CASE REPORT

Chronic Ectopic Pregnancy: Clinical and Imaging Correlates

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ABSTRACT

Aim: To describe the clinical correlates and ultrasound characteristics of chronic ectopic pregnancy.

Background: Acute ectopic gestation is diagnosed by early pregnancy ultrasound and the clinical and imaging correlates are well known. However, in contrast, chronic ectopic pregnancy, accounting for approximately 6% of all ectopic gestations, is not a well-defined entity. This leads to diagnostic dilemmas and challenges in management.

Case description: Fifteen women over a period of 6 years were included. The age ranged from 20 to 35 years, with the majority being multigravidas. Six women presented with abnormal uterine bleeding (AUB) and pain abdomen, four with AUB, and two with abdominal pain. The urine pregnancy test was positive in 11, and serum beta-human chorionic gonadotropin (S β hCG) was elevated in all. Ultrasound showed a heterogeneous mass in the pouch of Douglas (POD) and/or unilateral adnexa, with no internal vascularity. The right salpingectomy was done in 10, and the ipsilateral ovary was removed in 5. Three patients had unique presentations with urinary retention, jaundice, and fever.

Conclusion: Chronic ectopic pregnancy should be the provisional diagnosis in a young multiparous woman with AUB and/or abdominal pain, if the ultrasound shows a heterogeneous mass in the POD and/or adnexa, with no internal vascularity, to plan optimal surgery.

Clinical significance: The differential diagnosis of chronic ectopic pregnancy is a malignant germ cell tumor of the ovary. Hence, a definitive approach to the preoperative diagnosis of chronic ectopic pregnancy will lead to optimal patient outcomes.

Keywords: Chronic ectopic pregnancy, Color Doppler, Ultrasound.

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BACKGROUND

Ectopic pregnancy is the implantation of the conceptus outside its normal location in the uterine cavity. Today, most of the ectopic gestations in the developed world are diagnosed while still unruptured by early pregnancy ultrasound, and their clinical imaging correlates are well known.¹ The presentation of ectopic pregnancy as a dramatic acute event with rupture of the fallopian tube, hemodynamic instability, and hemoperitoneum is also well documented in the literature. However, chronic ectopic pregnancy, where there is a gradual disintegration of the tubal wall, is a rarer occurrence and is not well-defined.² This leads to diagnostic dilemmas and challenges in management.

Against this background, the present caseseries aims to describe the clinical correlates and imaging characteristics of chronic ectopic pregnancy for optimal patient outcomes.

CASE DESCRIPTION

Fifteen patients of a single institute over a period of 6 years from April 2014 to March 2020 were included in the series. Data were collected prospectively and analyzed retrospectively. Table 1 shows detailed patient characteristics. The age of the patients ranged from 20 to 35 years, with a median age of 30 years. Fourteen were multigravidas, with median gravidity of 3. Overall, 6/15 women presented with a combination of abnormal uterine bleeding (AUB) and abdominal pain. Abnormal uterine bleeding as the presenting complaint was present in 4/15 women and abdominal pain in 2/15 women. Thus, 12/15 (80%) women had a presenting complaint of either AUB or pain abdomen or both. The urine pregnancy test (UPT) was positive in 11 patients, and serum beta-human chorionic gonadotropin (S β hCG) was elevated in all 15 cases. In the four patients where UPT was negative, the S β hCG was only mildly elevated (17–36 mIU/mL), the median value being 28 mIU/

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mL. Grayscale ultrasound showed the presence of a heterogeneous mass of varying sizes in the pouch of Douglas (POD) and/or unilateral adnexa (Fig. 1), with an average size of 7.9×5.7 cm, with color Doppler (CD) showing no internal vascularity (Fig. 2). The delay from the onset of symptoms to definitive surgery ranged from 4 to 90 days, with an average duration of 28.1 days. Adhesions were present in 11/15 cases, and careful adhesiolysis was done in all of them. The right salpingectomy was done in 10/15 cases, and ipsilateral ovary been removed in 5/15 cases due to destruction and dense adhesions.

Three women had unique presentations—with urinary retention, jaundice, and fever, respectively, where the diagnosis to definitive surgery time was also prolonged, as expected. Their preoperative ultrasound, both grayscale and CD is depicted (Fig. 3).

DISCUSSION

Chronic ectopic pregnancy results when the ectopically implanted gestation, mostly in the fallopian tubes, invades the

Table 1: Patient characteristics

Case no.	Age (years)	Obstetric score	Symptoms	UPT	S β hCG (mIU/mL)	USG size of mass (cm)	Time to surgery (days)	Adhesions (yes/no)	Surgery done
1.	20	G1	AUB pain abdomen	+	303	10.9 $\times$ 8.9	11	Yes	LSO
2.	25	G2P1L1	AUB pain abdomen	–	36	6.2 $\times$ 4.1	11	No	RS
3.	26	G4P2L2A1	AUB pain abdomen	+	581	7.7 $\times$ 4.6	13	Yes	RSO
4.	30	G3P2L2	AUB pain abdomen	+	502	5.3 $\times$ 4.2	5	Yes	RS
5.	30	G4P3L3	AUB pain abdomen	+	299	10.0 $\times$ 5.0	24	Yes	RSO
6.	26	G2P1L1	Pain abdomen	–	17	6.0 $\times$ 5.0	60	Yes	RS
7.	35	G2P1L1	Pain abdomen	+	522	5.2 $\times$ 3.1	60	No	LS
8.	33	G3P2L2	AUB pain abdomen	+	486	5.1 $\times$ 4.4	9	No	LS
9.	35	G3P2L2	Urinary retention	–	29	9.7 $\times$ 5.6	90	Yes	RSO
10.	33	G2P1L1	AUB	+	324	5.1 $\times$ 3.2	10	No	RS
11.	26	G2P1L1	Jaundice	+	822	16.2 $\times$ 13.0	60	Yes	RS
12.	35	G3P2L2	AUB	+	884	8.2 $\times$ 5.8	4	Yes	LSO
13.	33	G3P2L2	Fever	+	136	9.8 $\times$ 7.3	15	Yes	RS
14.	25	G2P1L1	AUB	–	28	8.2 $\times$ 5.6	30	Yes	LS
15.	30	G3P1L1A1	AUB	+	328	5.7 $\times$ 6.5	20	Yes	RS

A, abortion; AUB, abnormal uterine bleeding; G, gravida; L, left; L, living; P, para; R, right; S, salpingectomy; SO, salpingo-oophorectomy; S β hCG, serum beta-human chorionic gonadotropin; UPT, urinary pregnancy test; USG, ultrasound

Figs 1A to F: Grayscale ultrasound showing six different cases (A–F) with an empty uterine cavity and a heterogeneous mass in the POD/adnexa of varying sizes

underlying structures, causing protracted destruction at the site of implantation. This leads to repeated minor ruptures and bleeds, with the formation of a hematocele having blood clots, trophoblastic tissue, and wall of the fallopian tube that incites inflammatory reaction and resembles a complex pelvic mass.²

The exact incidence of chronic ectopic pregnancy is not well known.³ It has previously been estimated to account for 6% of all ectopic pregnancies.⁴ However, today, most are reported as case reports or series, due to the rarity of the condition, and the absence of well-defined diagnostic criteria. This causes diagnostic dilemmas, even in countries where early pregnancy units have drastically

improved the management of early pregnancy complications.⁴ Malignant germ cell tumor (GCT) is a great mimicker of chronic ectopic pregnancy, due to the shared patient profile of young women presenting with AUB and abdominal pain.⁵ Grayscale ultrasound (USG), along with CD, helps in arriving at the diagnosis preoperatively. The USG feature of malignant GCT in women has recently been described as unilateral, multilocular-solid, or solid with a color score of 3–4, in young women with painful abdomen at a median age of 25 years.⁶

In contrast, preoperative imaging often fails to distinguish chronic ectopic pregnancy from other pelvic masses.⁵ It has been

Figs 2A to F: Color Doppler ultrasound showing six different cases (A–F) with the absence of internal vascularity in the heterogeneous mass in the POD/adnexa

Figs 3A to F: The grayscale and color Doppler images of three patients with atypical presentation of urinary retention (A and B), jaundice (C and D), and fever (E and F). The typical appearance of a heterogeneous mass (A, C and E) in the POD with absent internal vascularity (B, D and F) is seen

described as an extrauterine complex mass in the adnexa(e) and cul-de-sac or as a pelvic mass with a non-homogeneous echo pattern.^{5,7} This case-series is in agreement with the above, adding that chronic ectopic pregnancy appears as a heterogeneous mass in the POD or adnexa, with no internal vascularity, which distinguishes it from the solid GCT having high vascularity with a color score of 3 or 4. Pelvic inflammatory disease (PID), endometriosis, and fibroid uterus are the other differential diagnosis of chronic ectopic pregnancy. Uncommon presentations of chronic ectopic pregnancy have included rectal bleeding due to perforation and identification of fetal form in the chronic ectopic mass.^{8,9} Three patients in this series had uncommon presentations with urinary retention, jaundice, and fever. Urinary retention probably arose from mass filling the pelvic cavity and distorting the urinary bladder–urethra anatomy. Jaundice can be explained by the degradation of hemoglobin from the huge pelvic collection, and fever occurred due to infection of the organized mass. Urine pregnancy test is usually positive. In a minority of cases, UPT may be negative, due to the scanty amount of live chorionic villi present. In these cases, a strong clinical suspicion, along with S β hCG, USG, and CD helps in arriving at the correct diagnosis preoperatively. Serum beta-human chorionic gonadotropin is usually in the low ranges, due to the destruction of viable trophoblastic tissue. An early diagnosis for chronic ectopic pregnancy is thus imperative, as it prevents further adhesion formation and planning corrective surgery.

Chronic ectopic pregnancy also poses surgical challenges due to extensive adhesions of the fallopian tube to the large and small bowel, omentum, and ovary caused by chronic inflammation. Women are at risk of sustaining surgical morbidity due to bowel injury requiring bowel resection.⁵ Ipsilateral ovary in these young women may also need to be removed surgically if damaged beyond viability, like in five cases in this series. Hence, safe surgery is of paramount importance. A preoperative diagnosis of chronic ectopic pregnancy should alert the treating gynecologist in a multidisciplinary approach for optimizing patient outcomes.

CONCLUSION

We conclude that a chronic ectopic pregnancy is rare and is often misdiagnosed preoperatively. Chronic ectopic pregnancy should be the provisional diagnosis in a young multiparous woman with AUB and/or abdominal pain, if the ultrasound shows the presence of a

heterogeneous mass in the POD and/or adnexa, with no internal vascularity on CD.

CLINICAL SIGNIFICANCE

The differential diagnosis of chronic ectopic pregnancy is a malignant GCT of the ovary. Hence, a preoperative diagnosis of chronic ectopic pregnancy will lead to optimal patient outcomes.

DISCLOSURES

This paper was presented in part at the 28th ISUOG World Congress in Singapore in 2018 and was published as an abstract in *Ultrasound in Obstetrics and Gynecology*.

ETHICS

Written informed consent was obtained from the patients for writing this report.

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