CEOG Clinical and Experimental Obstetrics & Gynecology

Case Report

Successful live delivery despite an inappropriate rise in the serial human chorionic gonadotropin level

J.H. Check[1,2], D.L. Check[1], R. Chern[1]

[1]Cooper Institute for Reproductive and Hormonal Disorders, P.C., Mt. Laurel, NJ
[2]Cooper Medical School of Rowan University, Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology & Infertility, Camden, NJ (USA)

Summary

Purpose: To describe a second case of viability past the first trimester despite an inappropriate rise of the serum human chorionic gonadotropin (hCG) levels in the early pregnancy. *Materials and Methods:* A serum beta hCG level was obtained 17, 28, and 31 days after conception. Serial sonographic studies were performed throughout the first trimester and into the early second trimester. *Results:* The first serum hCG level at 17 days from conception was appropriate at 484 mIU/mL. The serum beta hCG level did not appropriately increase at 28 and 31 days (4,844 and 9,585 mIU/mL), respectively. Nevertheless fetal viability was seen on sonography throughout the first and early second trimester.s She delivered a full-term healthy baby. Also for the first time a full-term delivery of a healthy baby from the first described case is reported (this case had only described surviving the first trimester. *Conclusions:* A delivery of a healthy baby despite inappropriate rising serial beta hCG levels is possible but rare.

Key words: Serial hCG levels; Live delivery; Doubling time.

Introduction

Miscarriages occur in 20% or more of pregnancies demonstrating fetal heart activity by ultrasonography [1, 2], It has been well documented that dropping, slow rising, or low levels of serum beta human chorionic gonadotropin (hCG) are associated with miscarriage [3, 4]. The aforementioned studies refer to multiple serum samples showing inappropriate rise of serum hCG.

One study evaluated 22 pregnancies with subtle slow-rising serum beta hCG levels including even one level that did not rise sufficiently and found that 16 showed fetal heart activity at eight weeks though none had viability past the first trimester [5]. A search was initiated to see if there are even any exceptions to the general rule that if even one hCG level fails to rise appropriately, a woman will not successfully complete the first trimester and thus not deliver a live baby. One case was found who successfully completed the first trimester despite an inappropriate rise in the hCG levels [6]. It took nine years from 2003 and over 8,000 pregnancies evaluated to find this one case [6].

The objective of the case study reported here is to report a second case of fetal viability past the first trimester after evaluating 2,000 more pregnancies and to report the delivery outcome not only of the present case, but also to report for the first time the delivery outcome for the aforementioned previous case report [6].

Case Report

A 32-year-old woman with secondary infertility conceived while observing follicular maturation. Thus the precise date of ovulation was known. Her only treatment was vaginal progesterone during the luteal phase. Her first serum hCG level taken 17 days from ovulation was appropriate at 484 mIU/mL. She was not able to return for 11 days for a repeat serum beta hCG level. At 28 days from ovulation a level of 10,000 mIU/mL was expected but her level was only 4,844 mIU/mL. Three days later when one should have expected a level of serum beta hCG 2.5 times higher than the previous 4,844 mIU/mL level, the level was only 9,585 mIU/mL (about double). Despite the rise of serum beta hCG slower than expected, the woman delivered a healthy baby full-term. The first case report only reported viability past the first trimester. Thus reported for the first time is that pregnancy also resulted in the delivery of a healthy baby.

Discussion

When a physician counsels a couple, it is important to be familiar with the usual outcomes of a given situation. Indeed the couple described here were advised of the likelihood of miscarriage. However, they were given the faint hope of a success by making them aware of that at least one exception to the rule [6]. This first exception to the rule could be considered either a miracle or possible laboratory error. Finding a second case could change the tone of the consult to "it is unlikely" for the pregnancy to proceed to a live delivery but there have been at least two case reports

Revised manuscript accepted for publication February 22, 2018

Clin. Exp. Obstet. Gynecol. - ISSN: 0390-6663
XLVI, n. 2, 2019
doi: 10.12891/ceog4708.2019

7847050 Canada Inc.
www.irog.net

Published: 10 April 2019

where despite an inappropriately rising serum beta hCG level, two live babies have been born.

References

[1] Miyakawa I., Ikeda I., Maeyama M.: "Plasma hormone profile of threatened abortion and its prognosis". *Int. J. Gynecol. Obstet.*, 1977, *15*, 12.

[2] Whittaker P.G., Steward M.O., Taylor A., Lind T.: "Some endocrinological events associated with early pregnancy failure". *Br. J. Obstet. Gynaecol.*, 1989, *96*, 1207.

[3] Batzer F.R., Weiner S., Corson S.L., Sehluff S., Otis C.: "Landmarks during the first forty-two days of gestation demonstrated by the beta subunit of human chorionic gonadotropin and ultrasound". *Am. J. Obstet. Gynecol.*, 1983, *146*, 973.

[4] Zegers-Hochschild F., Altieri E., Fabres C., Fernandez E., Mackenna A., Orihuela P.: "Predictive value of human chorionic gonadotrophin in the outcome of early pregnancy after in-vitro fertilization and spontaneous conception". *Hum. Reprod.*, 1994, *9*, 1550.

[5] Check J.H., Liss J.R., Katz Y., Shucoski K.: "Slow rising serial chorionic gonadotropins predict poor pregnancy outcome despite sonographic viability". *Clin. Exp. Obstet. Gynecol.* 2003, *30*, 193.

[6] Check JH, Chern R, Cohen R: Successful completion of the first trimester despite the inappropriate rate of rise of the serum beta human chorionic gonadotropin levels. *Clin. Exp. Obstet. Gynecol.* 2014, 41, 339.

Corresponding Author:
J.H. CHECK, M.D., PH.D.
7447 Old York Road
Melrose Park, PA (USA)
e-mail: laurie@ccivf.com