

RETROCAVAL URETER

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Retrocaval ureter is a rare condition, and according to Blundon¹ less than 100 cases have been reported in the literature. It is likely that a number of cases have been missed, for not all cases of retrocaval ureter are associated with its complications and it may be that attention to the classical radiological features has been diverted by pathology on the other side or by the effects on the kidney and ureter on the side of the lesion. In fact, it is suggested that the condition should be considered in any unexplained case of hydronephrosis.² Essentially the condition consists of a retrocaval position of the ureter. Owing to the pressure of the inferior vena cava on the ureter, hydro-ureter and hydronephrosis occur and the symptoms and signs are related to obstruction and infection of the kidney and ureter.

The first case was reported by Hochstetter in 1893, and all subsequently reported cases have concerned the right side, with the exception, however, of Brooks³ who recorded a case concerning the left side in a patient with *situs inversus totalis*, and Gladstone⁴ (quoted by Brooks³) who recorded a case of left-sided retrocaval ureter which occurred in an acardiac foetus having double inferior venae cavae with both ureters retrocaval.

Embryology

The development of retrocaval ureter is related to an embryological defect in the formation of the inferior vena cava. The inferior vena cava is formed⁵ from below by:

- (a) Right supracardinal vein,
- (b) Right subcardinal vein,
- (c) Anastomosis between (a) and (b)
- (d) Common hepatic vein
- (e) Anastomosis between (d) and (b)

During foetal life the metanephros, having developed in the pelvis, ascends to the lumbar region passing through the mesh of vessels above. With its development and growth, the metanephros thrusts the postcardinal vein out of its course and eventually the postcardinal vein disappears with the exception of its extreme caudal and cephalic ends on the right, and completely disappears on the left.

Rarely, the postcardinal vein constitutes a large part of the postrenal segment of the inferior vena cava. The right ureter, then, on leaving the kidney pelvis, passes medially to lie dorsal to the inferior vena cava, and then curves

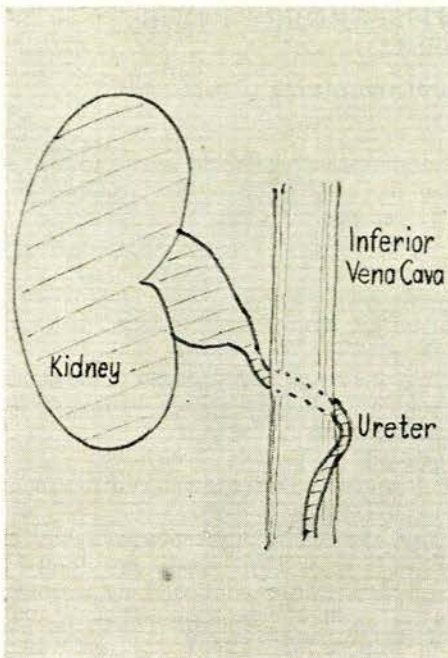


Fig. 1. See text.

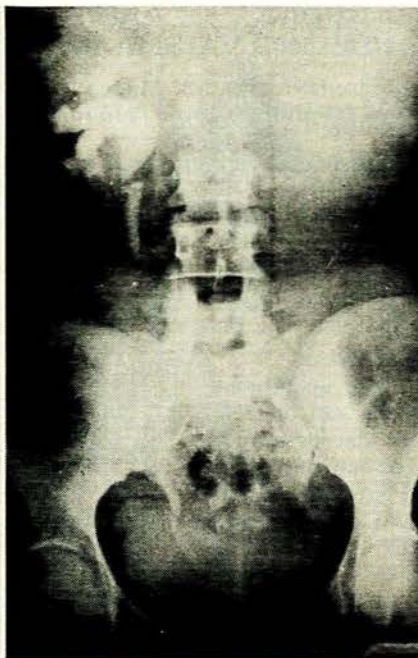


Fig. 2. See text.

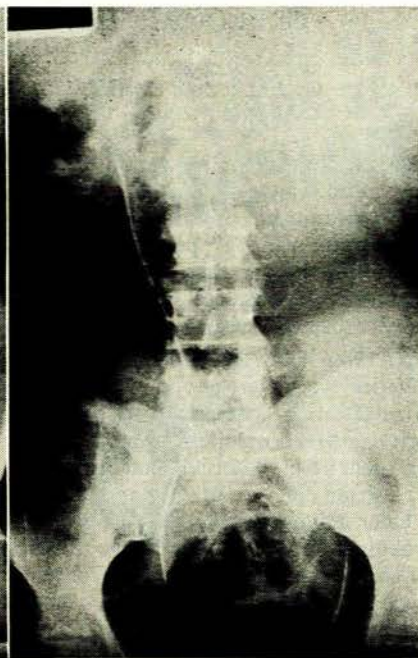


Fig. 3. See text.

round its medial border to lie anterior to the vessel (Fig. 1).

Case Report

E.M., a Bantu female aged 49 years, was seen at a urology outpatient clinic complaining of left upper abdominal pain for 1 week. On examination a hard, firm mass was felt in the left hypochondrium, not filling the loin. The mass appeared to arise from under the left costal margin and moved freely on respiration. All other systems appeared within normal limits. A full blood count was done and showed a moderate eosinophilia. Nothing else of significance was noted.

An excretion urograph showed a large soft tissue mass overlying the left kidney area, and no function was seen on the left side. The right kidney, pelvis and ureter were a little dilated, with slight dilatation of the calyces. The right ureter curved medially and descended distally, overlapping the lumbar vertebral bodies, and then entered the bladder in its normal position (Fig. 2). The appearances were typical of a retrocaval position of the right ureter with an S-shaped curvature and hook of the upper ureter as it comes from behind the inferior vena cava to lie anteriorly lower down.

Cystoscopy and bilateral retrograde urograms were carried out. These confirmed the findings on the right side (Fig. 3), but the catheter on the left could not be advanced further than 6 cm., and the pelvi-calyceal pattern could not be demonstrated.

Laparotomy

The findings on the right side were confirmed. On the left a huge cystic mass, completely replacing the kidney, was removed via a left paramedian incision through the mesentery of the colon. A very small ureter was seen and tied. The pathological report was that of a huge hydatid cyst completely replacing the kidney, and no renal tissue was seen.

The patient made an uninterrupted recovery and was discharged fit and well on the 14th postoperative day.

CONCLUSION

1. A case of retrocaval ureter is described and its classical radiological features illustrated.
2. The embryological aspects are briefly discussed.

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