CASE REPORT

Laparoscopic management of rudimentary horn pregnancy

D.Dicker¹, S.Nitke, A.Shoenfeld, B.Fish, I.Meizner and Z.Ben-Rafael

Department of Obstetrics and Gynecology, Rabin Medical Center (Beilinson Campus), Petah Tikva 49100, and Sackler School of Medicine, Tel Aviv University, Israel

¹To whom correspondence should be addressed at: Department of Obstetrics and Gynecology, Rabin Medical Center, Beilinson Campus, Petah Tikva 49100, Israel

A unicornuate uterus with rudimentary horn is a rare Müllerian abnormality. This uterine anomaly may cause many gynaecological and obstetric complications, including infertility, recurrent abortions, preterm deliveries and rupture of the uterus, especially when the pregnancy implants in the rudimentary horn. To date, laparotomy has been the treatment of choice when resection of a rudimentary horn was indicated. We report on the case of a woman who benefited from laparoscopic surgery of a rudimentary horn pregnancy. Laparoscopy, in these exceptional cases, is the most accurate diagnostic tool that carries significant advantages in effective surgical management, thereby avoiding laparotomy.

Key words: ectopic pregnancy/Müllerian anomalies/operative laparoscopy/rudimentary horn/unicornuate uterus

Introduction

Aplasia of one Müllerian duct leads to the development of a unicornuate uterus. Furthermore, when one of the ducts develops only partially, this anomaly may be associated with various degrees of rudimentary horn connected to the unicornuate uterus (American Fertility Society, 1988).

Unicornuate uteri with rudimentary horns are susceptible to many gynaecological and obstetric complications, i.e. haemotometra, infertility, endometriosis and urinary tract anomalies (Donderwinkel et al., 1992; Fedele et al., 1995).

Pregnancy in, and rupture of, the pregnant rudimentary horn are well known severe complications of this condition (Heinonen and Aro, 1988), which cause heavy bleeding and threaten the patient’s life. Thus, if pregnancy in the rudimentary horn is diagnosed, prompt intervention is necessary to remove the horn and its tube.

To date, laparotomy has been the preferred approach in these exceptional cases. Moreover, endoscopic resection, even of a non-pregnant rudimentary horn, has been sparsely reported (Canis et al., 1990; Yeko et al., 1992), thus making laparoscopic resection of a pregnant rudimentary horn a very rare event (Dulemba et al., 1996). We present the case of a woman with an active gestation in a rudimentary horn who benefited from this novel approach.

Case report

A 31 year old primigravid, uniparous woman was admitted to the gynaecological ward of the Rabin Medical Center because of the sudden onset of right lower abdominal pain and cramps after 8 weeks of amenorrhoea. Her gynaecological history was marked by regular cycles, normal delivery at 36 weeks gestation and the use of oral contraceptives for 5 years, which she ceased because of her desire to conceive. Her physical condition was good; however, the entire lower abdomen was tender. Pelvic examination revealed a slightly enlarged uterus and a very tender 4 × 5 cm mass, close to the right side of the uterus.

Laboratory tests were normal, and the serum β-human chorionic gonadotrophin (β-HCG) titre was positive for 29 000 mIU/ml. Vaginal ultrasound scan did not reveal the presence of intrauterine conception products, but showed the presence of a vital right ectopic pregnancy. Due to its close relationship with the right side of the uterus, it was suspected of being a right cornual pregnancy, and an emergency laparoscopy was scheduled.

Operative procedure

A pneumoperitoneum was created with carbon dioxide (CO₂) through a Veress needle. Four-puncture laparoscopy was performed with two 10 mm mid-line ports infra-umblically and supra-pubically respectively, as well as two 5 mm ports on each side. Laparoscopy revealed a normal left hemi-uterus, tube and ovary and an excessively swollen bluish rudimentary horn, with a normal-appearing tube.

Bipolar forceps were used to grasp, elevate and coagulate the right round ligament, which was incised by opening both anterior and posterior leaves of the broad ligament. The leaves of the broad ligament were then dissected, using blunt and sharp dissections. The right tubo-ovarian ligament was coagulated and cut, and the mesosalpinx was serially coagulated and separated to the insertion in the rudimentary horn. This mobilized the ovary and the broad ligament, and exposed the ureter. The ureter was below the pedicle of the rudimentary horn, and therefore dissection was continued further.

A small fibrous band that was found in the area where the
uterine horn was connected to the unicornuate uterus was coagulated and resected. Once this was completed, the right tube and rudimentary horn were free. The specimen was removed through the suprapubic port, which was distended to ~15 mm (Figure 1).

Blood loss was minimal. The patient was discharged the next morning. Pathological report revealed an ectopic pregnancy in the rudimentary horn and a normal right tube.

**Discussion**

In accordance with the proposed classification of the American Fertility Society (1988), the unicornuate uterus with a non-communicating rudimentary horn is the most common of its kind. The embryological tendency of dominance of the right-sided unicornuate uterus remains unexplained. Ovarian malposition (Rock et al., 1986) and urinary tract anomalies (Donderwinkel et al., 1992) are also found in this uterine malformation group.

The unicornuate uterus with rudimentary horn is not easily diagnosed. Most cases are found unexpectedly during infertility evaluation, or in clinical manifestation. The rudimentary horn is often small and is not easy to palpate during bimanual examination. Although transvaginal ultrasound may be used to evaluate the presence of a rudimentary horn, laparoscopy is an absolute prerequisite for the definitive, correct diagnosis of this uterine anomaly.

Pregnancy in the rudimentary horn, or in the tube on the same side is possible when migration of the spermatozoa occurs through the abdominal cavity. Pregnancy in the rudimentary horn is a well-known exceptional case of this uterine anomaly. It is always an emergency when rupture of the pregnant rudimentary horn occurs (Heinonen and Aro, 1988), causing heavy bleeding and threatening the patient’s life. Thus, if pregnancy in the rudimentary horn is diagnosed, excision of the pregnant horn is necessary. Moreover, the high frequency of ectopic pregnancies indicates removal of the rudimentary horn and its tube when diagnosed. The current development and improvement in laparoscopic surgical techniques makes it possible for us to propose this new approach for such a unique indication.

Nevertheless, it is important to remember that there are two anatomical variations in the attachment of the rudimentary horn to the unicornuate uterus: by firm attachment and by a band of tissue. It is an absolute prerequisite to diagnose correctly the type of presentation to avoid complications and possible compromise of myometrial wall thickness during laparoscopy (Falcone et al., 1997; Hamai et al., 1997).

Moreover, it should be borne in mind that this type of surgery requires adequate equipment and experienced surgeons. This operation involves the risk of damage to the ureter(s), mainly if endometriotic lesions and/or complete ureteric duplication are present (Donderwinkel et al., 1992).

Preoperative i.v. pyelography must be carried out systematically to reveal any urinary malformations, which are associated with 30–40% of cases (Donderwinkel et al., 1992). Furthermore, during laparoscopy, it is mandatory to identify, and if necessary, to perform ureterolysis prior to the resection of the rudimentary uterine horn.

In conclusion, it is our opinion that operative laparoscopy with all its advantages, is an excellent alternative to laparotomy, which until now has been the sole approach used for this type of operation.

**References**


Received on February 12, 1998; accepted on May 26, 1998