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Case report

Pelvic kidney: a rare cause of obstetrical obstruction

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Abstract

This case report presents a patient with a pelvic kidney. The child was delivered by caesarean section because of obstruction of the birthcanal. A relation with amyoplasia congenita in the newborn is presumed. The literature of the pelvic kidney and its implications in pregnancy is reviewed.

Keywords: Pregnancy; Pelvic tumour; Pelvic kidney; Amyoplasia congenita; Ultrasound

1. Case report

A 29-year-old nulliparous woman was admitted at full-term to our hospital because the fetal head had not yet been engaged. At 15 weeks a routine ultrasound examination showed a normal gestational sac with a viable fetus and a structure diagnosed as a collapsed gestational sac.

The patient was a healthy woman with no history of urinary disease. Prenatal care was given by a midwife and was uneventful. Fetal movements were normal. Ultrasound examination revealed no fetal abnormalities. Dorsal and caudal of the fetal head, a solid mass with cystic parts was visible (Fig. 1). On vaginal examination the cervix was positioned anteriorly. In the fornix posterior, a tumour caudal of the fetal head and next to the uterus was palpated. A dermoid cyst of the ovary was presumed and a caesarean section was carried out. At 40.5 weeks' gestation a boy was delivered with the umbilical cord tightly wrapped around legs and feet, weighting 2990 g, APGAR scores were 10 (1 min) and 10 (5 min).

Uterus and ovaries appeared normal. The left fossa renalis was empty, whereas the right kidney was in situ. The retroperitoneal tumour appeared to be a pelvic kidney. This diagnosis was confirmed by ultrasound examination, excretory urography and renography (Fig. 2). After 10 days postoperative course was complicated

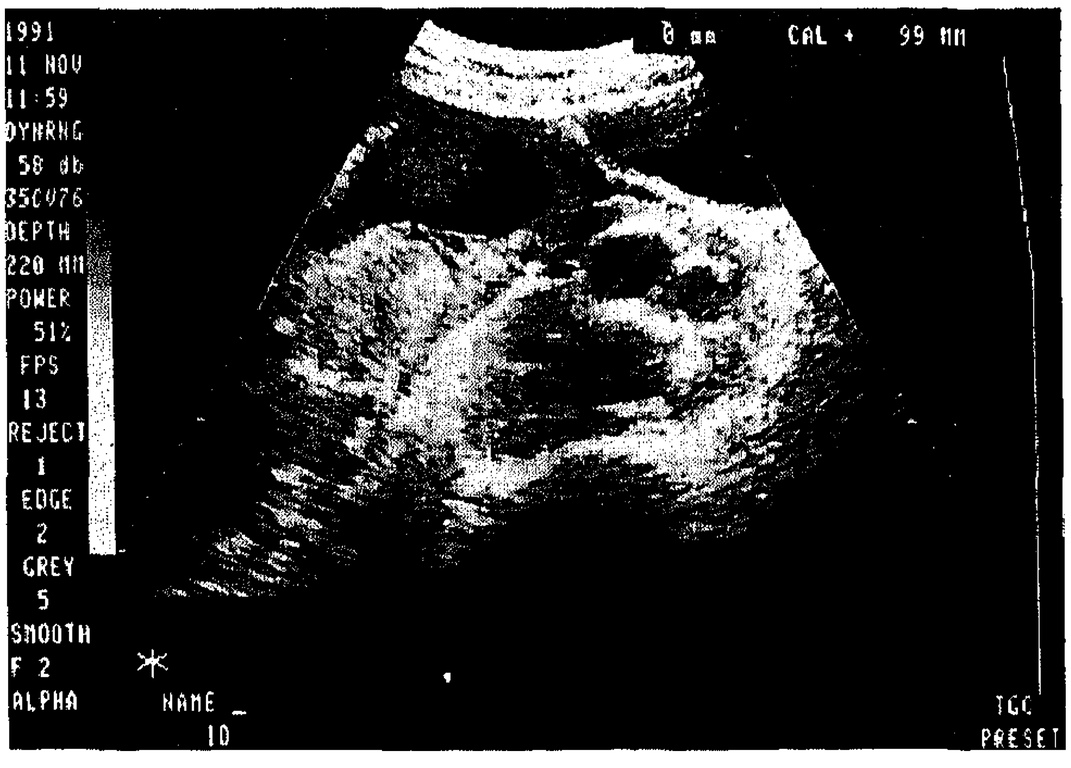

Fig. 1. The pelvic kidney presented as a cystic mass between bladder and uterus.

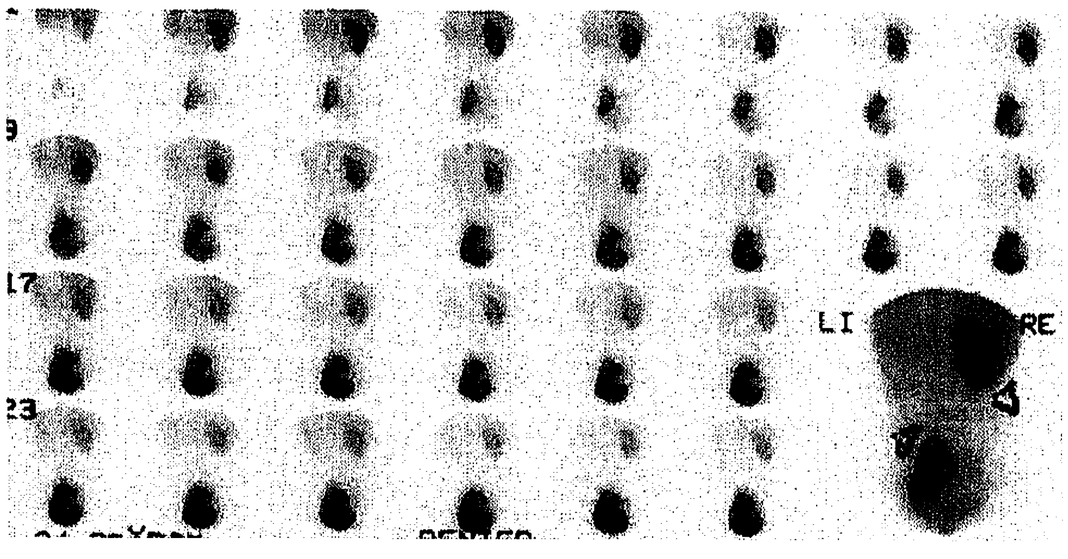

Fig. 2. Renography shows the location and function of the kidneys.

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by unexplained fever. A urinary tract infection was excluded. With antibiotics she recovered quickly and went home in good condition.

The newborn had flexion contractures of the knees, deep limb grooves, severe muscle atrophia of the lower extremities and bilaterally equinovarus deformities of the feet. The upper extremities were normal. These findings concur well with amyoplasia congenita. This syndrome may be related to structural uterine anomalies [1].

2. Discussion

It is known that a pelvic tumour, usually an ovarian tumour or fibroid can obstruct the birthcanal. A pelvic kidney is an unusual cause of this obstruction. In the 16th century the pelvic kidney was already described by anatomists. Knowledge of the ectopic kidney is derived mainly from autopsy reports. With present diagnostic procedures the diagnosis can be made in the living.

Samuel et al. described in 1985 in this journal a patient with a pelvic kidney presented in early labour and diagnosed with ultrasound examination. Since progress in labour failed, a caesarean section was performed [2].

Current textbooks of obstetrics rarely mention the pelvic kidney as a cause of non-progressing labour or dystocia [3,4]. Textbooks of urology and gynaecology provide more information [5,6]. In 15–45% of cases a pelvic kidney is associated with genital anomalies: bicornuate or unicornuate uterus, absent uterus with absent proximal vagina or duplication of the vagina.

In more than 15000 autopsies the incidence of pelvic kidney was about 1 in 1000. Male to female ratio was 3 to 2. No female patient had a history of caesarean section or dystocia. An association with hypoplastic uterus and atresia of the vagina was demonstrated.

Compared with a normal kidney the pelvic kidney is generally smaller, the ureter shorter and the renal pelvis is usually anterior to the cortex. The arterial supply is from the lower aorta, the bifurcation or even from the iliacal arteries. Double or triple vascular supplies are described. Ptosis of the kidney shows a normal ureter and arteries and for these reasons can be differentiated from the pelvic kidney.

In normal embryologic development the kidney migrates from the pelvis to the fossa renalis. The renal pelvis rotates from ventrally to medially. This process of migration and rotation ends in the ninth week of gestation [7]. A possible cause of an ectopic kidney is the persistence of the embryological vascularisation. A teratogenic factor is proposed because of the associated genital anomalies.

When a pelvic kidney is diagnosed, therapy is not necessary. Complications like urinary tract infections, obstruction of the ureter or stone formation are more frequent and may require therapy. Nephropexy is difficult because of the short ureter and the anomalous bloodsupply [8].

Approximately 1 in 5000 pregnant women has a pelvic kidney and in 80% the left side is involved. In pregnancy malpresentation, dystocia or urologic complications may be the clinical presentation. Diagnosis of a pelvic kidney can be made with ultrasound examination. It can be difficult since it is rare and not expected as was shown in this case. After delivery aortography and excretory urography can confirm the diagnosis.

When a pelvic kidney is present a caesarean section is not mandatory, depending on size and location of the kidney.

In the differential diagnosis of a pelvic mass or mechanical obstruction in pregnancy or labour, a pelvic kidney must be kept in mind.

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