

Case Report

Ovarian ectopic pregnancy contralateral to unicornuate uterus

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Introduction

Ectopic pregnancy complicates 2% of all pregnancies, and accounts for 6% of pregnancy-related mortality [1]. Ovarian ectopic pregnancies are rare, occurring in 3% of all ectopic pregnancies [2,3]. The cause of ovarian ectopic pregnancy is poorly understood, but is thought to occur by either failure of follicular extrusion or by secondary implantation.

In this first mechanism, the follicle is fertilized at the site of the ovary prior to the release of the follicle from the ovary. The result is a formed embryo that develops within the ovarian tissue. Alternatively, the ovum is released and fertilized outside of the ovary, and the fertilized embryo then migrates back to and develops at the site of the ovarian tissue.

Case description

A 33 year-old woman with known planned spontaneous pregnancy was evaluated in the obstetrician's office for light vaginal bleeding. A pelvic ultrasound in the office did not show evidence of an intrauterine pregnancy; however, a left adnexal mass was seen. B-hcg level at that time was 868 mIU/mL. The patient returned to the office two days later with persistent abdominal pain and scant vaginal bleeding. A b-hcg level was repeated and was 923 mIU/mL. Repeat pelvic ultrasound demonstrated a persistent left adnexal mass with minimal free fluid in the posterior cul de sac. There was concern for ectopic pregnancy and the patient was sent to the emergency room for evaluation.

In the emergency room, the patient reported intermittent aching lower abdominal pain that had improved over the two preceding days. She endorsed scant vaginal bleeding. Her medical history was noncontributory, and she had no prior abdominal surgeries or history of pelvic infections. Obstetric history included one prior uncomplicated pregnancy resulting in the vaginal delivery of a healthy term infant. Physical exam was notable for mild left adnexal tenderness and a palpable left adnexal mass. Labs were normal with hemoglobin 11.2 g/dL. A transvaginal ultrasound in the emergency room demonstrated a mass in the adnexa measuring 6.9 × 4.1 × 7.1 cm, minimal free fluid in the pelvis, and a normal uterus with no sonographic evidence of intrauterine pregnancy.

The patient was brought to the operating room for a diagnostic dilation and curettage. During the procedure, an exam under anesthesia revealed a palpable mass in the left adnexa. The procedure was uncomplicated and the patient was discharged to home in stable condition. On postoperative day 1, repeat b-hcg increased to 1309 mIU/mL and pathology results returned negative for products of conception, which suggested ectopic pregnancy. The patient was treated with a single dose methotrexate protocol and received the

standard 50 mg/m² on day 1. B-hcg on day 4 was 1,760 mIU/mL and declined to 1,393 mIU/mL on day 7 (20.9% decline).

Ten days after administration of methotrexate, the patient re-presented to the emergency room with sudden onset severe abdominal pain. Although her B-hcg level had further declined to 903 mIU/mL, transvaginal ultrasound demonstrated an enlarging left adnexal mass measuring 9.4 × 5.4 × 7.5 cm with a moderate amount of free fluid in the pelvis consistent with a rupturing ectopic pregnancy.

Diagnostic laparoscopy revealed hemoperitoneum of approximately 500 cc and bleeding from the left adnexa. Careful survey of the pelvic organs revealed a right sided unicornuate uterus with normal right tube, ovary and round ligament. A cystic mass was noted to be contiguous with the left ovary, and the left tube and round ligament were not able to be identified. The mass was excised with the adjacent ovarian tissue using bipolar cautery, with effort made to leave as much normal ovarian tissue in place. No active bleeding was able to be identified at the time of surgery, and hemostasis was ensured after removal of the mass. Pathology confirmed degenerating chorionic villi within the ovarian tissue. A regressed corpus luteal cyst was also noted within the left ovary. The patient had an uncomplicated postoperative course and b-hcg was followed to a level <2 mIU/mL. Subsequent pelvic MRI confirmed right sided unicornuate uterus.

Discussion

Ovarian Ectopic Pregnancies (OEP) comprise 2.3% of all ectopic pregnancies, through their mechanism of development is not clearly known [2,4]. The Spiegelberg criteria first described features of identifying OEP and required recognition of: the fallopian tube and fimbria as intact and separate from the ovary, a gestational sac within the normal position of the ovary, a gestational sac connected to the uterus via the ovarian ligament, and ovarian tissue present and attached to the gestational sac [4]. The goal of these criteria were to identify primary OEP from a pregnancy which had been "disturbed" from the tube and secondarily implanted into the ovary.

In 1968, Tan et al further characterized OEP into intrafollicular

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and extrafollicular subtypes. Intrafollicular OEP, also termed failure of follicular expulsion, occurs when the egg is fertilized within the follicle inside the ovary [5]. Reported cases of intrafollicular OEP are rare. Extrafollicular OEP occurs when the embryo is fertilized and subsequently migrates to and implants upon the ovary. In 1983, Crimes et al described reflux of the embryo from the tube with subsequent implantation onto the ovary [6]. In 1993, Marcus and Brinsden further described migration of the fertilized and implanted embryo through the tubes with implantation on either the ipsilateral or contralateral ovary after embryo transfer in assisted reproduction [7]. A case series was later published describing OEP resulting after ICSI with embryo transfer [4].

The presence of a unicornuate uterus with contralateral OEP in our case seems to support the theory of embryo migration purported by Marcus and Brinsden. The fertilized embryo was likely expelled from the right sided tube with subsequent implantation and growth at the left ovary, as no plausible connection from the left adnexa to the uterus was anatomically identified. We were not able to find any similar presentations in the current literature, and this seems to be the first

report of contralateral ovarian implantation of ectopic pregnancy in the setting of a Muellerian anomaly, and more specifically a unicornuate uterus.

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