# Non-communicating contralateral tubular ectopic in a unicornuate uterus

Kate MAZEY[1], Matthew JARMAN[1], Stefan KANE[1]
1. Obstetrics & Gynaecology, The Royal Women's Hospital, Parkville, Melbourne

## Background

Müllerian duct anomalies (MDAs) can be grouped by several classifications, most prominently by The European Society of Human Reproduction and Embryology - European Society for Gynaecological Endoscopy[1] (Figure 1). A unicornuate uterus forms when one of the Müllerian ducts fails to fuse properly with the other, representing ~10% of all MDAs[3]. The Müllerian duct is responsible for development of the fimbriae, fallopian tubes and the uterovaginal canal (uterus, cervix, and upper part of vaginal canal).

The classification of unicornuate uterus includes the presence or absence of a rudimentary horn on the abnormal side, as well as whether that horn communicates with the main uterine cavity. A non-communicating horn is the more common, accounting for 75-90% of cases[4]. Non-pregnant women with these anomalies can present with non-specific abdominal pain, dysmenorrhoea, endometriosis, as well as infertility, or be entirely asymptomatic.

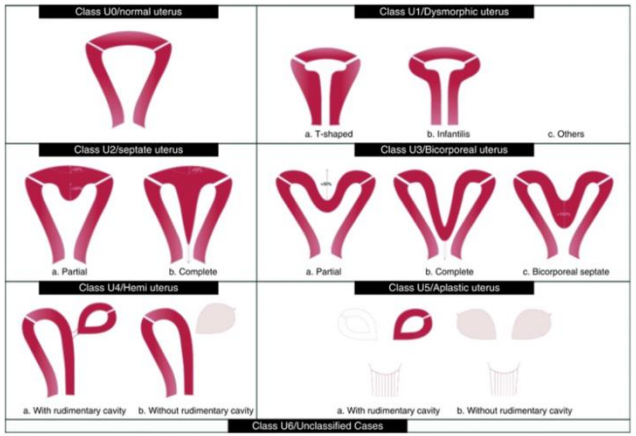


**Figure 1**. ESHRE-ESGE classification of female genital tract congenital anomalies (source: Grimbizis et al. 2013[1]).

## Case Summary

- A 38-year-old female (G3P1) presented to our tertiary hospital emergency department with findings on ultrasound suggestive of a left tubal ectopic pregnancy. Her obstetric history was significant for one previous caesarean section (at full dilatation of the cervix) for breech presentation, at 29+3 weeks' gestation, requiring an 'inverted T' incision. An incidental finding of unicornuate uterus without a rudimentary horn was made intraoperatively. Absence of the right tube was identified.
- At time of presentation, an external serum beta hCG was 2900 IU/L (increasing from 2350 IU/L two days prior). Ultrasound findings demonstrated an "empty uterus, potential 13x10x10mm left tubal mass, not conclusive for ectopic pregnancy, no free fluid". The patient had experienced mild right sided pain three days prior but was otherwise asymptomatic and was pain free on review.
- A rising serum beta hCG of 3448 IU/L was noted and medical management (with methotrexate) was recommended by local hospital guidelines. The patient's preference was for medical management to preserve fertility (given her single functioning fallopian tube).
- Day 1 post methotrexate, she returned to the emergency department via ambulance with sudden onset of severe right lower quadrant abdominal pain.

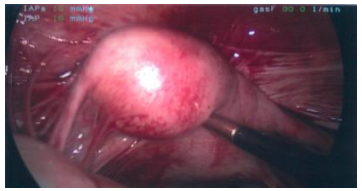

**Figure 2A** Haemoperitoneum and left unicornuate uterus. Small right rudimentary horn.

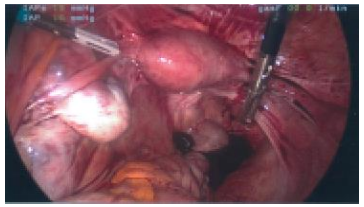

**Figure 2B** Left unicornuate uterus, left fallopian tube and left ovary. Right rudimentary horn.

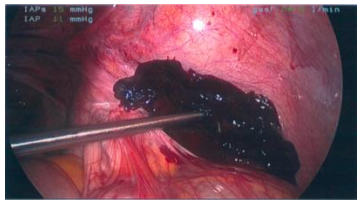

**Figure 2C** Extra pelvic haemorrhagic clot found adherent to the right abdominal side wall.

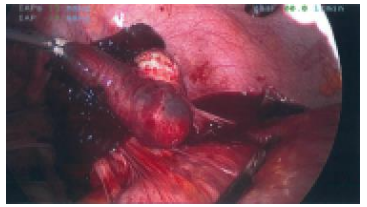

**Figure 2D** Haemorrhagic clot with presumed right ectopic pregnancy adjacent to right ovary within the suspected non-communicating right remnant fallopian tube above the pelvic brim.

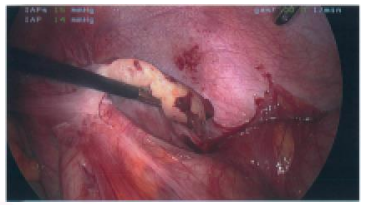

**Figure 2E** Right ovary following successful removal of ectopic pregnancy and right remnant fallopian tube.

- On arrival to the emergency department, observations were within normal limits. Clinical examination elicited moderate tenderness in the right iliac fossa. A FAST scan (Focused Assessment with Sonography in Trauma) was positive for free fluid identified within the pouch of Douglas. The patient was subsequently transferred to the operating theatre to undergo laparoscopic treatment for a presumed ruptured ectopic pregnancy.
- **Figures 2 A-E depict the intraoperative findings.** Significant haemoperitoneum was observed on insufflation of the peritoneum (500mL). Figure 2 A demonstrates a left unicornuate uterus with communicating left tube and ovary. A small right rudimentary horn is depicted in Figure 2 B. The right ovary and remnant right fallopian tube were found fixed to the right abdominal side wall above the level of the pelvic brim buried beneath overlying haemorrhagic clot (Figure 2 C). Following careful dissection of haematoma from underlying tissue, suspected ectopic pregnancy tissue was seen to be associated with the right ovary within the presumed remnant right fallopian tube (Figure 2 D). Suspected right ectopic pregnancy tissue was divided and removed from the right ovary (Figure 2 E). Histopathology subsequently confirmed an ectopic pregnancy within a fallopian tube.
- Postoperatively, the patient recovered well and was discharged home the following day. In the context of a known Müllerian abnormality, a recommendation for IVF in future pregnancies was made due to the increased risk of ectopic pregnancy.

## Discussion

Ectopic pregnancies account for 1-2% of all pregnancies and are the leading cause of maternal mortality in the first trimester. It is important that risk factors for ectopic pregnancy are carefully identified as presentations in the first trimester may be variable. One important risk factor, and perhaps less commonly seen, is the presence of uterine malformations.

The incidence of uterine malformations is variably reported as approximately 3-4%. Of these, 9.6% are made up by unicornuate uterus variants[3]. These rare embryological variants have important clinical impact not only in their gynaecological symptomatology such as dysmenorrhea, dyspareunia and impaired fertility[5,6], but also through their impacts on obstetric outcomes, demonstrating higher rates of ectopic pregnancy, miscarriage and preterm birth[7,8]. Finally, as evidenced in this case, these anomalies can present complexities in diagnosis and management that may delay treatment, ultimately placing affected women at increased risk of morbidity and mortality.

Several cases have been reported of ectopic pregnancies occurring in rudimentary horns[9], either communicating or not communicating with the main uterine cavity. The majority are non-communicating and thus present a risk of uterine rupture with the developing fetus[10]. In this case, however, the danger arose from a much rarer subset of unicornuate uteri, with a remnant non-communicating tube developing in conjunction with a non-descendent, intra-abdominal ovary.

This case represents an opportunity for consideration of several important clinical risks in cases of Müllerian anomalies, firstly in their recognition, but also in the awareness of the broad range of anatomical variants. While ultrasound is the mainstay of diagnosis for ectopic pregnancies, clinicians should maintain a degree of caution and suspicion in these cases.

## Learning points

1. While rare, uterine anomalies increase risk of obstetric complications.
2. This case highlights the need for vigilant surveillance and management of pregnancies in these are circumstances, given the unique dangers they may pose for patients in accessing timely and appropriate clinical care.
3. Fortunately, in this case, the patient had access to care in a tertiary (complex care) centre and, with ongoing specialist input, spontaneously conceived a second child and gave birth via caesarean section at 31+1 weeks' gestation, having presented in labour with a breech fetus once again.

## References

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