Partial Molar Pregnancy with Extreme Elevation of Quantitative β-hCG: A Clinical and Laboratory Outlier

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Disclosures

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Background

- Gestational trophoblastic disease (GTD)
- A hydatidiform mole is a type of GTD, further classified as partial or complete.
- Partial molar pregnancies: fertilization of a haploid egg by two sperm or a diploid sperm
- Typically resulting in fetal triploid karyotypes of 69XXX, 69XXY, or 69XYY (1).
- Incidence of complete molar pregnancies of 1-3 per 1000 pregnancies and partial molar pregnancies of 3 per 1000 pregnancies in high-income countries (2).

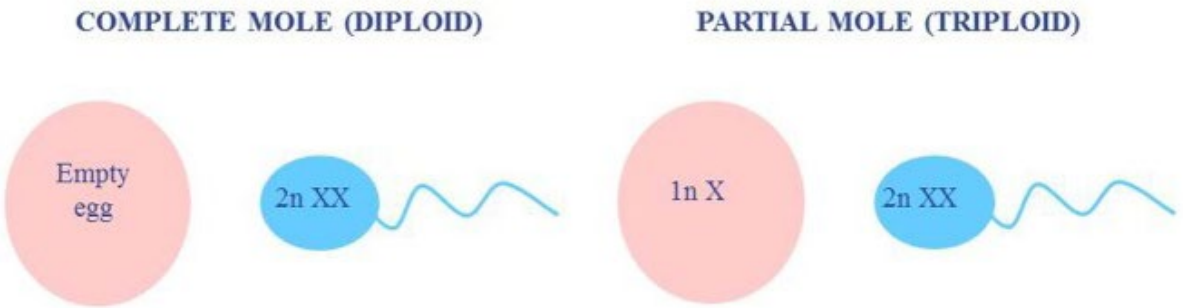

Figure 1 *- A comparison between Complete Molar vs. Partial Molar Pregnancy genetic fertilization. (Duffy L, et al. 2015)*

Risk Factors

Risk factors for complete molar pregnancies include:

- maternal age less than 15 years or over 40 years
- previous miscarriage
- Asian ethnicity
- prior history of molar pregnancy

Partial molar pregnancies are less associated with extremes of age but are associated with:

- prior miscarriages
- long-term OCP use
- prior molar pregnancies

Complications

- Choriocarcinoma, which occurs in 1 in 40,000 pregnancies and develops in 0.5% of partial molar pregnancies (3).

- Post evacuation of the placenta, long term surveillance of β-hCG levels is necessary

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Background & Objective

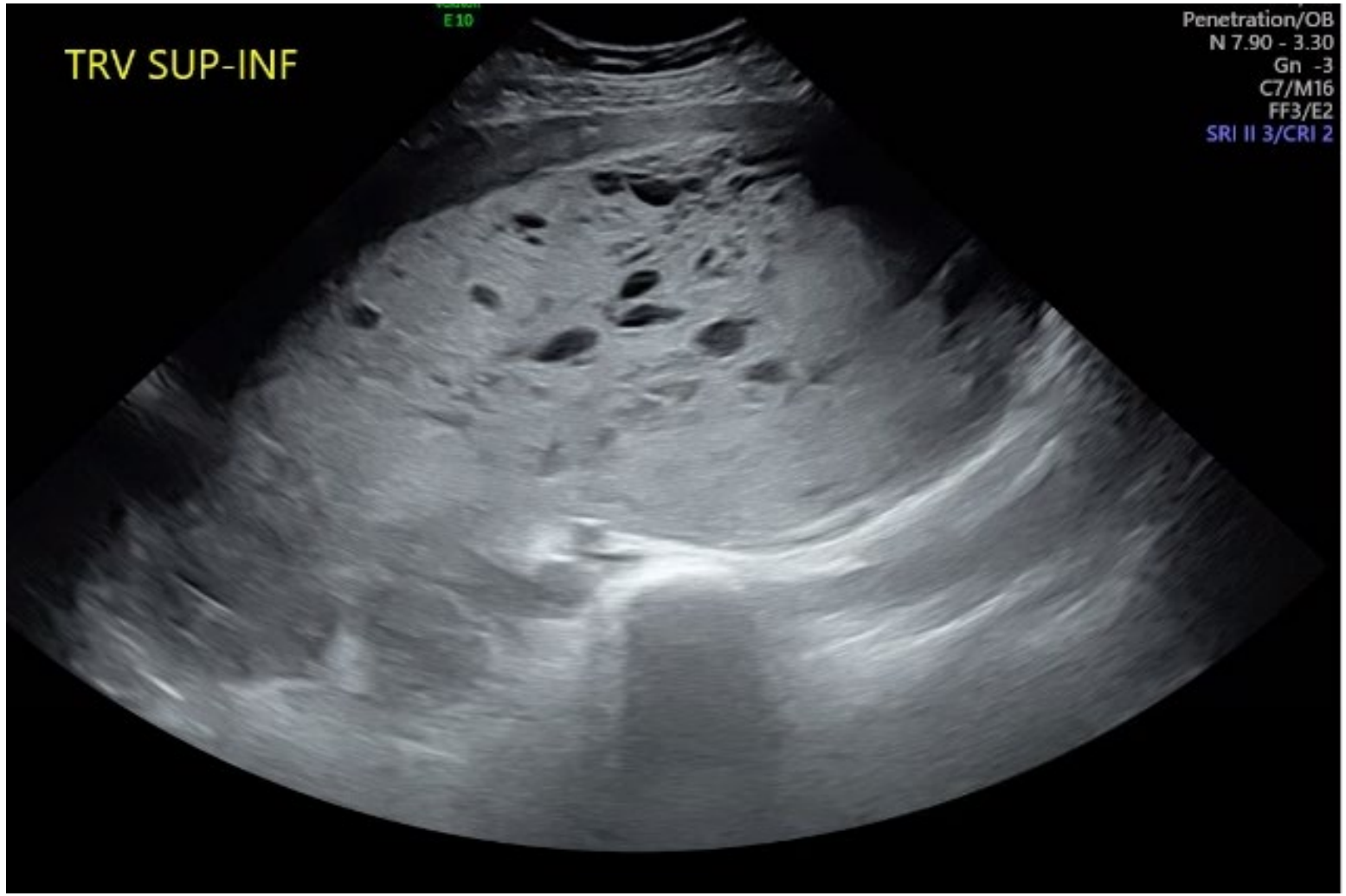
- Most GTD cases present with quantitative β-hCG levels between 50,000 - 100,000 mIU/mL, with high β-hCG levels more associated with complete molar pregnancies (4).

- Our case describes a partial molar pregnancy with a β-hCG level over 2,000,000 mIU/mL with pre-eclampsia signs and symptoms.

Case Presentation

- 29y/o F, G2P1001 at 16 weeks EGA, referred to the high-risk MFM clinic due to a suspected placental abnormality
- The patient reported intermittent vaginal bleeding for two weeks, worsening mid-thigh and lower extremity edema, shortness of breath, and a 38 lb weight gain during the pregnancy
- Blood pressures were elevated at 161/109 and 159/118, pulse 112 bpm. Ultrasound revealed placentomegaly with hydrops and a fetus measuring 131 g, 22nd percentile for gestational age with a suspected cardiac anomaly. Evaluation of complete fetal anatomy was limited due to fetal position and early gestational age
- Labs revealed a β-hCG of 2,247,800 mIU/m, TSH <0.02 mIU/L, and free T4 1.35 ng/dL. Interestingly, NIPT was negative for fetal aneuploidy, with a fetal fraction of 15%, female sex predicted

Partial molar pregnancy at 16 weeks EGA



Partial molar pregnancy at 16 weeks EGA

Case Presentation

- Given the extremely elevated β-hCG level, hypertension, symptoms and ultrasound findings, partial molar pregnancy was considered most likely, with the possibility of an abnormal twin placenta pregnancy in the differential.

- The patient was appropriately counseled and agreed to proceed with termination of pregnancy by dilation and evacuation procedure.

- During laminaria placement brisk cervical bleeding was encountered, prompting an urgent though uncomplicated dilation and evacuation procedure under ultrasound guidance.

- Postoperatively, the patient received IV magnesium sulfate, PO labetalol and IV furosemide.

Case Presentation

- The patient had a 6 L diuresis and a 7 lb weight loss over 24 hours and her condition improved markedly thereafter. A chest x-ray performed was negative for lesions and pulmonary edema. On postoperative day 2 the β-hCG was 170,640 mIU/mL.

- The patient was discharged on oral labetalol and oral furosemide with plans for long-term β-hCG monitoring and contraception for 6-12 months. β-hCG levels declined to below 5 mIU/mL after 2 months and remained negative at 4 months.

- Tissue pathology confirmed edematous hydropic villi and fetal tissue consistent with a partial molar pregnancy.

- FISH revealed a DOUBLE TRISOMIC signal pattern for chromosomes 1 and 11 in 19/50 nuclei consistent with TRIPLOIDY - clinically associated with partial hydatidiform molar gestation.

Labs & β-hCG Over Time

Labs	Values
β-hCG	2,272,500
Blood Pressure	161/109
Pulse	112
TSH	<0.02
T4	1.35

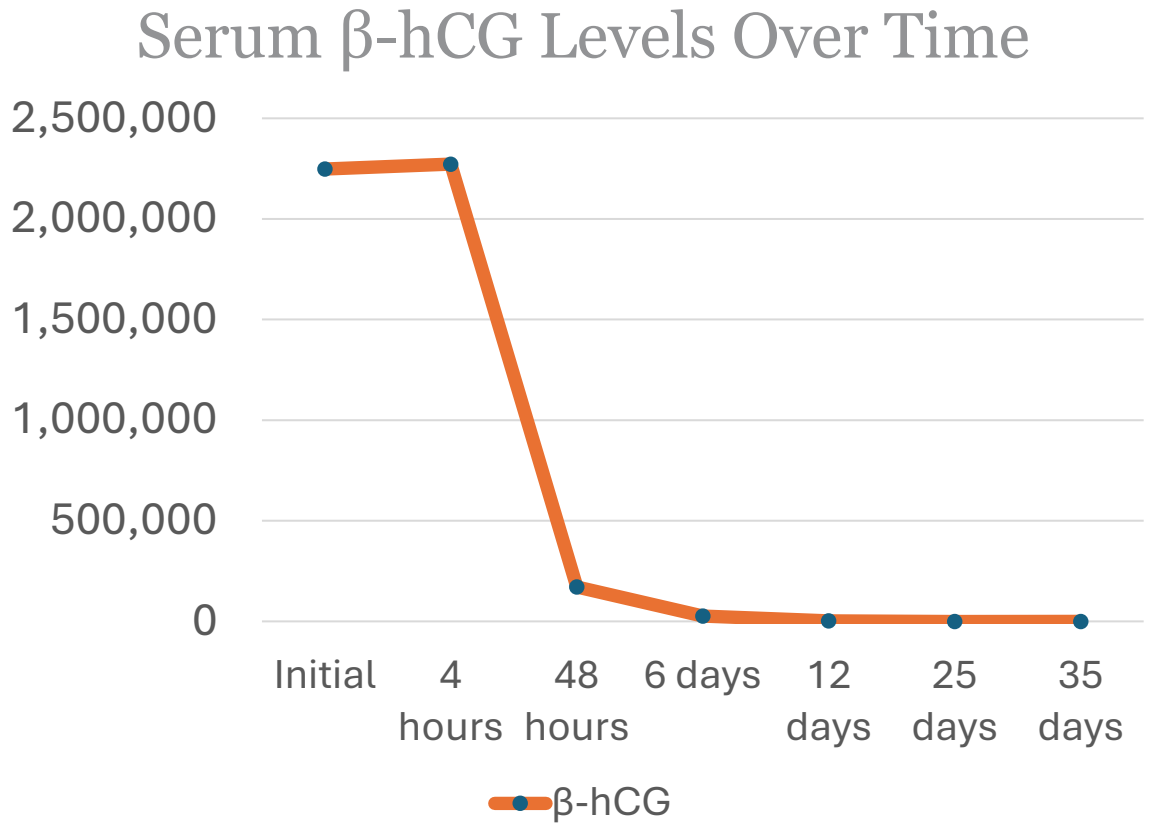


Figure 2. *Table: Serum β-hCG levels, blood pressure, pulse, TSH and T4 levels at initial presentation.*

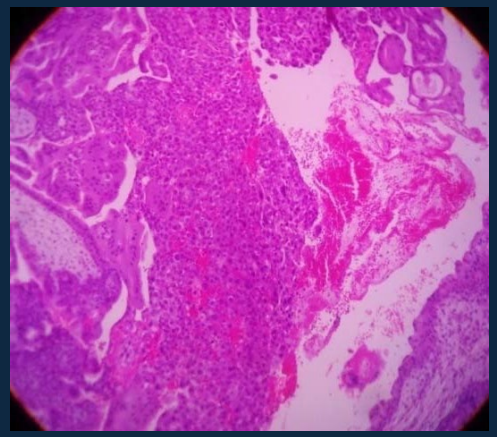
Graph: Serum β-hCG levels over time at initial presentation, 4 hours, 48 hours, 6, 12, 25, and 35 days.

Figure and table created using Microsoft PowerPoint and Excel.

Treatment & Management

- Management: Earlier detection by ultrasound has allowed for changes in clinical presentation and decreased morbidity from uterine evacuation.

- Long term monitoring of β-hCG is essential for early diagnosis of gestational trophoblastic neoplasia (GTN). (2)



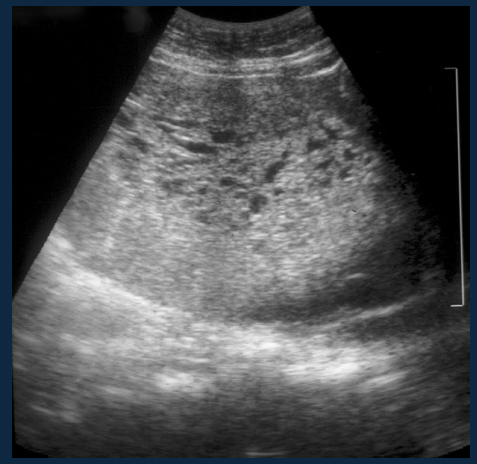
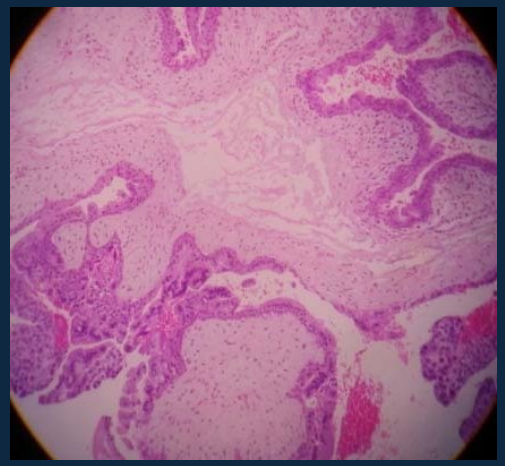


Figure 3 *– Complete Molar Pregnancy histology (left) (Jagtap S, et al. 2017). Ultrasound (right) (Soper. 2021)*



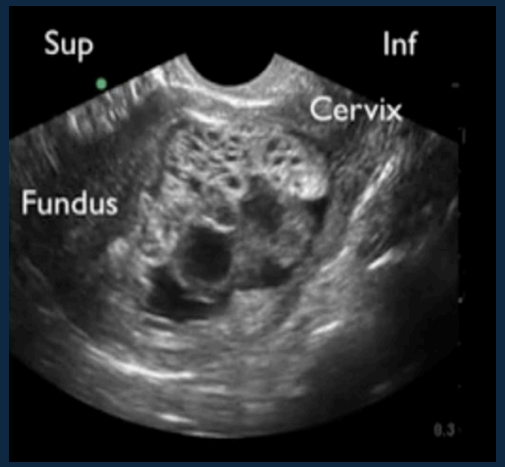


Figure 4 *– Partial Molar Pregnancy histology (left) (Jagtap S, et al. 2017). Ultrasound (right) (Abddi A, et al. 2013)*

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Conclusion

- This case highlights a rare presentation of partial molar pregnancy with extremely elevated β-hCG levels and preeclampsia.

- Prompt diagnosis by ultrasound and β-hCG evaluation, uterine evacuation and confirmatory histopathology are essential for satisfactory maternal outcomes.

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