UNILATERAL RENAL AGENESIS

by

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This condition is often referred to as congenital solitary kidney. It is found to be more common in males. Ian Aird gives the incidence as 1 in 2400 cases. Campbell, in 51,880 autopsy cases, found unilateral renal agenesis in the ratio of 1:552. In a study of 1,027,904 collected post-mortem reports, cited in the world literature, Arnold found that congenital absence of one kidney occurred in a ratio of 1:1286. The discrepancy between the incidence at necropsy and that at clinical examination suggests that many ectopic kidneys are missed clinically.

This condition is caused by either, (i) failure of the renal bud to develop, (ii) failure of the nephrogenic blastema to form, (iii) both of these, or, (iv) failure of the vascular supply to form. Heredity does not play any part in renal agenesis.

Renal agenesis is commonly accompanied by anomalies of the lower urogenital tract. Moore states that "of 226 cases examined, in 75, 33%, more or less extensive congenital defects of the genital organs are recorded". In the male, there is evidently a defect in the formation of the Wolffian duct itself and in the female an associated defect in the Mullerian duct. Urogenital abnormalities are present in more than 70% of cases. Absence of the tube and ovary, absence of the vagina (undescended testes and hypospadias in males) have all been described with it and there may be other congenital abnormalities elsewhere in the body. In a series of 97 cases of ectopic kidney reviewed by Thompson *et al*, anomalies elsewhere in the body were encountered in 13 cases. We came across a case of a solitary kidney in a female. A somewhat similar case of a solitary kidney has been reported by Malhotra *et al.*

Case Report

P.M.M., aged 19 years, was seen in the O.P.D. of K.E.M. Hospital in February 1967 for primary amenorrhoea. Her family history was not contributory. She was of normal build and nourishment and had normally developed secondary sex characters. Cardiovascular and respiratory systems were normal. Per abdomen a firm mobile, nontender mass, 3" x 3", was felt on the right side of the abdomen, close to the midline, slightly above the right iliac fossa. On bimanual vaginal examination, there was a blind pouch of vagina, 1'/2" in length, the cervix and uterus were not felt; the mass could not be reached during vaginal examination but could be felt on

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rectal examination. It was thought to be either the uterus, enlarged ovary or a testis.

On exploratory laparotomy, there was an ovary and a small portion of a fallopian tube on the right side. The uterus, the ovary and tube of the left side were absent; instead there was a thickened ridge. There was a retroperitoneal mass, 3½" x 3½", close to the midline, above the right iliac fossa. On careful examination, the ureter could be seen going down from it; the rest of the abdomen was palpated but no other kidney could be felt. The tumour was, therefore, left untouched. A biopsy was taken from the ovary and the abdomen closed. Section of the ovary showed normal ovarian tissue. Descending pyelography was done post-operatively and showed only one functioning kidney on the right side.

Discussion

Although congenital abnormality of one kidney is compatible with life, a single kidney is more apt to be the seat of disease. Anders found that in 42% of cases in his series, the single kidney showed advanced lesions of chronic nephritis.

Since the embryonal predecessor of the Mullerian duct also contributes to the development of the urinary tract, it is not surprising that the genital anomalies should be associated with renal agenesis. Hence, absence of one system of structures should lead to careful investigation and study of the other. Because of lack of symptoms in a fair proportion of cases, the diagnosis of ectopic kidney is made during surgical exploration for a supposed pelvic or abdominal tumour. Occasionally the solitary kidney is ectopic in the pelvis and may present an obstetric problem. A hydronephrotic kidney in the pelvis has been diagnosed as an ovarian cyst. The surgical importance of this condition is the correct diagnosis of the tumour as an ectopic kidney. The ectopic organ must be treated conservatively, unless the surgeon can satisfy himself that a normally functioning opposite kidney is present; otherwise, a fatal catastrophe following unwitting removal of a solitary kidney is inevitable.

With modern urological methods of investigations, congenital renal absence should be identified or at least suspected. Absence of a renal pelvic urographic shadow or even of a parenchymal outline does not necessarily mean absence of the kidney. However, in many cases of uterine or other genital malformations there is no attempt at adequate urological examination. Counseller has, therefore, rightly emphasised that an intravenous pyelography should always be done before operation on any woman with congenital genital abnormality.

Summary

A case of a solitary ectopic kidney associated with absent uterus is presented. Importance of urological examination in patients with congenital genital abnormality is stressed.

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