

# Sound ADVICE

A SUFW Clinical Update

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## Mild Renal Pyelectasis

Pyelectasis is the term used to describe dilatation of the renal pelvis, although the definition of mild dilatation remains controversial. The most commonly quoted definition of mild renal pyelectasis is a cross-sectional renal pelvic anteroposterior diameter of 4-10 mm with no dilatation of the intrarenal system (Figure 1). The exact renal pelvis dilatation that is accepted as normal is still being debated. However most would agree that greater than 10 mm is more likely to be associated with pathology. Between 4 and 10 mm, it is more difficult to accurately predict outcome.

The prevalence of mild renal pyelectasis in prenatal ultrasound examinations is 3-5%. It is most frequently noted in the left kidney and there is a gender bias, with renal pyelectasis being more prevalent in males. Possible underlying pathologies, such as cystic kidney disease, posterior urethral valves and duplication of the ureters can usually be excluded at the time of the morphology ultrasound examination. However, mild renal pyelectasis has been associated with other pathologies that may not be immediately apparent; including Down syndrome, subsequent hydronephrosis and vesico-ureteric reflux.

### DOWN SYNDROME

Mild renal pyelectasis is a common finding in fetuses with Down syndrome. It is however also a common finding in fetuses that are normal. In the absence of other markers, renal pyelectasis is considered a very weak indicator of Down syndrome. In an unscreened population of

pregnant women, the finding of mild renal pyelectasis at the 18-20 week ultrasound increases the age-related likelihood of Down syndrome by approximately 1.6. Whether this likelihood ratio can be used in a population of pregnant women previously screened by nuchal translucency assessment or the Triple Test is currently not known, making counselling difficult in this setting. Maternal age, the results of previous screening tests, the presence or absence of other markers of aneuploidy, and parental anxiety are all-important considerations in weighting the role of amniocentesis in the investigation of renal pyelectasis.

### HYDRONEPHROSIS

Hydronephrosis is dilatation of the renal pelvis and calyces, most often due to obstruction of urine outflow into the ureter or bladder, or vesico-ureteric reflux. The significance of mild fetal pyelectasis for predicting subsequent hydronephrosis is controversial. In those fetuses with mild fetal renal pyelectasis at 18-20 weeks, approximately 10-15% may progress to hydronephrosis, and parents should be made aware of this.

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Various thresholds have been recommended with varying detection and false positive rates. The thresholds and associated sensitivity and specificity for development of hydronephrosis are gestation dependant, implying that progressive dilatation is generally seen with this condition. In one study, thresholds of >7mm at 27 weeks and >10mm from 33 weeks had a specificity of approximately 90% and sensitivity of approximately 70% for development of hydronephrosis. In another, it was found that fetal pyelectasis of 8 mm at any gestation was 91% sensitive and 72% specific in predicting subsequent hydronephrosis, while 5 mm yielded a sensitivity of 100% and a specificity of 24%. On the basis of these findings, it has been recommended that women with ultrasonographically detected antenatal fetal pyelectasis of  $\geq 5$  mm at any gestational age have follow-



Figure 1. Transverse fetal abdomen showing renal pyelectasis.

up ultrasound examinations, to ensure 100% detection of those who will develop hydronephrosis.

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## VESICO-URETERIC REFLUX

Vesico-ureteric reflux (VUR) refers to retrograde flow of urine from the bladder into the upper urinary tract. It is a common problem persisting in 1% of otherwise healthy children. Of fetuses with 4-10 mm of renal pyelectasis, approximately 16% have reflux. However, VUR is present in up to 40% of those prenatally diagnosed with hydronephrosis. Reflux is bilateral in about half of these babies, with an 80% male preponderance.

The degree of pelvis dilatation in fetal life does not correlate closely with the grade of reflux, although it is associated with presence of reflux. The presence of persistent renal pyelectasis should therefore prompt neonatal assessment for both presence and grade of VUR, as it is the grade of

reflux that is most prognostic for eventual renal scarring and functional deterioration.

## ANTENATAL MANAGEMENT

After the detection of renal pyelectasis at 18-20 weeks, it is controversial whether a sonographic re-assessment is warranted in the third trimester, as some would argue that all fetuses with renal pyelectasis should be investigated in the neonatal period. There is however increasing evidence that only those fetuses where dilatation persists after 28 weeks should be subjected to postnatal reassessment. A third trimester scan should therefore be considered at around 34 to 36 weeks, which is also a convenient time to assess fetal growth and well being.

## CONCLUSION

Antenatal ultrasonography is an effective tool for identifying fetal urinary tract abnormalities. Fetal renal pyelectasis is a common and controversial finding. An AP diameter  $\geq 4$ mm in the second trimester probably warrants third trimester reassessment with post-natal investigation if dilatation of  $\geq 5$  mm persists. If reassessment is not performed in the third trimester the finding of mild renal pyelectasis should be brought to the attention of the neonatologist.

## Endometriosis

Endometriosis is characterized by the presence of endometrial glands and stroma outside the endometrial cavity and uterine musculature, with the pelvis being the most common site for the disease. Theories proposed to explain histogenesis include implantation of desquamated endometrial tissue within the pelvis secondary to retrograde menstruation, and metaplasia of peritoneal coelomic cells into endometrial tissue, a process possibly facilitated by release of cytokines by refluxed endometrial debris. The true prevalence of endometriosis in the general female population is not known, however a familial tendency has been recognized. If a woman has endometriosis, a first-degree female relative has a 7% likelihood of being similarly affected.

Many women with endometriosis are completely asymptomatic but it is a common gynaecologic problem in the reproductive-age woman who presents with pelvic pain, dysmenorrhea, dyspareunia, abnormal uterine bleeding or infertility. Frequently, there are no obvious findings on pelvic examination. When findings are present, the most common is tenderness when palpating the posterior fornix. Nodules of endometriosis on the uterosacral ligaments, enlarged ovaries as a result of endometriotic cysts, and a uterus retroverted and fixed in the cul-de-sac by adhesions may also be detected. Endometriosis should always be considered in the reproductive-age woman with an adnexal mass.

Because endometriosis is located primarily in the pelvis, laparoscopy is the preferred technique to make an accurate diagnosis, ideally supported by biopsy and histology. The age at time of diagnosis is commonly 25 to 35 years.

Endometriosis is not seen in prepubertal children and is rarely a clinical reality in postmenopausal women. Still, it is present in approximately 1% of women undergoing major surgery for all gynecologic indications, 6% to 43% of women undergoing sterilization, 12% to 32% when laparoscopy is performed to determine the cause of pelvic pain in reproductive-age women, and 21% to 48% of women undergoing laparoscopy for infertility. Endometriosis is underdiagnosed in teenage years although it is found in 50% of teenagers who do undergo laparoscopy for evaluation of chronic pelvic pain or dysmenorrhea.

Endometriotic foci, particularly on the ovarian surface, may develop a fibrous enclosure and manifest cyst formation as a result of accumulation of fluid and blood. These endometriotic cysts ("endometriomas") vary from several millimeters to over 10 cm in size. Bleeding with menses gives the cyst a dark-red or bluish haemorrhagic colour. The degradation of blood pigment over time results in thick, tarry contents, and hence the term "chocolate cysts". Occasionally, the contents change to a yellow straw colour or clear fluid.