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Case Report

An early extra peritoneal ectopic pregnancy successfully treated with laparoscopy: a case report

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Abstract: Abdominal pregnancy is very rare. Compared to normal and ectopic pregnancies, it has a higher maternal mortality, perinatal mortality and morbidity. We report the case of a 32-year-old G4P1 female of extra peritoneal ectopic pregnancy. There was a past history of tubal pregnancy on the right side in Dec 2012 and she was treated completely by an abdominal salpingectomy. The patient was again diagnosed as ectopic pregnancy due to the largely increased β-HCG, while the location of the sac was still not found. Transverse CT of the abdomen showed a low density circular shadow next to abdominal aorta at the fourth lumbar level. The patient was diagnosed with an abdominal pregnancy by ultrasound and then cured by laparoscopy. The combination of ultrasound and β-HCG plays an important role in diagnosing ectopic pregnancy. And laparoscopy cured the abdominal pregnancy successfully, when the effect of MTX in intramuscular injection on ectopic pregnancy was not significant.

Keywords: Extra peritoneal ectopic pregnancy, serum human chronic gonadotropin (HCG), ultrasound, laparoscopic surgery

Introduction

Abdominal pregnancy, a form of ectopic pregnancy that the embryo or fetus is growing and developing outside the womb in the abdomen, rather than in the Fallopian tube, ovary or broad ligament. And it has a higher chance of maternal mortality, perinatal mortality and morbidity compared to normal and ectopic pregnancies [1]. The gestational sac of abdominal pregnancy usually implants in the pelvis or on highly vascular areas such as the liver, spleen, and mesentery [2]. Abdominal pregnancy is rare and often misdiagnosed [3, 4], only 24 primary abdominal pregnancy cases had been reported by 2007 [5]. The growing placenta may be attached to several organs, including tube and ovary. Other rare sites have been the liver and spleen [6], giving rise to a hepatic pregnancy [7] or splenic pregnancy, respectively [8]. The maternal mortality rate is estimated to be about 5‰, about seven times the rate for ectopics in general, and about 90 times the rate for a "normal" delivery (1987 US data) [9]. Previous publications are shown in **Table 1**.

Case presentation

A 32-year-old woman, G4P1, was admitted to the Department of Obstetrics and Gynecology of our hospital because of 10652 mIU/ml β-HCG in blood and no pregnancy ultrasonographic intrauterine or extra uterine. The patient had a history of regular menses, and her last menstruation was 43 days before admission. At admission, she was asymptomatic, and the physical examination revealed no abdominal tenderness or rigidity. The gynecologic examination indicated a normal cervix and normal discharge with no tenderness of the uterus or adnexa. There was a past history of tubal pregnancy on the right side in Dec 2012 and she was treated completely by an abdominal salpingectomy.

At admission, she was asymptomatic, and physical examination revealed no abdominal tenderness or rigidity. The gynecologic examination indicated a normal cervix and minimal white discharge with no tenderness of the uterus or adnexa. The ultrasound showed that the endometrium was about 9 mm thick and there is no

Table 1. Previous correspondent references

Researcher	Position	Age	GPAL	Medical history	Examination method	Therapy method	Reference no.
Tanase Y et al., 2013	In the omentum	32	G1P0	Myomectomy and an enucleation of left ovarian cyst	β-HCG 8160 mIU/mL	Laparoscopic exploration	[18]
Seol HJ et al., 2009					Computed tomography		[19]
Ke Huang et al., 2014	Attached to the lower end of the uterine wall	30		Assisted reproduction and uterine surgery	MRI	Surgery	[20]
Ngene NC et al., 2015	Ruptured subcapsular hematoma of the liver	25					[21]
Yael Yagil et al., 2007		33	G1P0		β-HCG 36,800 U/L		[8]
Abi Khalil ED et al., 2016	Left tubal	28			β-HCG 8,240 U/L and ultrasonography	Laparoscopy	[22]
Pardal C et al., 2016	Right ectopic ovary	28		Primary infertility	β-HCG 38,485.9 U/L and ultrasonography	Laparoscopic right total salpingectomy	[23]
Patel C et al., 2016	Intra-abdominal ectopic pregnancy with the placenta attached to omentum	26	G1P0		β-HCG and MRI	Methotrexaate and a laparotomy	[24]
Avila-Vergara MA et al., 2016	On the surface of right ovary	21				Laparoscopic right salpingo-oophorectomy	[25]
Álvarez-Goris MP et al., 2015					Regular prenatal ultrasound		[26]
Bazán-Ruiz S et al., 2015	In left ovary	33			Transvaginal ultrasound	Laparoscopic left salpingo-oophorectomy	[27]

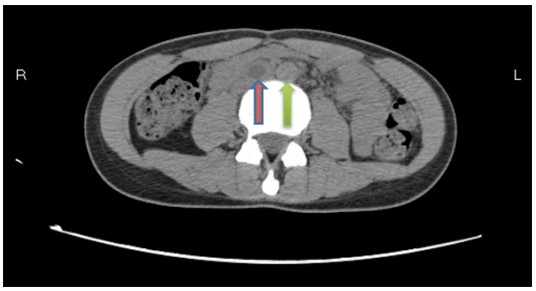

Figure 1. Transverse CT image: a low density circular shadow next to abdominal aorta at the fourth lumbar level. Red arrow indicates ectopic pregnancy sac; green arrow indicates abdominal aorta.

embryo sac in uterus. The day after the diagnostic uterine curettage, β-HCG increased to 12766.00 mIU/ml, while the curettage showed there was no sac in uterus. The patient was diagnosed as ectopic pregnancy, while the location of the sac was still not found. Methotrexate (MTX) intramuscular injection was used for conservative treatment of the ectopic pregnancy. The β-HCG increased to 17853.00 mIU/ml 2 days after MTX intramuscular injection. And transverse CT of the abdomen showed a low density circular shadow next to abdominal aorta at the fourth lumbar level (**Figure 1**). The patient was diagnosed with an abdominal pregnancy by ultrasound. The ultrasound showed the abdominal pregnancy sac was attached between the abdominal aorta and inferior vena cava and there was no embryo sac in uterus (**Figure 2**). On the same day, laparoscopic surgery was given under general anesthesia. During the surgery, a 2*2*2 cm lump was just nearby the abdominal aorta and in retroperitoneal (**Figure 3**). Ultrasound scalpel has been used to cut the lump completely. Villous tissue was visible to the naked eyes in the lump. And all the obtaining samples from specimen were send to department of pathology for pathological section. And the pathology slice showed embryonic tissue in gestation sac (**Figure 4**).

The β-hCG level decreased to 5263.00 mIU/mL the day postoperatively. The patient was discharged on the fourth postoperative day after an uneventful recovery.

Conclusion

It has been demonstrated that ectopic pregnancy is one of the highest risk causing of maternal mortality with an overall pregnancy-related mortality risk of 31.9 deaths per 100,000 pregnancies [10]. A history of tubal disease, tubal surgery, previous ectopic pregnancies and extensive use of ART procedures in recent years have been considered as the major associated risk factors for the ectopic pregnancy [11-13]. If the patient has the risk factors such as a previous history of tubal surgery, ectopic pregnancy, the feasibility of ectopic pregnancy will increase to 54% [14].

Retroperitoneal ectopic pregnancy is a rare special type with an exceedingly rare occurrence because the retroperitoneal space is an extraordinary location [15]. Without gestational sac in the uterus or oviduct, the patient of retroperitoneal ectopic pregnancy had highly elevated β-hCG levels.

During acute laparoscopic surgery what was given under general anesthesia in this case, it is exceptionally rare that retroperitoneal pregnancy located between abdominal aorta and inferior vena cava and all treatments involve a risk of critical bleeding. The pathogenesis of retroperitoneal ectopic pregnancy is equivocal and the potential mechanismsin this case could be presumed: the patient who had a previous history of tubal surgery whose right tubal was removed two years ago, as an unintended adverse consequence of the salpingectomy, a fistula between the tubal stump and retroperitoneum space may occur [16]. Embryo transfers from uterine cavity to peritoneum spontaneous under its strong ability to migrate after the uterine cavity, and peritoneal connected directly may be the key to the retroperitoneal ectopic pregnancy [17].

In conclusion, the fallopian tube is the majority location of ectopic pregnancies [2]. Nevertheless, the salpingectomy may lead to an unusual site implantation that results in diagnostic and therapeutic predicament. Inspection of retroperitoneum space like CT or MRI is indispensable to confirm retroperitoneal ectopic pregnancy for the patient that has abnormal elevations of serum marker levels (β-hCG) without gestational sac in the uterus or oviduct. Acute laparoscopic surgery should be given opportune to prevent the occurrence of uncontrollable bleeding.

Disclosure of conflict of interest

None.

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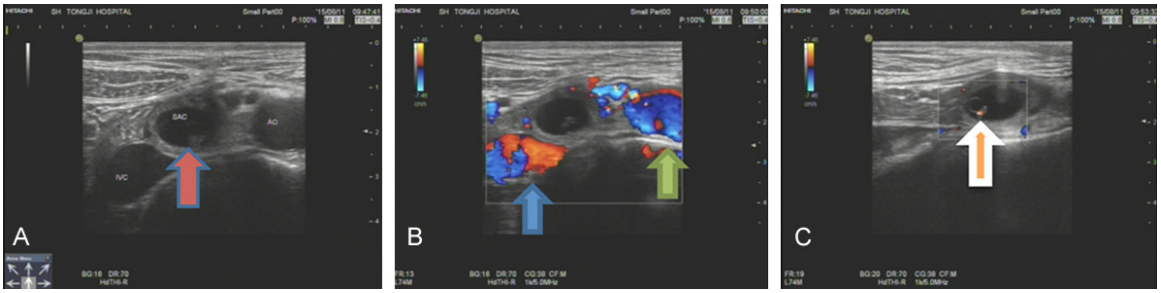

Figure 2. Ultrasound image: the abdominal pregnancy sac was attached between the abdominal aorta (AO) and inferior vena cava (IVC). A. Gray scale longitudinal sonogram of the upper abdomen showing a mass with an anechoic center compatible with a gestational sac between the abdominal aorta and inferior vena cava. B. Color Doppler sonogram showing the blood flow of the abdominal aorta and inferior vena cava. C. Color Doppler sonogram noting a gestational sac with yolk sac and fetal pole. Red arrow indicates pregnancy sac; blue arrow indicates inferior vena cava; green arrow indicates abdominal aorta; yellow arrow indicates yolk sac and fetal pole.

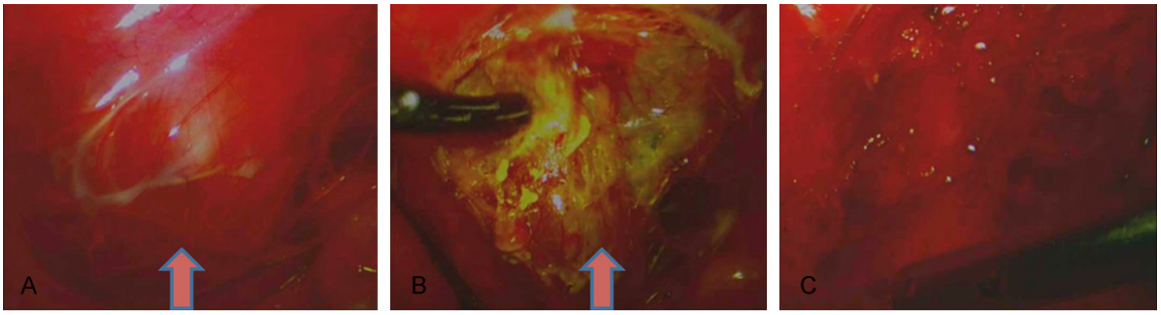

Figure 3. A. Endoscopic findings: the abdominal pregnancy sac was in retroperitoneal and just next to the abdominal aorta. B, C. Ultrasound scalpel has been used to cut the lump completely. Red arrow indicates pregnancy sac.

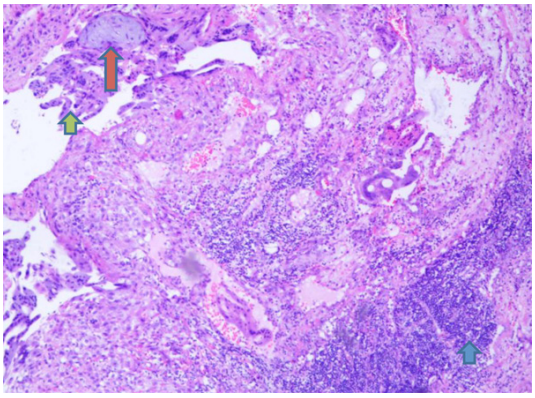

Figure 4. The tissue extra peritoneal was confirmed to be the gestational sacs by Pathology. Histopathology sample of the surgically removed showing chorionic villi (hematoxylin-eosin, original magnification ×20). Blue arrow indicates lymph node infiltrated with embryotic tissue; red arrow indicates villous tissue; green arrow indicates syncytiotrophoblast.

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References

[1] Masukume G. Live births resulting from advanced abdominal extrauterine pregnancy, a review of cases reported from 2008 to 2013. 2014.

[2] Molinaro TA and Barnhart KT. Ectopic pregnancies in unusual locations. Semin Reprod Med 2007; 25: 123-130.

[3] Sunday-Adeoye I, Twomey D, Egwuatu EV and Okonta PI. A 30-year review of advanced abdominal pregnancy at the Mater Misericordiae Hospital, Afikpo, southeastern Nigeria (1976-2006). Arch Gynecol Obstet 2011; 283: 19-24.

[4] Mpogoro F, Gumodoka B, Kihunrwa A and Massinde A. Managing a live advanced abdominal twin pregnancy. Ann Med Health Sci Res 2013; 3: 113-115.

[5] Tasnim N and Mahmud G. Advanced abdominal pregnancy--a diagnostic and management dilemma. J Coll Physicians Surg Pak 2005; 15: 493-495.

[6] Anderson PM, Opfer EK, Busch JM and Magann EF. An early abdominal wall ectopic pregnancy successfully treated with ultrasound guided in-

tralesional methotrexate: a case report. Obstet Gynecol Int 2009; 2009: 247452.
[7] Chui AK, Lo KW, Choi PC, Sung MC and Lau JW. Primary hepatic pregnancy. ANZ J Surg 2001; 71: 260-261.
[8] Yagil Y, Beck-Razi N, Amit A, Kerner H and Gaitini D. Splenic pregnancy: the role of abdominal imaging. J Ultrasound Med 2007; 26: 1629-1632.
[9] Atrash HK, Friede A and Hogue CJ. Abdominal pregnancy in the United States: frequency and maternal mortality. Obstet Gynecol 1987; 69: 333-337.
[10] Grimes DA. Estimation of pregnancy-related mortality risk by pregnancy outcome, United States, 1991 to 1999. Am J Obstet Gynecol 2006; 194: 92-94.
[11] Strandell A, Thorburn J and Hamberger L. Risk factors for ectopic pregnancy in assisted reproduction. Fertil Steril 1999; 71: 282-286.
[12] Assisted reproductive technology in the United States: 1997 results generated from the American Society for Reproductive Medicine/Society for Assisted Reproductive Technology Registry. Fertil Steril 2000; 74: 641-653; discussion 653-644.
[13] Bouyer J. [Epidemiology of ectopic pregnancy: incidence, risk factors and outcomes]. J Gynecol Obstet Biol Reprod (Paris) 2003; 32: S8-17.
[14] Mol BW, van Der Veen F and Bossuyt PM. Implementation of probabilistic decision rules improves the predictive values of algorithms in the diagnostic management of ectopic pregnancy. Hum Reprod 1999; 14: 2855-2862.
[15] Lazarov L. [A rare case of a retroperitoneally situated extrauterine pregnancy]. Akush Ginekol (Sofiia) 1993; 32: 40-41.
[16] Persson J, Reynisson P, Masback A, Epstein E and Saldeen P. Histopathology indicates lymphatic spread of a pelvic retroperitoneal ectopic pregnancy removed by robot-assisted laparoscopy with temporary occlusion of the blood supply. Acta Obstet Gynecol Scand 2010; 89: 835-839.
[17] Iwama H, Tsutsumi S, Igarashi H, Takahashi K, Nakahara K and Kurachi H. A case of retroperitoneal ectopic pregnancy following IVF-ET in a patient with previous bilateral salpingectomy. Am J Perinatol 2008; 25: 33-36.
[18] Tanase Y, Yoshida S, Furukawa N and Kobayashi H. Successful laparoscopic management of a primary omental pregnancy: case report and review of literature. Asian J Endosc Surg 2013; 6: 327-329.
[19] Seol HJ, Tong SY and Ki KD. Secondary missed abdominal pregnancy due to iatrogenic uterine perforation: a case report. Clin Exp Obstet Gynecol 2012; 39: 376-378.
[20] Huang K, Song L, Wang L, Gao Z, Meng Y and Lu Y. Advanced abdominal pregnancy: an increasingly challenging clinical concern for obstetricians. Int J Clin Exp Pathol 2014; 7: 5461-5472.
[21] Ngene NC, Amin N and Moodley J. Ruptured subcapsular hematoma of the liver due to pre-eclampsia presenting as interstitial pregnancy and the role of intra-abdominal packing. Niger J Clin Pract 2015; 18: 300-303.
[22] Abi Khalil ED, Mufarrij SM, Moawad GN and Mufarrij IS. Spontaneous Bilateral Ectopic Pregnancy: A Case-Report. J Reprod Med 2016; 61: 306-308.
[23] Pardal C, Braga L and Vides B. Ectopic pregnancy in an undescended fallopian tube: a diagnostic challenge. BMJ Case Rep 2016; 2016.
[24] Patel C, Feldman J and Ogedegbe C. Complicated abdominal pregnancy with placenta feeding off sacral plexus and subsequent multiple ectopic pregnancies during a 4-year follow-up: a case report. J Med Case Rep 2016; 10: 37.
[25] Avila-Vergara MA, Pena-Ayon AR, Guzman-Gutierrez LE, Valenzuela-Verduzco JE, Caballero-Rodriguez CB and Vadillo-Ortega F. [A second trimester ovarian ectopic pregnancy: A case report]. Ginecol Obstet Mex 2015; 83: 728-734.
[26] Alvarez-Goris Mdel P, Mendoza-Moreno JM, Sanchez-Zamora R, Torres-Rivera RA and Galicia-Pedraza AK. [Ovarian ectopic pregnancy with little common clinical presentation. A case report and bibliographical review]. Ginecol Obstet Mex 2015; 83: 545-550.
[27] Bazan-Ruiz S, Anchayhua-Cucchi J, Ruiz-Leud M and Castillo-Pulido P. [Complicated ovarian ectopic pregnancy in the second trimester of pregnancy: report of a case]. Ginecol Obstet Mex 2015; 83: 494-498.