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Unilateral Monochorionic-Monoamniotic Twin Ectopic Pregnancy: A Rare Case Report during a Global Pandemic

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Abstract

We report an unusual case of spontaneous unilateral tubal twin pregnancy with both fetuses presenting with cardiac activities. Transvaginal ultrasound revealed two fetal poles, Monochorionic-Monoamniotic (MCMA) twins likely conjoined, which were situated within the left fallopian tube. These findings were confirmed via diagnostic laparoscopy and the left tubal ectopic pregnancy (EP) was subsequently removed by salpingectomy. Of note, this case presented during the 2019 novel coronavirus (COVID-19) global pandemic.

Keywords: Ectopic; Tubal; Twin pregnancy; Monochorionic; Monoamniotic; Salpingectomy; Corona virus; COVID

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Introduction

Ectopic pregnancy refers to an extrauterine pregnancy, most commonly occurring in the fallopian tube (96 percent) [1]. Although only affecting approximately 1-2 percent of all pregnancies, this complication has potentially life-threatening consequences if not appropriately diagnosed and managed [2]. The most important risk factor of ectopic pregnancy is a history of prior ectopic pregnancy or pelvic/tubal surgery, with other significant contributors including pelvic inflammatory disease, cigarette smoking, congenital anomalies, tumors, and adhesions affecting the anatomy of the fallopian tubes [3]. Even rarer, the incidence of twin tubal ectopic pregnancy was previously estimated to be 1:125,000. However, this may underestimate current incidence as a shift towards conceiving at an older maternal age and Assisted Reproductive Technology (ART), both of which increase rates of multifetal gestation, become more common [4].

There are very few documented cases of monochorionic-monoamniotic live twin ectopic pregnancy, according to our literature review [5]. This, in conjunction with the likely conjoined nature of the fetuses seen on imaging, suggests our case is an exceptionally rare event.

Nonetheless, diagnosis and treatment for this unusual pregnancy complication remains the same as for a typical ectopic pregnancy. Understanding the management options is critical given the significant potential mortality and morbidity for the mother. Comprehensive history taking and close patient follow up, as well as utilization of high-resolution transvaginal ultrasonography and other diagnostic modalities, allow for these risks to be substantially mitigated. Here we report a case of spontaneous unilateral live monochorionic-monoamniotic, likely conjoined twin tubal pregnancy.

Case Presentation

A 29-year-old patient gravid 8, para 1 presented to rapid City OB/GYN for her new obstetrical appointment at 8 weeks of gestation. She had a history of recurrent miscarriage and had been attempting to conceive for 3 years. Past medical history was significant for polycystic ovarian syndrome, anovulation, and elevated testosterone. She also had a laparoscopic procedure in 2016 that revealed filmy adhesions consistent with prior Pelvic Inflammatory Disease (PID) and chlamydia, along with pelvic congestion syndrome and retrograde menstruation. Hysterosalpingogram at that time was negative.

High-resolution transvaginal ultrasound examination obtained on 7/28/20 as part of the new patient evaluation revealed an 8-week live twin gestation in the left fallopian tube, with the two fetal poles closely adjacent throughout the exam and likely conjoined.

There was no twin peaking, with no chorion or amnion separating the two fetal poles. The uterus was empty. There was no fluid in the posterior cul de sac, and minimal fluid in the left adnexa **(Figures 1-4)**.

After counseling with the patient, she developed severe pelvic pain and was taken to surgery with the goal of maintaining her fertility while preventing the complications of tubal rupture and hemorrhage. She underwent a laparoscopic left salpingectomy,

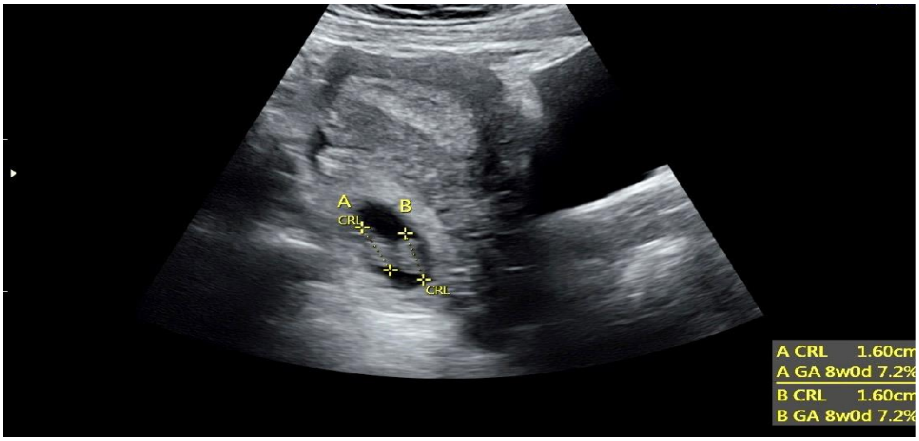

Figure 1 Eight-week monochorionic-monoamniotic twin gestation, possibly conjoined, on high resolution ultrasound.

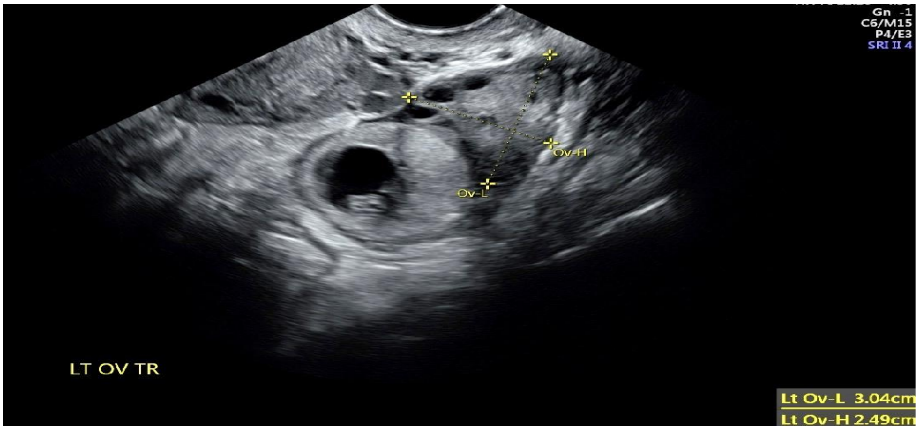

Figure 2 Left adnexa revealing the left ovary with adjacent monochorionic-monoamniotic gestation.

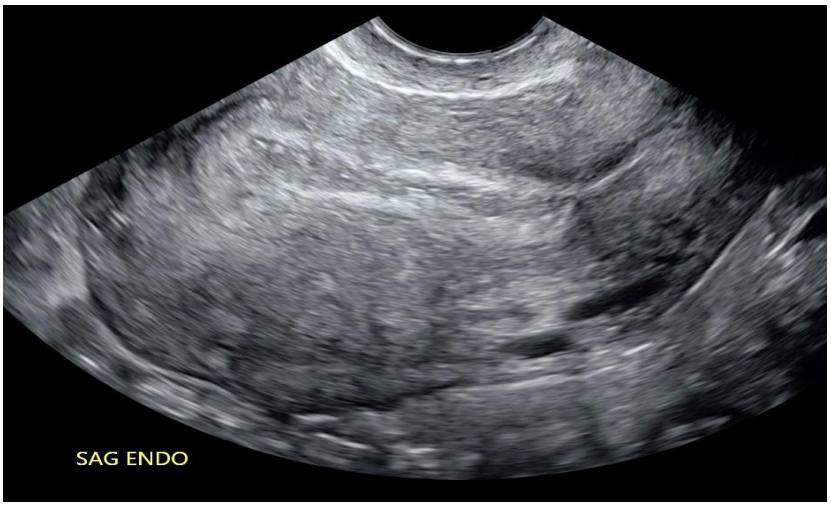

Figure 3 Empty uterus.

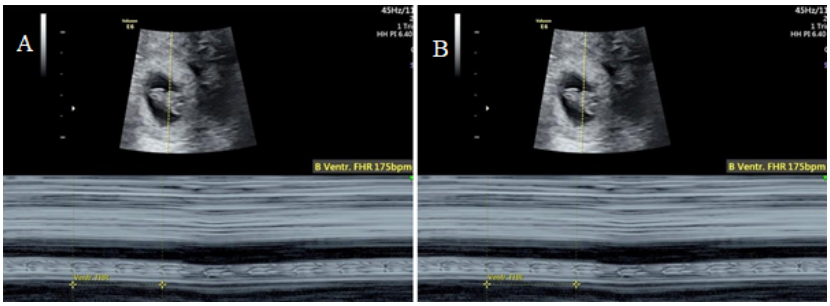

Figure 4 (A) and (B) Cardiac activity on both twins

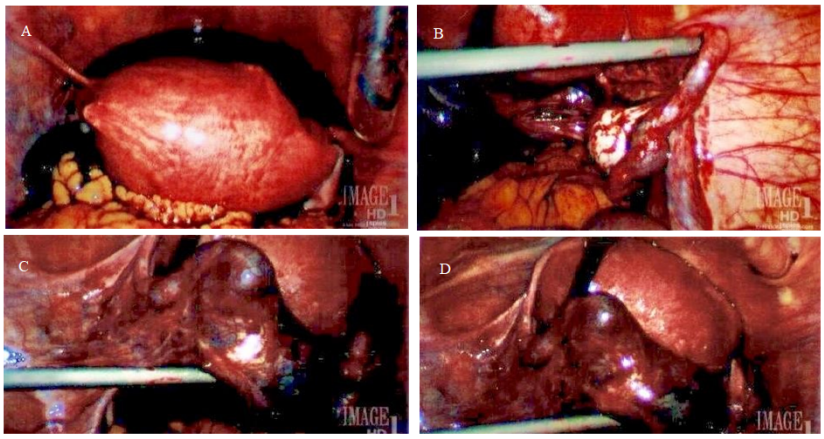

Figure 5 (A) Hemoperitoneum noted on entry into the abdomen. (B) Right tube and ovary with a torturous distal right tube. (C) Left tubal ectopic pregnancy. (D) Left tubal ectopic pregnancy.

evacuation of hemoperitoneum, and adhesiolysis. Her right tube was left in situ, although the distal 1/3 of the right tube appeared tortuous. The patient recovered without complications. A repeat hysterosalpingogram and reproductive endocrinology consult were recommended postoperatively. This pregnancy and case occurred in its entirety during the COVID-19 global pandemic **(Figure 5)**.

Discussion

Ectopic pregnancy should be considered in any pregnant patient who presents with vaginal bleeding, lower abdominal pain, and adnexal tenderness in whom intrauterine pregnancy has not yet been established [2]. Initial examination involves assessing the patient's hemodynamic status, as ruptured ectopic pregnancy often leads to significant hemorrhage and hypovolemic shock.

After comprehensive history taking and physical examination, definitive diagnosis can be made via transvaginal ultrasound. As is the case with our patient, this will most commonly reveal an ectopic mass in the ampulla of the fallopian tube with an empty uterus. Although β-hCG levels were not obtained in our case, it is also important to note that β-hCG levels will often be low or slow rising in an ectopic pregnancy compared to an intrauterine pregnancy. However, in our case, we would have expected higher β-hCG levels given the multifetal gestation, possibly resembling that of a normal intrauterine pregnancy. This is largely attributed to the increased trophoblastic tissue [6]. To confirm the diagnosis of intrauterine *vs.* ectopic pregnancy, serum β-hCG must be measured serially (every 48 to 72 hours) to determine whether the change is consistent with a normal or abnormal pregnancy.

Interestingly, the likely conjoined nature of this ectopic twin tubal pregnancy suggests that the embryo split later than most monozygotic twins, with time of cleavage more than 12 days after conception [7]. Time of cleavage of monochorionic-monoamniotic gestation not conjoined is estimated to be 9 to 12 days [8,9].

Conclusion

Ectopic twin tubal pregnancy management remains the same as a singleton tubal ectopic, with the goal of preserving fertility while mitigating the risk of tubal rupture and hemorrhage. Consistent with current guidelines, surgical management was performed. This was indicated from both patient symptomatology as well as the presence of fetal cardiac activity. As such, expectant management or methotrexate therapy for the treatment of ectopic pregnancy was not indicated. The standard surgical approach is either laparoscopic salpingectomy or salpingectomy, based on shared decision-making between the patient and surgeon.

Conflicts of Interest

No conflicts of interest to disclose.

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