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# Spontaneous Ureteric Rupture in the 3rd Trimester of Pregnancy: A Case Report

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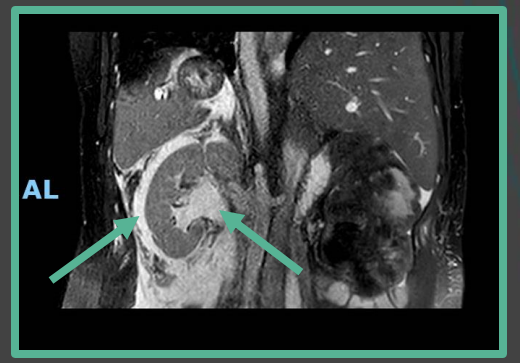
## Background:

Spontaneous ureteric rupture is rare particularly in pregnancy, and is usually associated with renal pathology e.g. congenital defects, aneurysms, or internal/ external obstruction e.g. stone or tumour[2,3,4]. It occurs likely due to compression leading to progressive hydronephrosis[5]. It usually presents with severe unilateral flank or abdominal pain, with microscopic haematuria only present in around 1/3 of cases[1]. Most cases make a fully recovery, with some being managed conservatively as well as via stenting and nephrostomy[1,5].

## Case:

A 34-year-old gravida 1, presented with severe left sided flank pain at 34 weeks gestation. She had previously had an uncomplicated pregnancy with a normal anatomy ultrasound and low risk MSS1 screening. Despite analgesia (IV morphine) and intravenous fluids there was no significant improvement in symptoms. Her urinalysis was negative and urine culture returned with no growth however her inflammatory markers began to rise over a few days (WCC 16.1x$10^9$/L and CRP 146mg/L). There remained was no concern with fetal wellbeing during this time. Due to difficulties with pain control and increasing creatinine (52 to 79µmol/L), she proceeded to have a renal tract ultrasound 2 days after presentation which showed mild hydronephrosis but no obstructing stone. An MRI on day 3 showed significant progression of bilateral hydronephrosis with left ureteric rupture and presence of a urinoma. She was transferred to a tertiary unit the same day for urology intervention (nephrostomy), given a course of steroids, and proceeded to labour at 35+4 weeks, delivering vaginally a live baby boy. The baby required 10 days in SCBU due to complications of prematurity. The nephrostomy tube was removed 8 days after insertion, with a nephrostogram showing no leak of contrast in the renal tract. She required no routine urological follow up.


## Discussion:

The cause of spontaneous ureteric rupture is not fully understood but it is thought to be exacerbated by the physiological changes during pregnancy. This is primarily due to compression of the ureter at the pelvic rim worsened by the gravid uterus and the relaxing effects of progesterone[5]. Therefore, some degree of hydronephrosis is common in pregnancy (up to 90% of women)[3] and occurs predominantly in primigravidas[1]. Rupture of the ureter can occur once the pressure in the renal pelvis exceeds 70-75mmHg[2].

The literature indicates that similarly to hydronephrosis, the risk of rupture rises with increasing gestation, and usually occurs on the right side (>2/3 cases)[1] rather than left, making this case even more unusual.

A review of case studies shows that until definitive imaging is performed, ureteric rupture is not routinely considered as a primary differential diagnosis and can be confused with other renal pathology, e.g. renal colic[1,3]. Research also highlighted that other abdominal pathology including appendicitis was commonly misdiagnosed, and cases of diagnostic laparotomy/ laparoscopy were not infrequent, with appendicectomy performed in 17% of reported cases[1,4]. This can lead to unnecessary morbidity including sepsis, unnecessary surgical intervention and medical treatment with the potential for fetal compromise, and increased risk of pre-term delivery[1,4].

First line diagnostic imaging tends to be ultrasound given its safety and acceptability in pregnancy and is a useful first -line option for both renal and pelvic pathology[1,2,3]. However, if this is inconclusive, then MRI can improve detection rates (diagnostic in 75% of cases)[1,3] with CT being an acceptable alternative post partum or if other intra-abdominal pathology is suspected[1] (with the added risk of radiation).

References:

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