“PSTT”: Placental Site Trophoblastic Tumour as the Whispering Culprit of Persistent hCG

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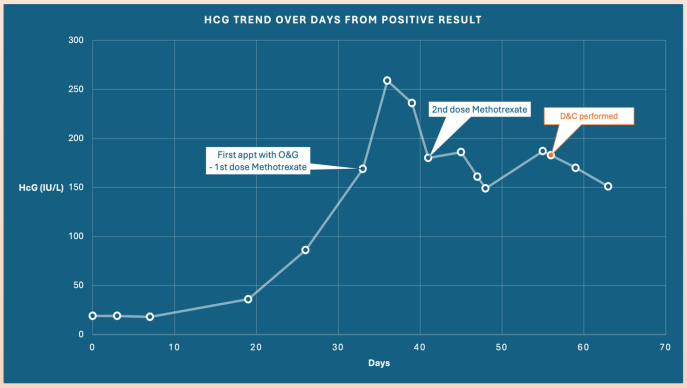
Background

Placental Site Trophoblastic Disease (PSTT) is an uncommon form of Gestational Trophoblastic Neoplasia (GTN) – less than 2% of cases[1]. It is diploid and comes from extra-villous or intermediate trophoblast cells. Diagnosis of PSTT can only be made with histopathological signs. It can occur after molar pregnancy, miscarriage or a normal pregnancy. Typical presentation includes amenorrhea or abnormal uterine bleeding with low to moderately elevated hCG. PSTT also produces human placental lactogen[2].

In comparison to other types of GTN, such as choriocarcinoma, it is usually resistant to chemotherapy and requires curative hysterectomy. Over 48 months since previous pregnancy is a predictor of poor prognosis[3-4].

Case

34 year old female G3P2, was referred to the Early Pregnancy Assessment Service 6 months after her last pregnancy, which was an elective repeat Caesarean Section. She had been amenorrheic throughout this time, then began to have abnormal uterine bleeding. She returned a positive BhCG level (19 IU/L). Her medical and surgical history was unremarkable.

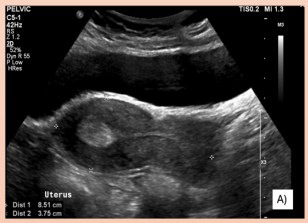


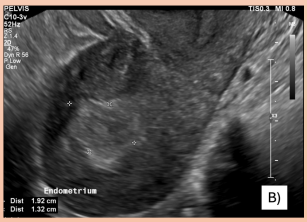
O&G Hx
G1 (2016) – Emergency Caesarean Section at full dilatation
G2 (2021) – L Ectopic pregnancy requiring 2 doses of Methotrexate
G3 (2023) - Elective repeat Caesarean Section at term.

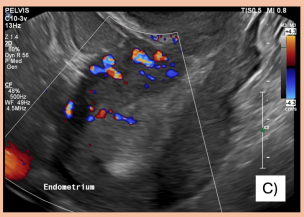
Serial ultrasounds demonstrated an both anechoic region, and echogenic material in the endometrial cavity. This prompted treatment for Pregnancy of Unknown Location (PUL), with 2 doses of Methotrexate. Her hCG levels fluctuated.

She developed per vaginal bleeding (day 41), prompting further ultrasound imaging.

Images show an echogenic mass in endometrial cavity measuring 1.92 x 1.32cm (A, B) with internal vessel crossing from myometrium to endometrium (C).





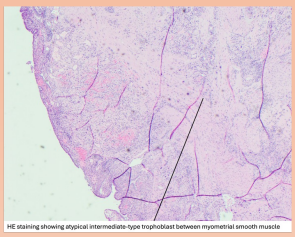


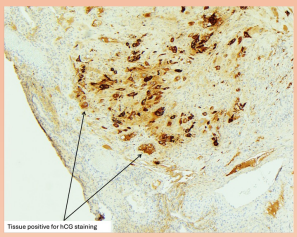
Differential diagnoses on ultrasound include retained products of conception, other forms of GTN, and arteriovenous malformation.

She underwent dilatation and curettage, and histopathology diagnosed PSTT. Staging CT did not show evidence of metastatic disease.
Curative Hysterectomy was performed, and her follow up involves 3-monthly hCG for 12 months then 6-monthly for 5 years.

Immunohistochemistry:

- Positive for - HPL, AE1/AE3, inhibin, PLAP, GATA3 and BhCG (right). Negative for- PAX-8, p63, PR, ER, SOX10. Ki-67 stains up to 40-50% of tumour cells in some areas





Discussion

- Persistent hCG with amenorrhea or abnormal uterine bleeding should prompt histopathological investigation
- PSTT is a slow-growing malignant tumour that occur after a pregnancy
- It is typically resistant to chemotherapy, treatment is with hysterectomy

References:
1. Zhou Y, Lu H, Yu C, Tian Q, Lu W. Sonographic characteristics of placental site trophoblastic tumor. Ultrasound Obstet Gynecol. 2013 Jun;41(6):679-84.
2. Ellenson LH, Pirog EC. Chapter 22. The Female Genital Tract. In: Kumar V, Abbas AK, Aster JC, editors. Robbins & Cotran Pathologic Basis of Disease. 10th ed. Philadelphia, PA: Elsevier Saunders; 2021. pp. 985-1036.
3. Schmid P, Nagai Y, Agarwal R, Hancock B, Savage PM, Sebire NJ, et al. Prognostic markers and long-term outcome of placental-site trophoblastic tumours: a retrospective observational study. *Lancet* 2009; **374**: 48–55.
4. Tidy J, Seckl M, Hancock BW, on behalf of the Royal College of Obstetricians and Gynaecologists. Management of Gestational Trophoblastic Disease. *BJOG* 2021; 128: e1–e27.