born infants, and even in adults, the urine has been seen to escape at the umbilicus; but in these cases the urethra is always obliterated."

The 'Medicinische Zeitung,' of Berlin, No. 19, 1837, contains the case of an infant, of about four weeks old, in whom a copious discharge of urine was taking place at the navel. A hernia projected about three quarters of an inch, and an excoriated spot, a quarter of an inch long and one line broad, showed on its surface several points at which the urine was issuing. The report further says, the excretion of urine took place in a normal manner from the urethra.

The Berlin case shows another form in which the urachus may remain pervious; but both it and the two here reported satisfactorily disprove that "in these cases the urethra is always obliterated." They equally prove that the disgusting effect of the congenital malformation may be readily and permanently obviated.