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Case Report

Abnormally Low hCG in a Complete Hydatidiform Mole - The Hook Effect

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ABSTRACT

Hydatidiform molar pregnancy is a proliferative disorder of trophoblastic tissue, characterized by abnormally high level of hCG. Serum hCG and sonography are invaluable in guiding evaluation. We report a case of complete hydatidiform molar pregnancy with abnormally low level of hCG due to hook effect. Clinician should be aware of high dose hook effect, as it may lead to misdiagnosis and delayed management.

Key words: Complete hydatidiform mole, human chorionic gonadotropin, hook effect. Human chorionic gonadotropin (hCG).

INTRODUCTION

Hydatidiform mole is benign tumor of chorionic tissue with malignant potential. It is a part of gestational trophoblastic disease. [1] Proliferation of trophoblastic tissue leads to release of hcg. Once Hydatidiform mole is suspected diagnosis is often made with ultrasonography along with serum hCG level. Tissue pathology required for definitive diagnosis. Measurement of hcg level require for not only for diagnosis but also for prognostication as well for patient follow-up. We report one case of complete hydatidiform mole with abnormally low level of hCG.

CASE REPORT

A 42 year old female, gravid 8 para 7 presented to gynaecology OPD with complaint of amenorrhoea for three months and nausea, vomiting since two months. There is no history of bleeding per vaginum or pain in abdomen. She had no antenatal visit earlier nor pregnancy test was performed .Her previous deliveries were full term uncomplicated vaginal deliveries. Her last delivery was 6 year back. She was not on any contraception. Her previous menstrual cycles were regular. She had no other medical problem. Her general and systemic examination was normal except that her BP was 160/100 and she had pedal edema. Abdominal examination was consistent with 28 week uterus. Foetal parts not felt and FHS was not localized. Her Pelvic examination revealed closed cervical os. Her routine blood investigation was within normal limits. Pelvic Ultrasound revealed an enlarged uterus filled with echogenic material and cystic space

diagnosed a case of complete hydatidiform mole. But her serum hCG level report was 819.5mu/ml. Her repeated serum hCG was 615mu/ml. she had proteinuria. Her 24 hr urinary protein was high (435mg/dl).Her TSH was<0.01 and FT4 was slightly raised. She treated with antihypertensive and anti emetic. Hospital laboratory contacted and asked to perform serial dilution of the original sample reported as 882mu/ml. Dilution were performed to 1:1000 and serum hCG recalculated to be over 1000000mu/ml. Under spinal anesthesia, USG guided suction evacuation done. On postoperative day 1 hCG fell to 2,00,000mu/ml and 40,000 mu/ml on postoperative day 8.Histopathology report confirmed a complete hydatidiform mole.

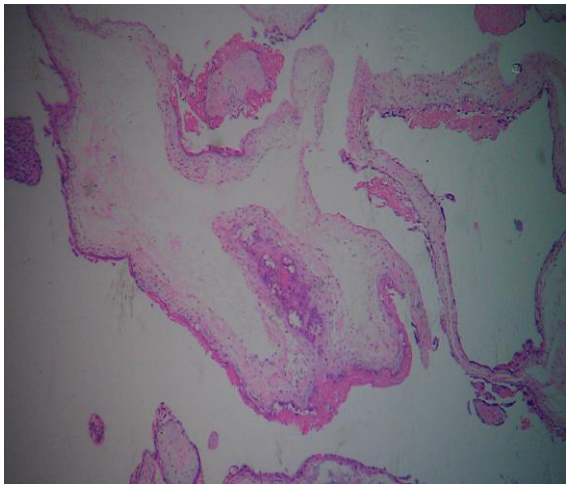

Figure-1 Complete hydatiform mole

DISCUSSION

Human chorionic gonadotropin (hCG) is commonly used as a marker for gestational trophoblastic disease. Current urine(qualitative) and serum (quantitative) pregnancy tests use antibodies directed against hCG for immunologic identification. These tests based on sandwich principle to detect hCG in urine or serum. These tests have two different antibodies directed against different binding sites on the hCG molecule, to detect a molecule of hCG both antibodies must attach to a single hCG molecule, this binding trigger a colour change or other chemical process which can be measured. [2] In complete hydatiform mole with false negative urine or serum hCG or abnormally low level of hCG have been attributed to the hook effect or prozone phenomenon. The hook effect is describe a situation where there is a relative excess of hCG compared with testing antibodies ,in this situation most hCG present in a sample that is bound to only one antibody and as a sandwich of hCG, capture and detection antibody is not formed, a falsely low or negative test result is obtained. This hook effect can be overcome by diluting the sample to be measured so that it contains less hCG per unit volume. As our patient was not present with classical presentation of bleeding per vaginum, we obtained final report of serum bhcg. In literature cases were reported when due to false negative urine or serum hCG test ,leads to delay in diagnosis and patient suffered complication. [3]

High dose Hook effect has been documented more commonly in immunoassay of prolactin, thyrotropin, ferritin etc. Although, hook effect is rare, but in India, incidence of gestational trophoblastic disease is high. Although modern assay methods have much improved reliability, clinicians should even now be aware of the potential for false-low due to the high-dose hook effect. As this will delay diagnosis and further management.

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