

Case Report

Chronic ectopic pregnancy with undetectable serum β -hCG level: A rare type of ectopic pregnancy

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Abstract

Ectopic pregnancy is the implantation of embryo and presence of gestational sac outside of the uterine cavity. Chronic ectopic pregnancy is a rare form of tubal pregnancy frequently presented with a pelvic mass and minimal symptom with a low or absence of beta-human chorionic gonadotropin (β -hCG) titer. Preoperative diagnosis is difficult because of high incidence of negative pregnancy test, nonspecific symptoms and low sensitivity of ultrasonographic findings. Therefore many cases are diagnosed after surgical exploration. It is characterized by degenerated trophoblastic tissue and chronic inflammatory mass formation in the fallopian tube. In this current case report we present a 24-year-old nulliparous woman admitted to our emergency department because of lower abdominal pain. Ultrasonography showed a mass of 4 cm in size in left adnexal area. On color Doppler ultrasound, mass showed no vascularity. Serum β -hCG level was undetectable which in the sense of less than 10 IU/ml. Laparoscopy revealed a left tubal ampullary mass consistent with an old tubal ectopic pregnancy. Laparoscopic left salpingectomy was performed. Histopathological examination confirmed chronic ectopic pregnancy. In conclusion, even if serum β -hCG level is less than lower reference limit and clinical symptoms are disguised, ectopic pregnancy should be considered in the differential diagnosis of adnexal masses in reproductive aged women.

Key words:

Chronic ectopic pregnancy, human chorionic gonadotropin, laparoscopy, ultrasound

Introduction

Chronic ectopic pregnancy with low or absence of serum β -hCG titer is an enigma in gynecological practice. A definitive diagnosis is frequently made after surgical intervention. Hemodynamic stability, chronicity of symptoms and high incidence of false negative pregnancy test results are clinical characteristics of chronic ectopic pregnancy. Dense adhesions, abscess formation, degenerative trophoblastic tissue and chronic inflammatory reaction are surgical findings and histopathological characteristics of disease. Approximately 6% of ectopic pregnancies are in a chronic nature [1].

Ectopic pregnancy is a common disorder and its frequency has gradually increased in the past few decades. The rise can be attributed partly to increases in certain risk factors but mostly to improved diagnostic methods. The reported incidence of this life threatening disorder varies from 1.6 to

2.0% of all pregnancies [2]. The classic triad of ectopic pregnancy is one sided lower abdominal pain, vaginal bleeding following amenorrhea and the presence of an adnexal mass. Accepted diagnostic strategies initially depend on β -hCG testing to determine pregnancy status. The measurement of β subunit of human chorionic gonadotropin is a rapid and unequivocal test for determining trophoblastic viability [3].

The lack of β -hCG is usually very reliable in excluding pregnancy, independent from the location of pregnancy. Transvaginal ultrasonography (TVS) is also an important diagnostic tool for evaluation of a pregnant woman with suspected ectopic pregnancy. In some types of ectopic pregnancy preoperative diagnosis is difficult because of high incidence of negative pregnancy test, nonspecific symptoms and low sensitivity of ultrasonographic findings. Such rare cases of ectopic pregnancy with negative modern β -hCG assays have been reported previously, which were often the result of chronic ectopic pregnancy [4, 5].

The following case is a rare type of chronic ectopic pregnancy with undetectable serum β -hCG level.

Case presentation

A 24-year-old nulliparous woman admitted to our emer-

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gency department because of lower abdominal pain. She applied to another center with a complaint of vaginal bleeding six weeks before and diagnosed as miscarriage. β -hCG surveillance was recommended, but she did not comply with clinical follow up. Her past obstetric and gynecologic history was normal. On pelvic examination, minimal vaginal bleeding and severe tenderness in the left fornix were detected. Transvaginal ultrasonographic examination showed a thin 5 mm endometrial echo, normal ovaries and uterus measuring 95x69x48 mm in dimensions. There was minimal fluid in the pouch of Douglas. Ultrasound also showed a mass of 4 cm in size in left adnexal area (Figure 1) and vascularity was not seen on color Doppler ultrasound of the mass. Serum β -hCG level was undetectable which in the sense of less than 10 IU/ ml. Complete blood count was normal and other laboratory tests were unremarkable. She was operated due to persistence of her pain and acute abdominal symptoms (presence of defense and rebound tenderness on abdominal examination). Laparoscopy revealed a left tubal ampullary mass consistent with an old tubal ectopic pregnancy, minimal hemorrhagic fluid in peritoneal cavity and adhesions between bowel loops and left fallopian tube. Laparoscopic left salpingectomy was performed. Histopathological examination confirmed chronic ectopic pregnancy which devastated the tubal wall.

Discussion

The incidence of chronic ectopic pregnancies varies from 6.5 % to 84 % in the literature [1]. This variation of the definition of chronic ectopic pregnancy depends on how accepted by the author. Chronic ectopic pregnancy is a term used more commonly in the past to describe an ectopic pregnancy that was frequently associated with a negative pregnancy test and in which the gestation was marked by degeneration, an inflammatory mass of organized hematoma, and surrounding adhesions [6]. Early reports had looked on the possibility of negative pregnancy tests, but more recent studies describe the presence of inflammatory adhesions and mass formation as the most salient features of this disorder. According to recent definition, the incidence of chronic ectopic pregnancy is arising automatically. In a study using this definition, authors reported that incidence of chronic ectopic pregnancy was 20 % and 8 % of them have absence of serum β -hCG titer [7].

There are different suggested mechanisms to explain low or absence of serum β -hCG values in ectopic pregnancies. These are; use of an older, less sensitive assay; trophoblastic degeneration with discontinuance of

hormone production; a very small mass of villi producing the hormone; defective biosynthesis of β -hCG hormone production; and enhanced circulatory clearance of the hormone [5]. Chronic ectopic pregnancies may present similarly to acute ectopic pregnancies, except that the symptoms are generally longer in duration, and the onset of the pain is more gradual [8]. An extensive review of the literature has revealed false-negative urine and serum β -hCG test results of less than 1% [9].

Figure 1.



Ultrasonographic image of the mass

There are some reports about ruptured ectopic pregnancy and hemorrhagic shock with undetectable serum and urine β -hCG levels. Kalinski et al. presented a patient with a large amount of free intraperitoneal fluid and a cystic pelvic mass interpreted as a likely ectopic gestation. Their patient's hematocrit level was very low and repeated urine pregnancy test and serum β -hCG were negative. Laparotomy revealed a ruptured right ectopic pregnancy with a free intraperitoneal blood volume estimated at 3,000 mL [9]. Our patient was hemodynamically stable and had no signs of hemorrhagic shock.

In another case report, authors proposed that unstable patients presenting with abdominal pain must be resuscitated while appropriate evaluation for hemoperitoneum is pursued and stable patients with negative β -hCG results, other tests including computerized tomography (CT) scan may be used to evaluate abdominal pain, especially in the setting of suspected appendicitis [8]. It was concluded that CT scan may inadvertently reveal findings suspicious for ectopic pregnancy and may allow appropriate treatment even when this condition is clinically unsuspected. Ultrasound has become a crucial part of the routine gynecologic examination. CT scan was not routinely used in our hospital, because there is no CT scan in our institution. Anyway, ultrasound offers now a

great help in the diagnosis of almost all gynecological diseases, especially when performed by expert sonographers.

TVS and Doppler are the most common used methods in the diagnosis of ectopic pregnancy. One third of the patients with ectopic pregnancy show no vascularity on Doppler ultrasound. This group is generally composed of non-viable or involuting ectopic pregnancies [10]. One more important point is that low quantitative β -hCG levels cannot eliminate the risk of tubal rupture and sonographic image may not correlate with serum levels β -hCG. In a previous case report, authors suggested that chronic ectopic pregnancy should be considered in differential diagnosis of a patient with pelvic mass showing no internal vascularity on Doppler and undetectable β -hCG level [11]. Increased vascularization originating from abnormal vessels and arteriovenous shunting can be detected on the surface of the mass that may include omentum and affected tube segment. In our case, we did not detect any vascularity on the mass due to absence of such a conglomerate. An avascular tubal mass was only shown on Doppler ultrasound.

On the other hand our patient initially presented with what was thought to be miscarriage. It would be prudent to have more supportive evidence to reduce the risks of missed ectopic pregnancy by ongoing β -hCG surveillance with the expected halving of β -hCG in 48 hours and to follow it to zero. Follow-up visit was recommended in our patient, but she did not comply with clinical follow-up. As shown in our case, a recent history of presumed miscarriage should not deter us from considering the

possibility of an ectopic pregnancy. Patients may have signs and symptoms compatible with an ectopic pregnancy, even if serum β -hCG is negative. This reminds us not to rely solely on laboratory criteria for diagnosis. Moreover, physicians should be careful and vigilant while evaluating a woman during her early pregnancy period. In our patient, TVS revealed an adnexal mass. We considered a tubal ectopic pregnancy and isolated tubal torsion at the initial differential diagnosis, but her history warned and led us to the diagnosis of chronic ectopic pregnancy.

In addition chronic ectopic pregnancy can be observed after conservative surgery or methotrexate treatment [12]. After an ectopic pregnancy which is thought to be successfully treated, in cases where the β -hCG titer disappears and normal menstruation resume, possible chronic ectopic pregnancy may occur. Chronic ectopic pregnancy can mimic other pelvic pathologies presented as an adnexal mass. Güngör et al reported that a pelvic mass misinterpreted initially as ovarian malignancy because of clinical, radiological and laboratory findings [13].

In conclusion chronic ectopic pregnancy should be considered in the differential diagnosis of adnexal masses, especially in women with a history of recent miscarriage, even if β -hCG levels are less than lower reference limit and clinical symptoms are unremarkable.

Conflict of interest statement

The authors declare no conflict of interest.

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