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Hydronephrosis during pregnancy: four cases of hydronephrosis causing symptoms during pregnancy

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Summary

Hydronephrosis during pregnancy is a physiological phenomenon in the majority of pregnant women after the 20th week of pregnancy; normally it gives rise to no symptoms. Four cases of hydronephrosis causing symptoms during pregnancy are described, where ureteral colic has been the reason for hospitalization. An evaluation is given of the indications and the methods of treatment, including the employment of an indwelling ureteral catheter.

Hydronephrosis; Ureteral colic; Pregnancy

Introduction

Hydronephrosis during pregnancy is normally considered a physiological phenomenon in the majority of pregnant women. It is probably caused by compression of the ureters at the linea terminalis. Hydronephrosis during pregnancy rarely gives rise to symptoms and partly due to this, as well as the previous difficulty in diagnosis, the phenomenon has, up to the present, been given little attention.

Hydronephrosis can, however, give rise to unpleasant symptoms such as recurrent ureteral colic, recurrent pyelitis [1,2] and in rare cases acute renal failure [3].

As the diagnosis by means of ultrasound scanning is simple today, we have found it of interest to focus attention on the problem.

Case reports

Case I

A 21-yr-old gravida I, previously healthy with no history of renal disease, was admitted in the 36th week of pregnancy, with recurrent attack of pain in the right

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flank, nausea, vomiting and pollakisuria. No increased temperature and no labour pains were noted on admission. There was tenderness of the right kidney. Urine microscopy showed 4–5 erythrocytes per field of vision, otherwise no abnormality and less than 10^5 bacteria/ml; S-creatinine $101 \mu\text{mol/l}$; ultrasound scanning revealed severe hydronephrosis and hydroureters. On the second day of admission the patient was still in considerable pain and a pig-tail catheter No. 6 was inserted under local anaesthesia into the right ureter. The patient then became free from pain. Ultrasound scanning 6 days later clearly showed regression of the hydronephrosis. S-creatinine was $76 \mu\text{mol/l}$. The patient went into labour and was delivered, without complications, of a living boy at term. The catheter was removed 4 days later.

Control examination 8 months after delivery: ultrasound scanning, normal kidneys; urine microscopy, no abnormality; S-creatinine $87 \mu\text{mol/l}$.

Case II

A 30-yr-old gravida I, previously healthy without a history of renal disease, was admitted in the 32nd week of pregnancy with pain in the right flank and contractions. The case required no treatment and the patient could be discharged after 3 days. She was re-admitted one week later with recurrent attacks of pain in the right flank. In the meantime she had been treated with a sulfa drug without effect. On admission: temperature 37.5°C , tenderness of the right kidney. Urine microscopy showed 10–15 leucocytes and 3–5 erythrocytes per field of vision and less than 10^5 bacteria/ml; S-creatinine $86 \mu\text{mol/l}$; ultrasound scanning revealed right-sided hydronephrosis. A pig-tail catheter No. 7 was inserted under local anaesthesia, after which the patient became free from pain. Three days later a normal renal pelvis could be seen. The pregnancy had a normal uncomplicated course until spontaneous delivery at term. The catheter could be removed 5 days after delivery. At control examination 3 months later, the ultrasound scanning and urine microscopy were normal.

Case III

A 24-yr-old II gravida, I para, previously healthy, no history of renal disease, was admitted at term after an uncomplicated pregnancy severely affected by recurrent attacks of pain in the right flank. She was afebrile and not in labour at the time of admission. Urine microscopy showed no abnormality. S-creatinine was $71 \mu\text{mol/l}$. 75 mg of pethidine i.m. were given without effect. Ultrasound scanning revealed severe right-sided hydronephrosis. Therefore 20 mg of Buscopan were given i.m. and the pain almost disappeared. Ultrasound scanning the next day clearly showed regression of the hydronephrosis. The patient was then free from pain and spontaneously delivered two days later, course uncomplicated.

Control examination 3 days after delivery: ultrasound scanning, normal kidneys; urine microscopy, no abnormality; S-creatinine $72 \mu\text{mol/l}$.

Case IV

A 25-yr-old gravida I, previously healthy without a history of renal disease, applied to the maternity health care clinic in the 23rd week of pregnancy because of

recurrent right flank colics. Tenderness of the right kidney was found. Urine microscopy showed no abnormality, less than 10^5 bacteria/ml. Ultrasound scanning revealed right-sided hydronephrosis. The patient was instructed to lie in left recumbent position. During the following months she experienced relief of pain using this procedure and from the 28th week the pregnancy was uneventful. In the 36th week an ultrasound scanning showed that the hydronephrosis was reduced but still present.

Discussion

A number of reports have appeared in the literature since the 1930s on hydronephrosis during pregnancy, and a few characteristics can be gleaned from these reports.

Hydronephrosis is found in 68–100% of all pregnant women after the 20th week of pregnancy, rarely before [1,2,4]. It is therefore considered a physiological condition which disappears a few days after delivery. It is most frequently right-sided, more rarely left-sided, but can be bilateral [4]. It is only observed in man and monkeys assuming the upright position, never in 'four-legged animals' [5,6]. The hydronephrosis is almost always accompanied by dilatation of the ureters, although this never occurs distal to the linea terminalis [4]. It is still not clear whether the cause of hydronephrosis during pregnancy is hormonal influence on the smooth muscle of the urinary tract, mechanical compression of the ureters where these enter the lower pelvis, or a combination of these causes. Recent investigations of the pressure in the ureters, however, appear to indicate clearly that compression is the decisive factor [7]. Hydronephrosis during pregnancy rarely produces symptoms and presumably requires no treatment, but it can be a contributory cause of recurrent pyelitis and may trigger ureteral colic, so that treatment must be considered. Cases of acute renal failure have previously been described [3,8].

Previously the diagnosis had to be made by means of radiography, so many cases requiring treatment have undoubtedly been overlooked. Today ultrasound scanning permits rapid and safe diagnosis, and allows the physician to follow the course of the hydronephrosis through pregnancy.

As urinary tract infections are also presumed to trigger contractions and with this possible premature labour, and as severe, recurrent ureteral colic can incite early termination of pregnancy, we have found it of value to call attention to the problem. It is possible to help many patients by advising them to lie on the opposite side to that with symptoms or to employ the knee-elbow position [9]. In a few patients with persistent symptoms or signs of renal failure the insertion of an indwelling ureteral catheter is a possibility that should be considered. The procedure is relatively simple and can frequently be carried out under local anaesthesia without any great discomfort to the patient [10]. A spasmolytic drug can be tried.

The symptoms do not appear to be related to the grade of dilatation. This means, naturally, that the physician should be very conservative with regard to treatment and only in special cases with symptoms and where other causes have been eliminated should an indwelling ureteral catheter be employed. In the reported cases this treatment was complied with and performed by urological specialists. Ureteral concretions had been ruled out radiologically.

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