

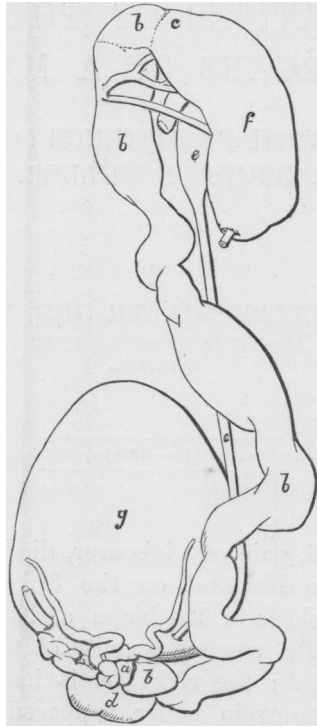
DESCRIPTION
OF
MALFORMATIONS OF THE GENITAL
ORGANS OF A MAN
ASSOCIATED WITH PERSISTENCE OF ONE OF THE
DUCTS OF MÜLLER.

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J. P—, æt. 36, painter's labourer, died, under my care, in St. Thomas's Hospital, on the 3rd of March of this year, of tuberculosis of the lungs and tubercular meningitis. During life some abnormality of the genital organs had been noticed; the right testis had not descended, a tumour in the groin being supposed to indicate the position of the missing gland. At the post-mortem examination the supposition was verified. The right testis was found in the lower end of the inguinal canal, sheathed by a large tunica vaginalis extending down into the scrotum. This extension was shut off from the peritoneal cavity at the internal abdominal ring. When the abdomen was opened and the internal genito-urinary organs exposed there was found on the right side a large

tube, extending from the kidney to the neck of the bladder. This was at first supposed to be a supernumerary ureter, but the skilful dissection made by my friend and colleague Mr. Stewart, has revealed its true character, and shown it to be a part of the genital organs. The very beautiful preparation on the table (see woodcut) allows of



- a.* Right vesicula seminalis.
b. Supposed duct of Müller.
c. Position of supposed remains of
 Wolffian body.

- d.* Prostate.
e. Ureter.
f. Kidney.
g. Bladder.

an examination of the tube in its whole length. It begins as a blind sac attached to the head and inner side of the right kidney; after contracting a little opposite the middle of the kidney it expands again into three successive

bulges, each of the calibre of distended small intestine, between that point and the under surface of the bladder. It then becomes tortuous, with an average diameter of $\frac{3}{4}$ inch, and after a last dilatation to nearly twice that calibre, ends abruptly in the median line of the floor of the prostatic urethra by a patulous orifice about equal in size to the section of a No. 6 catheter. This orifice is placed about one line above the puncta of the ejaculatory ducts, the right of which is a little lower down than the left. Both ureters and both ejaculatory ducts are present. The ureters end naturally, and so does the left vas deferens. But on the right the vas deferens is less tortuous, therefore shorter than natural; the vesicula seminalis is represented by a quadrate, scarcely lobed bag, forming a continuation, not a diverticulum, of the vas, and is again continued in a straight line by a short ejaculatory duct. The vesicula is pushed over to the left side by the dilated extremity of the tube, and with this intrusion the slightly altered entry of the duct into the urethra is related.

The walls of the tube are about the thickness of those of the ureters in the upper part of their course, but below they resemble rather those of the vasa deferentia.

A section has been carried vertically through the upper fourth of the kidney and the sac adjoining. The sac is smooth-walled internally, except for a few puckering at its very extremity, where it is in contact with the apex of the kidney. In the middle of these is a small orifice looking like the entry of a fine tube. But this ends blindly, injections failing to pass. The section of the kidney shows it to be capped by a small flattened glandular body, triangular as now viewed, with one surface looking to the sac, another continuously attached to the apex of the kidney but defined by a band of fibrous tissue, the third free. The wall of the tube where in contact with this is thin, about the $\frac{1}{16}$ th of an inch; where in contact with the kidney at least $\frac{1}{8}$ th an inch. The glandular body is renal in its appearance and minute

anatomy; that is to say, it contains numerous Malpighian bodies with thick walls and glomeruli. Both the capsules and the glomeruli are in various degrees of degeneration; both are encroached upon by connective tissue; a transparent plasma within the capsule often limits seriously the space for the glomerulus; and both structures have all the appearance of having undergone much contraction. The renal tubes related with them are arranged irregularly, are not differentiated at different parts, and have thicker walls than normal. The tube has fibrous walls lined with stratified squamous epithelium. In the outer part of the walls is seen muscular tissue not regularly arranged.

The bladder is enlarged and hypertrophied. The testis was not preserved, and no record of its condition was kept.

That this is a case of partially arrested development of the genital organs on the right side, with survival of certain foetal structures, is very clear.

The Society will pardon me if I refer for a moment to the phenomena observed in the development of the internal genital organs. At an early period of foetal life the common genital gland, destined to become testis or ovary, as the case may be, appears as a mass of blastema lying along the inner front of the pre-existing Wolffian body. About the same time a tube, closed above, opening below into the common urogenital sinus, is formed on the outer front of the Wolffian body, near, but structurally distinct from, the duct of that body. This tube is the duct of Müller. In the female these ducts persist as the Fallopian tubes, uterus and vagina. In the male their united lower ends persist as the vesicula prostatica, a small structure in man, but much larger and more organised in the lower mammalia, particularly in the beaver and the solipeds.¹ The middle tract on each side disappears; the blind upper end is supposed to remain as the hydatid

¹ See Leuckart on the "Vesicula Prostatica," 'Todd's Cyclopædia of Anatomy and Physiology,' vol. iv, p. 1415.

of Morgagni. In the male the Wolffian bodies certainly cease to exist as urinary structures. Indeed, according to older observations of J. Müller, and more recent statements of Cleland and Banks, they disappear almost completely, leaving only the organ of Giralde's to mark their original existence. Their ducts, however, become the convoluted tube of the epididymis and the vas deferens on each side. If they themselves survive at all, as they do in Kobelt's view, they become metamorphosed into the tubules of the epididymis, thus taking on, like their ducts, a new functional relation.

Taken in conjunction with the non-descent of the right testes, and imperfect evolution of the right vas deferens and vesicula seminalis, the tube running from the head of the kidney to the floor of the prostatic urethra would appear to be a surviving Müllerian duct. It is unconnected with the kidney, and indeed with all other structures, the prostate excepted. The small glandular structure capping the kidney, in contact with, though not structurally connected with the blind end of the tube, is probably a survival of the Wolffian body, arrested in its retrograde course at a time corresponding to the arrest of the similar course in the Müllerian duct. Although a renal structure persists in this piece of gland, no duct is found in relation with it, and there is no division into cortical and medullary regions.

As far as I know, the Müllerian ducts do not survive in their entirety in any male mammal. In some female mammalia, however, as in the pig, the ducts of the Wolffian bodies, which disappear in the human female, persist as the ducts of Gaertner. Such a survival of the Müllerian duct as we are dealing with may be compared with such persistence of the ducts of the Wolffian bodies in the animals mentioned. It is unfortunate that the testis was not more carefully examined, particularly with reference to the presence of the organ of Giralde's and the hydatid of Morgagni. The explanation is that when the organs were removed from the body the deformity was

supposed to be of the ureter, and when the identification was made by the skill of Mr. Stewart, opportunity had passed, the body having been buried.

The large orifice by which the duct opens into the urethra appears to be the opening of the vesicula prostatice. To avoid loss of a continuous presentation of the structure further section of the prostate has been avoided.

It may be added that the man was married and had several children, and that he suffered from dysuria, dependent on stricture, for some time before death.

The only similar case of which I have been able to find record is shortly reported in the 'British Medical Journal' of September 6th of this year, as having been examined by M. Rémy. The subject was a boy, aged 6; the malformation was unilateral; the persistent Müllerian tube took much the same course as in the present case, but its head was related with a number of cysts, supposed to be the remains of the Wolffian body. The hydatid of Morgagni and the organ of Giraldés were both present.

The drawing accompanying the specimen (see woodcut, p. 12) was made by Mr. Stewart, to whom all the credit of the identification and preparation is due.