

## Molar Pregnancy Presenting as a Large Abdominal Mass and 'Hook Effect'

Iftikhar S\*, Hartley J, Mahendran M and Morris A

Royal Lancaster Hospital, Lancaster, United Kingdom

\*Corresponding author: Shaista Iftikhar, Royal Lancaster Infirmary, Ashton Road, Lancaster, LA1 4RP, UK, Tel: +44 1524 65944; E-mail: drshaistaiftikhar@gmail.com

Received date: March 13, 2014, Accepted date: April 22, 2014, Published date: April 22, 2014

Copyright: © 2014 Iftikhar S, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

### Abstract

A 20 year old woman presented in gynaecology department feeling generally unwell with vomiting and a large abdominal mass. The mass was of 28 weeks gravid uterus size. She reported a normal period 5 weeks earlier. A urine pregnancy test was weakly positive. She had a regular cycle with no other significant medical or surgical history. On examination she was pale and tachycardia, Pulse 104/min, BP 134/70 mmHg, Temp 36.4.

**Keywords:** Gestational Trophoblastic Disease; Gestation; Negative  $\beta$ -HCG; 'Hook Effect'

### Case Study

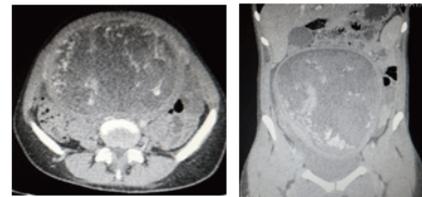
The abdomen was soft and non-tender with a large, central, regular abdominal mass measuring 28 weeks gestational size. On speculum examination there was a small blood vessel protruding out of the cervix but no active bleeding was seen. Bimanual examination revealed that mass was uterine in origin and mobile with no adnexal masses.

Portable pelvic ultrasound scan showed multiple cystic areas within the uterus (**Figure 1**) with some solid areas but no evidence of a gestation sac or fetal pole. Her beta-HCG 789.5 mIU/mL, Hb 7.6 g/dl and Ca125 42.7. Next morning CT scan showed a large soft tissue mass arising from the pelvis measuring 20x16x12 cm. The mass demonstrated heterogeneous enhancement with a thick enhancing wall possibly representing the myometrium. There were no ovarian masses identified. There was a small amount of ascites. Provisional diagnosis of molar pregnancy was made. She underwent Examination under anaesthesia and evacuation of the uterus under ultrasound guidance. 3100 mls of tissue with a vesicular appearance were evacuated. Histology confirmed a Complete Mole. Repeat serum HCG was 1,165,404 mIU/mL. Patient was referred to tertiary centre for further follow up.

### Discussion

Gestational Trophoblastic Disease is uncommon (1/714 Live Births) but usually presents as an early failed pregnancy and diagnosis is histological. It may be suspected on ultrasound or with high HCG levels usually greater than two multiples of the median. With the ready availability of early pregnancy ultrasound, it is rare for patients to present at later gestations with an abdominal mass. The clinical picture was also confused by a falsely low serum HCG reading, pointing the diagnosis away from a molar pregnancy. The CT scan, however, suggested that the mass was uterine and re-examination confirmed this. At ERPC the tissue was clearly vesicular and molar pregnancy diagnosed clinically. The biochemistry laboratory was able to dilute the sample and give us a true HCG reading post evacuation. This enabled the patient to be counselled prior to discharge. Histology

confirmed a complete mole, which has a 10% risk of malignant change. When there is a high index of suspicion of molar pregnancy but Inconclusive or negative  $\beta$ -HCG results, samples should be further evaluated by serum quantification appropriate sample dilution [1-4].



**Figure 1:** Portable pelvic ultrasound scan showed multiple cystic areas within the uterus

### The 'Hook Effect'

Serum testing is performed using two antibodies to the beta subunit of hCG molecules. When hCG is present, it is immobilized by a capture antibody, and labelled by a tracer antibody, resulting in an immobilized antibody-hCG-tracer sandwich. When hCG levels are high, both the capture and tracer antibodies saturate, and the signal response is decreased. The "hook effect" occurs when non-sandwiched tracer antibodies are washed away with the excess material resulting in a falsely low or negative test.

### Conclusion

In cases of diagnostic difficulty where the results of investigations do not clarify the diagnosis – reassess the patient. Remember hook effect! If molar pregnancy is suspected, the biochemistry laboratory should be made aware so that serial dilutions can be carried out on the sample to avoid the hook effect giving a falsely low result.

---

## References

1. Hanna RK, Soper JT (2010) The role of surgery and radiation therapy in the management of gestational trophoblastic disease. *Oncologist* 15: 593-600.
2. Henriksen R, Opheim GL, Saltrøe E (2007) Incomplete mole with a false-low level of human chorionic gonadotropin and hyperthyroidism. *Acta Obstet Gynecol Scand* 86: 633-635.
3. Nodler JL, Kim KH, Alvarez RD (2011) Abnormally low hCG in a complete hydatidiform molar pregnancy: The hook effect. *Gynecol Oncol Case Rep* 1: 6-7.
4. Grenache DG, Greene DN, Dighe AS, Fantz CR, Hoefner D, et al. (2010) Falsely decreased human chorionic gonadotropin (hCG) results due to increased concentrations of the free beta subunit and the beta core fragment in quantitative hCG assays. *Clin Chem* 56: 1839-1844.

This article was originally published in a special issue, entitled: "**Obstetrics and Gynecology**", Edited by Yigit Cakiroglu Department of Obstetrics and Gynecology Kocaeli University Kocaeli, Turkey