

Comment on An Intrauterine Gestational Sac Surrounded by Thin Myometrium at Fundus

Dear Respectable Editor,

We read the article “An Intrauterine Gestational sac Surrounded by Thin Myometrium at Fundus” [Imaging for Residents] by Shih-Ting *et al.*, published in the J Med Ultrasound 2017;25, with great interest.

Shih-Ting *et al.* presented a 37-year-old, G3P1E1 woman, with a past history of laparoscopic salpingectomy for treatment of left-side tubal pregnancy, with abnormal vaginal spotting after positive pregnancy test and amenorrhea for 8 weeks.^[1]

Transvaginal sonography (TVS) of the patient showed an eccentric intrauterine gestational sac located at the right lateral fundus, surrounded by thin myometrium, and an echogenic line runs from the endometrial cavity to the cornual region, abutting the interstitial gestational sac (called “interstitial line sign”). The patient managed successfully laparoscopically, and cornual wedge resection was removed, followed by hemostatic stitches. The pathology report also proved the diagnosis of cornual pregnancy [as they stated].

Shih-Ting *et al.* stated in the discussion that the cornual ectopic pregnancy is an uncommon variant of ectopic pregnancy, and it accounts for only 2%–4% of tubal pregnancies or approximately 1 in 2500–5000 live births. The mortality rate is as high as 2.5% (7 times greater than that of ectopic pregnancies in general).^[2]

Then, Shih-Ting *et al.* stated that the risks of interstitial pregnancy include rudimentary horn, previous salpingectomy (ipsilateral or bilateral) or other tubal damage (tubal ligation or salpingostomy), conception after *in vitro* fertilization, and a history of pelvic inflammatory disease.^[2,3] In addition, they mentioned that the most common symptoms of cornual pregnancy are abdominal pain and vaginal bleeding in the first trimester of pregnancy.

Shih-Ting *et al.* stated that the TVS is the primary method of diagnosis of cornual pregnancies, and they described the ultrasound criteria of Timor-Tritsch *et al.* and the Ackerman *et al.* “interstitial line sign,” for the diagnosis of interstitial pregnancy.^[4,5]

Shih-Ting *et al.* mentioned the presented case as cornual pregnancy in some parts of their published article and as

interstitial pregnancy in other parts of the published article, which is somewhat confusing to the readers.

The case should be prescribed as interstitial pregnancy, which is a rare variety of ectopic pregnancy and occurs after implantation of the fertilized ovum in the proximal tubal segment that lies within the muscular uterine wall (incorrectly called cornual pregnancy).^[6] Undiagnosed interstitial pregnancy can have disturbed 8–16 weeks of amenorrhea (later than the distal tubal ectopic pregnancy).^[7]

In addition, the interstitial ectopic pregnancy carries the risk of severe hemorrhage and high mortality rate (2.5%), due to the proximity of the interstitial fallopian tube to the uterine and ovarian arteries.^[6-8]

The interstitial pregnancy can be diagnosed early in many cases using the TVS and beta-human chorionic gonadotropin, but the diagnosis can be challenging in some cases.^[9] The missed diagnosis of interstitial ectopic pregnancy may result in life-threatening internal hemorrhage.^[10]

As the authors mentioned, the criteria that may differentiate include empty uterus, with an eccentric gestational sac seen separate from the endometrium, the gestational sac more than 1 cm away from the most lateral edge of the uterine cavity, and <5-mm myometrium surrounding the gestational sac.^[4] Moreover, an echogenic line (the interstitial line sign) extending from the gestational sac to the endometrium cavity represents the interstitial portion of the fallopian tube and is highly sensitive and specific.^[5] In unclear cases, the three-dimensional sonography may help the diagnosis.^[11]

Conventionally, interstitial pregnancy is treated with open laparotomy and salpingectomy with possible need for blood transfusion, and other treatment options include laparoscopic salpingectomy and systemic methotrexate for unruptured ectopic pregnancies in hemodynamically stable patients.^[12]

Approximately 92% of ectopic pregnancies occur in the ampulla part of the fallopian tubes, and rupture of the ampulla ectopic pregnancy usually occurs at 8–12 weeks, whereas 2.5% of the ectopic pregnancies are interstitial

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ectopic pregnancies, and are less commonly cervical, ovary, and/or peritoneal.^[13] Interstitial pregnancy can have disturbed 8–16 weeks of amenorrhea (later than the distal tubal ectopic pregnancy), with subsequent massive internal hemorrhage.^[10]

Katz *et al.* reported two cases of interstitial pregnancy treated successfully with a combined hysteroscopic and laparoscopic approach.^[14]

Timmerman *et al.* reported successful treatment of interstitial ectopic pregnancy by systemic methotrexate (multiple-dose regimen) in two out of three patients.^[15]

In addition, Tanaka *et al.* reported successful treatment of interstitial ectopic pregnancy in 93.9% (31/33) women with bolus dose of methotrexate 100 mg followed by 200 mg of methotrexate infusion over 12 h, and four doses of 15 mg oral folic acid posttreatment.^[16]

CONCLUSION

Interstitial pregnancy is a rare form of ectopic pregnancy and the obstetricians should be aware of rare forms of ectopic pregnancies. Interstitial pregnancy can have disturbed few days or weeks after the missed period, leading to subsequent significant morbidity.

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Conflicts of interest

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