

UC Davis

UC Davis Previously Published Works

Title

Controversies in family planning: persistently elevated serum human chorionic gonadotropin levels after aspiration abortion

Permalink

<https://escholarship.org/uc/item/9bq0z22g>

Journal

Contraception, 98(6)

ISSN

0010-7824

Authors

Chen, Melissa J
Pymar, Helen
Creinin, Mitchell D

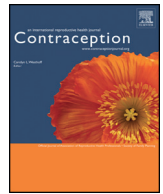
Publication Date

2018-12-01

DOI

10.1016/j.contraception.2018.07.136

Peer reviewed



Controversy

Controversies in family planning: persistently elevated serum human chorionic gonadotropin levels after aspiration abortion ☆☆☆☆



Melissa J. Chen^{a,*}, Helen Pymar^b, Mitchell D. Creinin^a

^a Department of Obstetrics and Gynecology, University of California, Davis, Sacramento, CA, USA

^b Department of Obstetrics and Gynecology, University of Manitoba, Winnipeg, Manitoba, Canada

ARTICLE INFO

Article history:

Received 9 February 2018

Received in revised form 16 April 2018

Accepted 25 July 2018

Keywords:

Human chorionic gonadotropin

Induced abortion

Suction aspiration

Retained products of conception

Incomplete abortion

ABSTRACT

Low but rising serum human chorionic gonadotropin (hCG) levels occur infrequently after an induced abortion. Because this scenario rarely occurs after suction aspiration, clinicians may have higher suspicion for an uncommon diagnosis. The differential diagnosis includes both common and uncommon diagnoses, such as incomplete abortion, heterotopic or ectopic pregnancy, a new intrauterine pregnancy and gestational trophoblastic neoplasia. The etiology of this presentation may be unclear, especially in the absence of abnormal bleeding or pain which would suggest incomplete abortion, or when significant time has passed since the procedure. We describe two cases of an uncommon presentation of retained products of conception after aspiration abortion in which hCG levels were low but rising.

© 2018 Elsevier Inc. All rights reserved.

1. Case presentations

1.1. Case 1

A 31-year-old gravida 9 para 3 African-American female presented at 5 weeks 5 days of gestation for surgical abortion. Her obstetric history included a left salpingectomy for ectopic pregnancy. She desired permanent sterilization with right salpingectomy concurrent with her abortion. The surgeons performed the aspiration procedure, visually identified the gestational sac in the pathology specimen and then completed a right laparoscopic salpingectomy without complication. A pathologist histologically confirmed the identification of both specimens. The patient called the office about 5 weeks after her procedure reporting continued pregnancy symptoms of nausea, breast tenderness, fatigue and amenorrhea. In the office, a urine pregnancy test was positive. Transvaginal ultrasound evaluation demonstrated a homogenous endometrial stripe measuring 12 mm, no intrauterine gestational sac and no adnexal mass. Serum human chorionic gonadotropin (hCG) was 233 mIU/mL with a repeat value 1 week later of 307 mIU/mL. The clinician had concern for gestational trophoblastic neoplasia (GTN) given the rise in hCG after her concurrent abortion and sterilization procedures and presented the patient's case at our Family Planning

Specialist weekly conference; the consensus opinion favored an incomplete abortion rather than GTN with a recommendation for suction aspiration. The procedure did not reveal chorionic villi on pathologic examination; however, the serum hCG declined to 75 mIU/mL within 24 h after the procedure. Her pregnancy symptoms resolved over the following days, and she reported a negative home urine pregnancy test about 3 weeks after the second procedure.

1.2. Case 2

A 22-year-old gravida 1 para 0 Caucasian female presented at 5 weeks of gestation for a surgical abortion. She underwent an uncomplicated suction aspiration with visualization of the gestational sac during tissue inspection after the procedure. The patient returned to the clinic 1 week after the procedure complaining of continuing pregnancy symptoms. Serum hCG measurements were 318 mIU/mL and 491 mIU/mL on postoperative days 7 and 14, respectively. A transvaginal ultrasound examination did not demonstrate evidence of an intrauterine or ectopic pregnancy. On postoperative days 14 and 15, the patient used two doses of misoprostol 800 mcg buccally 24 h apart, which resulted in minimal bleeding. A transvaginal ultrasound examination after misoprostol treatment showed echogenic material in the endometrium measuring 7×3 mm without vascularity and normal adnexa bilaterally. Serum hCG levels continued to rise after misoprostol treatment from 938 mIU/mL to 1080 mIU/mL by 3 weeks after the initial aspiration. The clinician had concern for an undiagnosed heterotopic pregnancy or GTN and consulted with one of the authors (M.D.C.), who reviewed the patient's case at the Family Planning Specialist conference. The consensus recommendation was that the case likely represented an

☆ Funding: none.

☆☆ Conflicts of interest: The authors have no conflicts of interest to disclose.

★ We obtained consent from the women depicted in the case presentations.

* Corresponding author. Tel.: +1 916 734 5673; fax: +1 916 734 6031.

E-mail address: mejchen@ucdavis.edu (M.J. Chen).

incomplete abortion and to perform a repeat aspiration. The procedure occurred on postoperative day 23; pathologic examination demonstrated degenerated chorionic villi and fragments of decidualized endometrium. After the second aspiration, serum hCG levels declined to 89 mIU/mL in approximately 72 h and to <5 mIU/mL 2 weeks later.

2. Review

Low but increasing hCG levels are an infrequent finding after early surgical abortion, especially very remote from the procedure as occurred in case 1. After surgical abortion, serum hCG levels initially decrease rapidly then gradually decline; in pregnancies less than 8 weeks of gestation, values are <10 mIU/mL by an average of 28 days postprocedure [1]. In contrast, serum hCG levels resolve more quickly after early pregnancy losses and ectopic pregnancies, likely due to fewer functional trophoblasts [2].

In the absence of a new intrauterine gestation or previously undiagnosed ectopic pregnancy, low but increasing hCG levels could raise concern for GTN, which includes invasive moles, choriocarcinoma, placental site trophoblastic tumor (PSTT) and epithelioid trophoblastic tumor (ETT). Invasive moles can occur after molar pregnancy; however, choriocarcinoma, PSTT and ETT can develop after both molar and nonmolar gestations. Choriocarcinoma is the most common of these rare diagnoses and affects approximately 1 in 40,000 pregnancies in Europe and North America [3]. A molar pregnancy is the precursor gestation in 50% of choriocarcinoma cases, and the remaining occurs after an abortion, ectopic, term or preterm pregnancy [4]. GTN is difficult to diagnose after nonmolar pregnancies due to its varied presentation. Patients most commonly present with abnormal bleeding or with symptoms from metastatic lesions to the other organs [5,6]. Laboratory evaluation typically demonstrates an elevated serum hCG level, while ultrasound findings vary and may include nonspecific hyperechoic or hypoechoic focal masses within the myometrium with small anechoic cystic areas representing hemorrhage or necrosis [7]. Color Doppler examination can show increased vascularity with trophoblastic vessels demonstrating a high-velocity low-resistance waveform [7]. Histologic diagnosis of choriocarcinoma can occur in patients who undergo uterine evacuation for treatment of presumed retained products of conception after a nonmolar gestation [5].

Uterine sonographic evaluation because of persistent hCG levels postabortion has been reported to suggest the presence of an arteriovenous malformation (AVM) [8,9]. The overall incidence of AVM is unknown as the literature consists primarily of case reports, but the number of diagnosed cases may be increasing with the advent of more sophisticated imaging modalities [10]. While angiography is still considered the gold standard for definitive diagnosis, ultrasonography is often used to evaluate for AVMs [11]. Ultrasound findings include tortuous spaces in the myometrium, multiple cystic lesions, hypoechoic masses and turbulent blood flow with color Doppler imaging [10,11]. The presence of elevated hCG levels can occur with uterine AVMs [11], which poses a diagnostic dilemma as trophoblastic disease and retained products of conception also have similar characteristics on imaging [8]. Of interest, several cases of suspected AVMs resolved spontaneously after hCG was no longer detected [9–12]. The spontaneous resolution of the uterine vascular lesions suggests that these ultrasound findings may actually represent subinvolution at the implantation site or retained products of conception rather than true AVMs [9,12].

Lastly, rising hCG levels after aspiration abortion may be related to incomplete abortion or retained products of conception due to presence of viable trophoblasts. Retained products of conception after first-trimester suction aspiration occur in less than 1% of procedures [13]. Patients typically present with abnormal bleeding or lower abdominal cramping, reported by 88% and 12%, respectively, of women who had repeat evacuation for incomplete abortion [14]. Ultrasound findings suggestive of retained products of conception include a thickened endometrium, presence of an endometrial or intrauterine mass, or

vasculature on Doppler ultrasonography [15]. However, sensitivity and specificity vary from study to study due to different cutoffs, and no specific diagnostic criteria exist for findings on ultrasonography [13].

3. Case analyses

A routine follow-up visit is not required after first-trimester surgical abortion due to its low rate of complications [16–18]. In one high-volume clinic that switched from routine to “as indicated” follow-up after suction aspiration, only 4% of patients returned to the clinic for medical evaluation [16]. Accordingly, clinicians may have higher suspicion for an uncommon diagnosis when a patient does present with a concern postaspiration.

In these cases, the clinicians initially suspected a rare outcome and did not focus on incomplete abortion as the likely diagnosis. The physicians had low clinical suspicion for a new intrauterine pregnancy or ectopic gestation. While we should include rare outcomes in our differential diagnoses, these cases provide examples that in women with atypical presentations, persistent hCG after surgical abortion is most commonly due to incomplete abortion. These patients had rising hCG levels without bleeding and pain, the symptoms that usually accompany retained products of conception. In such cases, we initially consider repeating an aspiration procedure, which will either treat incomplete abortion or potentially obtain tissue sampling to diagnose choriocarcinoma. If pathologic examination of the specimen does not reveal chorionic villi, repeating an hCG measurement can facilitate a diagnosis. In our practice, if hCG measurements drop by more than 50% after aspiration, we presume that the viable trophoblasts were intrauterine [19–22]. In these cases, consultation with other family planning specialists occurred, highlighting the benefit of querying experienced clinicians when managing situations with uncommon presentations.

Acknowledgments

None.

References

- [1] Aral K, Gürkan Zorlu C, Gökmen O. Plasma human chorionic gonadotropin levels after induced abortion. *Adv Contracept* 1996;12:11–4.
- [2] Steier JA, Bergsjø P, Myking OL. Human chorionic gonadotropin in maternal plasma after induced abortion, spontaneous abortion, and removed ectopic pregnancy. *Obstet Gynecol* 1984;64:391–4.
- [3] Lurain JR. Gestational trophoblastic disease I: epidemiology, pathology, clinical presentation and diagnosis of gestational trophoblastic disease, and management of hydatidiform mole. *Am J Obstet Gynecol* 2010;203:531–9.
- [4] Ngan HY, Seckl MJ, Berkowitz RS, Xiang Y, Golfier F, Sekharan PK, et al. Update on the diagnosis and management of gestational trophoblastic disease. *Int J Gynaecol Obstet* 2015;131(Suppl. 2):S123–6.
- [5] MacDonald MC, Ram R, Tidy JA, Hancock BW. Choriocarcinoma after a nonterm pregnancy. *J Reprod Med* 2010;55:213–8.
- [6] Tidy JA, Rustin GJ, Newlands ES, Foskett M, Fuller S, Short D, et al. Presentation and management of choriocarcinoma after nonmolar pregnancy. *Br J Obstet Gynaecol* 1995;102:715–9.
- [7] Shaaban AM, Rezvani M, Haroun RR, Kennedy AM, Elsayes KM, Olpin JD, et al. Gestational trophoblastic disease: clinical and imaging features. *Radiographics* 2017;37:681–700.
- [8] Müngen E. Vascular abnormalities of the uterus: have we recently over-diagnosed them? *Ultrasound Obstet Gynecol* 2003;21:529–31.
- [9] Jain K, Fogata M. Retained products of conception mimicking a large endometrial AVM: complete resolution following spontaneous abortion. *J Clin Ultrasound* 2007;35:42–7.
- [10] Russo JA, Gil L, DePiñeres T. Controversies in family planning: arteriovenous malformation. *Contraception* 2013;88:326–9.
- [11] Peitsidis P, Manolakos E, Tsekoura V, Kreienberg R, Schwentner L. Uterine arteriovenous malformations induced after diagnostic curettage: a systematic review. *Arch Gynecol Obstet* 2011;284:1137–51.
- [12] Darlow KL, Horne AW, Critchley HO, Walker J, Duncan C. Management of vascular uterine lesions associated with persistent low-level human chorionic gonadotropin. *J Fam Plann Reprod Health Care* 2008;32:118–20.
- [13] Russo JA, DePiñeres T, Gil L. Controversies in family planning: retained products of conception. *Contraception* 2012;86:438–42.
- [14] Hassan R, Bhal K, Joseph B. The need for repeat evacuation of retained products of conception: how common is it? *J Obstet Gynaecol* 2013;33:75–6.

- [15] Sellmyer MA, Desser TS, Maturen KE, Jeffrey Jr RB, Kamaya A. Physiologic, histologic, and imaging features of retained products of conception. *Radiographics* 2013;33(3):791–6.
- [16] Gatter M, Roth N, Safarian C, Nucatola D. Eliminating the routine postoperative surgical abortion visit. *Contraception* 2012;86:397–401.
- [17] Routine follow-up visits after first-trimester induced abortion. *Obstet Gynecol* 2004;103:738–45.
- [18] National Abortion Federation. 2018 Clinical policy guidelines for abortion care. Washington, DC: National Abortion Federation; 2018.
- [19] Creinin MD. Change in serum beta-human chorionic gonadotropin after abortion with methotrexate and misoprostol. *Am J Obstet Gynecol* 1996;174:776–8.
- [20] Rivera V, Nguyen PH, Sit A. Change in quantitative human chorionic gonadotropin after manual vacuum aspiration in women with pregnancy of unknown location. *Am J Obstet Gynecol* 2009;200:e56.9.
- [21] Shaunik A, Kulp J, Appleby DH, Sammel MD, Barnhart KT. Utility of dilation and curettage in the diagnosis of pregnancy of unknown location. *Am J Obstet Gynecol* 2011;204:130.e1–6.
- [22] Lichtenberg ES, Paul M. Society of Family Planning. Surgical abortion prior to 7 weeks of gestation. *Contraception* 2013;88:7–17.