

Diverse Echoes of Molar Pregnancies: A Comparative Ultrasound Case Series

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Background

Gestational trophoblastic disorders (GTD) are a group of conditions characterised by abnormalities in the trophoblastic tissue, ranging from complete and partial molar pregnancies to malignant conditions like invasive mole, choriocarcinoma and placental site trophoblastic tumour. [1] Molar pregnancy, a form of gestational trophoblastic disease, presents unique challenges in diagnosis and management. They are one of the common complications in early pregnancy with an incidence of around 1 in 600 pregnancies in the UK. Ultrasound imaging plays a crucial role in differentiating types of molar pregnancies, guiding clinical decisions, and monitoring post-evacuation progress. This case series reviews ultrasound features in four cases of molar pregnancy, highlighting the spectrum of imaging findings to aid in educational and diagnostic understanding.

Methodology

A retrospective review of four molar pregnancy cases from Aneurin Bevan University Health Board (ABUHB) was conducted. Each case presented in the first trimester with variable clinical features, such as vaginal bleeding, nausea, and abdominal pain. Diagnostic evaluation emphasized transabdominal (TA) and transvaginal (TV) ultrasound imaging to assess:

- Endometrial heterogeneity
- Presence and type of cystic structures
- Vascularity patterns (using Doppler imaging)
- Ovarian size and morphology
- Presence of free fluid

Histopathology and serum β -hCG levels corroborated imaging findings to confirm the diagnosis and guide further management.

Case details and Ultrasound findings

	CASE 1	CASE 2	CASE 3	CASE 4
Final diagnosis	Non molar	Complete mole	Complete mole - Persistent GTD	Partial mole
Clinical presentation	Bleeding PV post medical termination of pregnancy		Nausea and vomiting	TOP for foetal anomaly
Ultrasound features	Retroverted bicornuate uterus with hyper vascular area with mixed cystic etiology Ovaries normal No free fluid	Markedly thickened endometrium, heterogeneous - solid with cystic areas No intrinsic vascularity Left ovary corpus luteal cyst No free fluid	Cystic mass in endometrial cavity, normal ovaries, no free fluid	Focal area of mixed echogenicity with cystic vesicles with high vascularity Grossly enlarged ovaries with ovarian hyper stimulation appearance Free fluid in POD
Management	Surgical evacuation, Charring Cross referral	Surgical evacuation, Charring Cross referral	Surgical evacuation, Charring Cross referral, Methotrexate	Surgical evacuation, Charring Cross referral
Outcome	No HCG follow up as confirmed non molar on histopath	HCG follow up - gradual decline and discharged	HCG follow up - gradual decline and discharged	HCG follow up - gradual decline and discharged

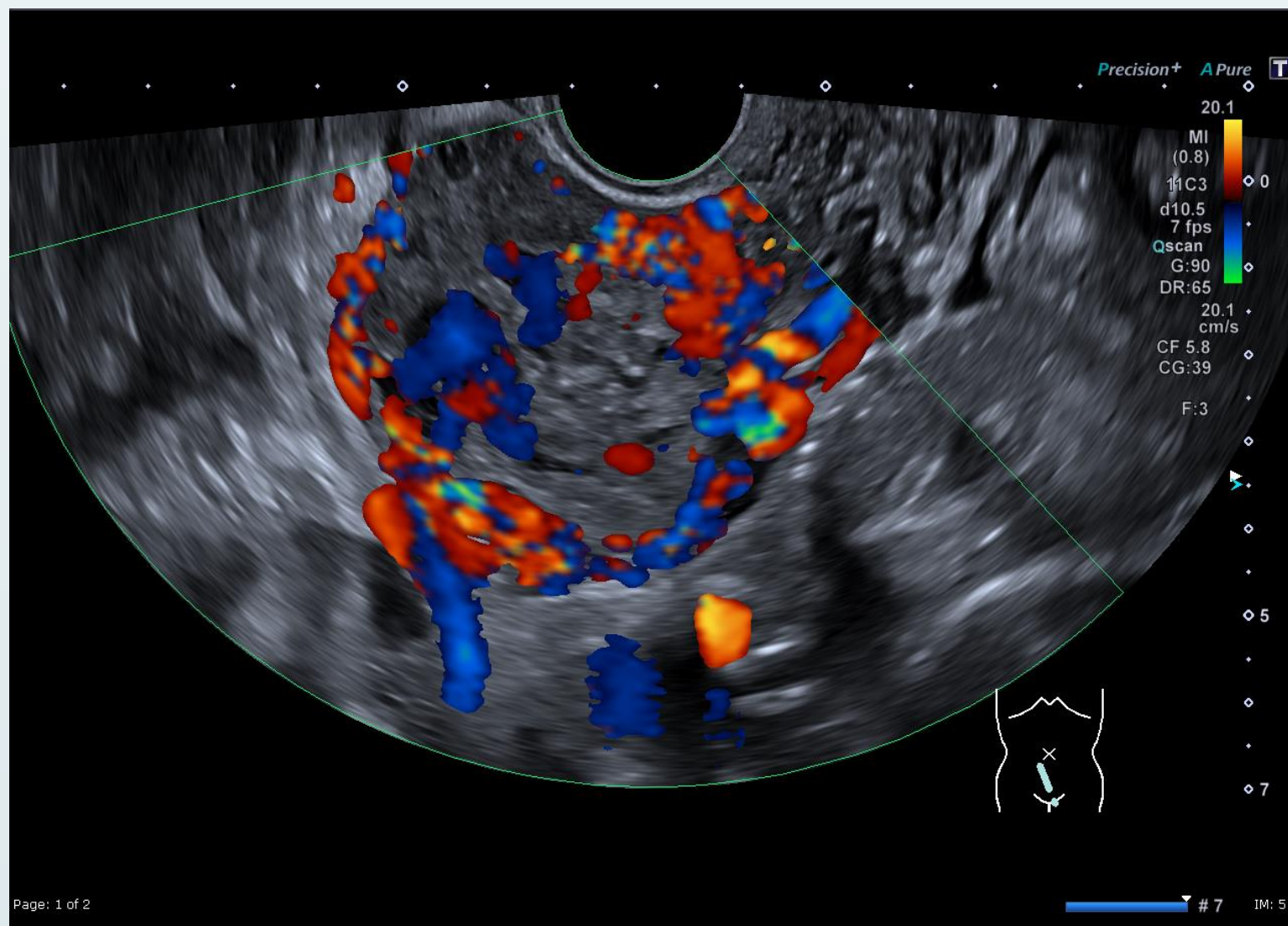


Fig 1: Non molar pregnancy - hypervascular region with mixed cystic areas

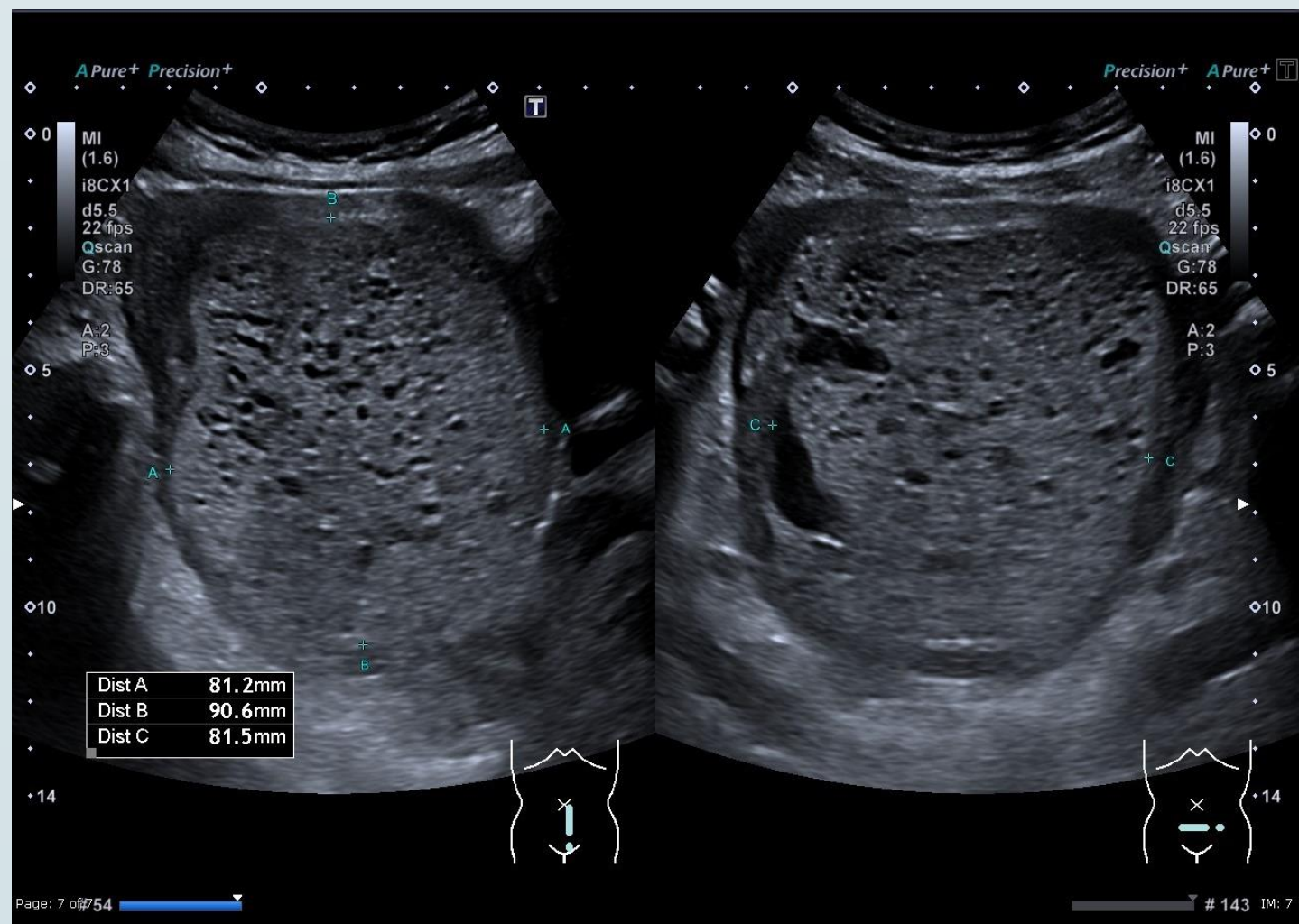


Fig 3: Complete mole - cystic mass in endometrial cavity

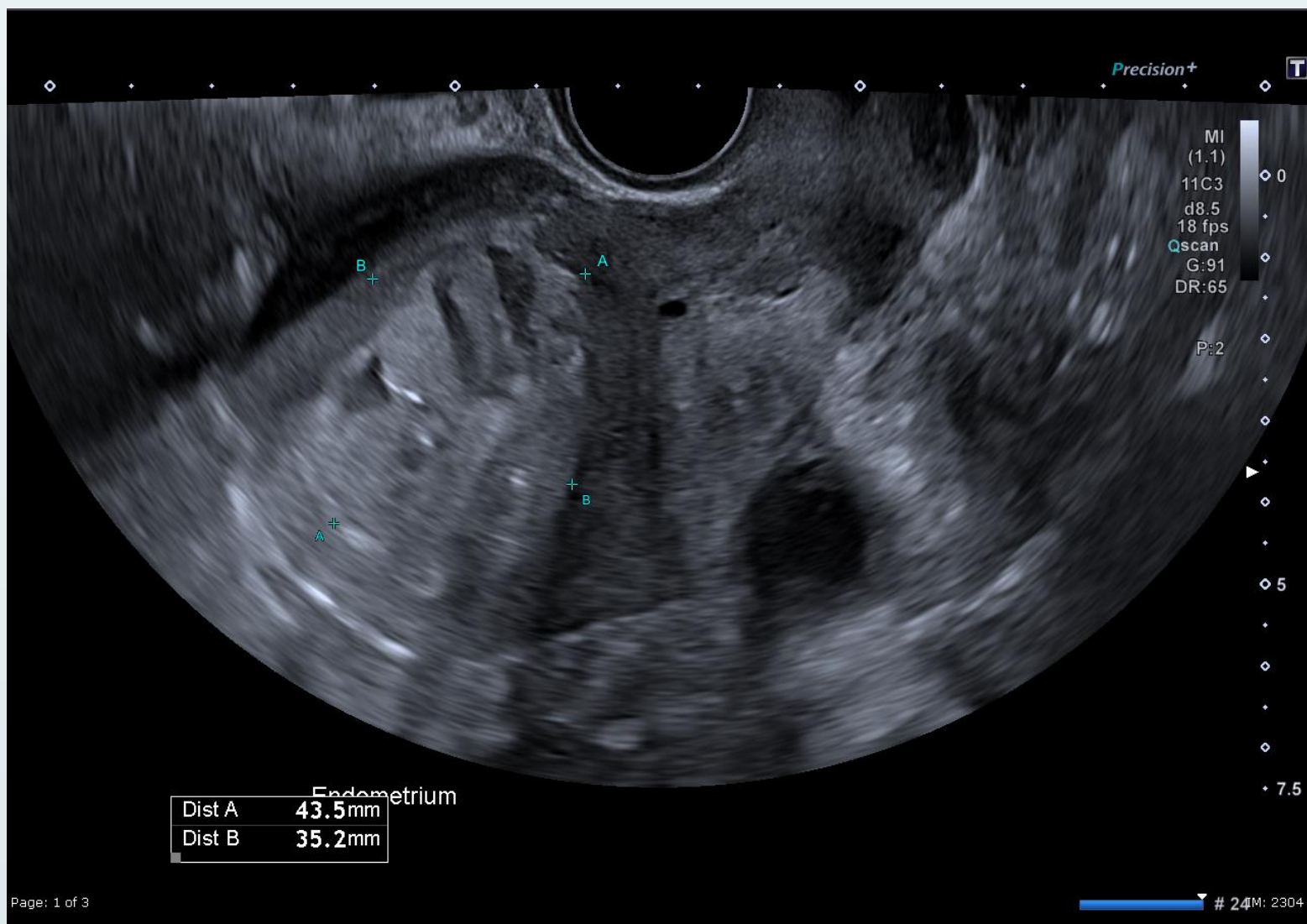


Fig 2: Complete mole - thickened heterogenous endometrium with solid and cystic components

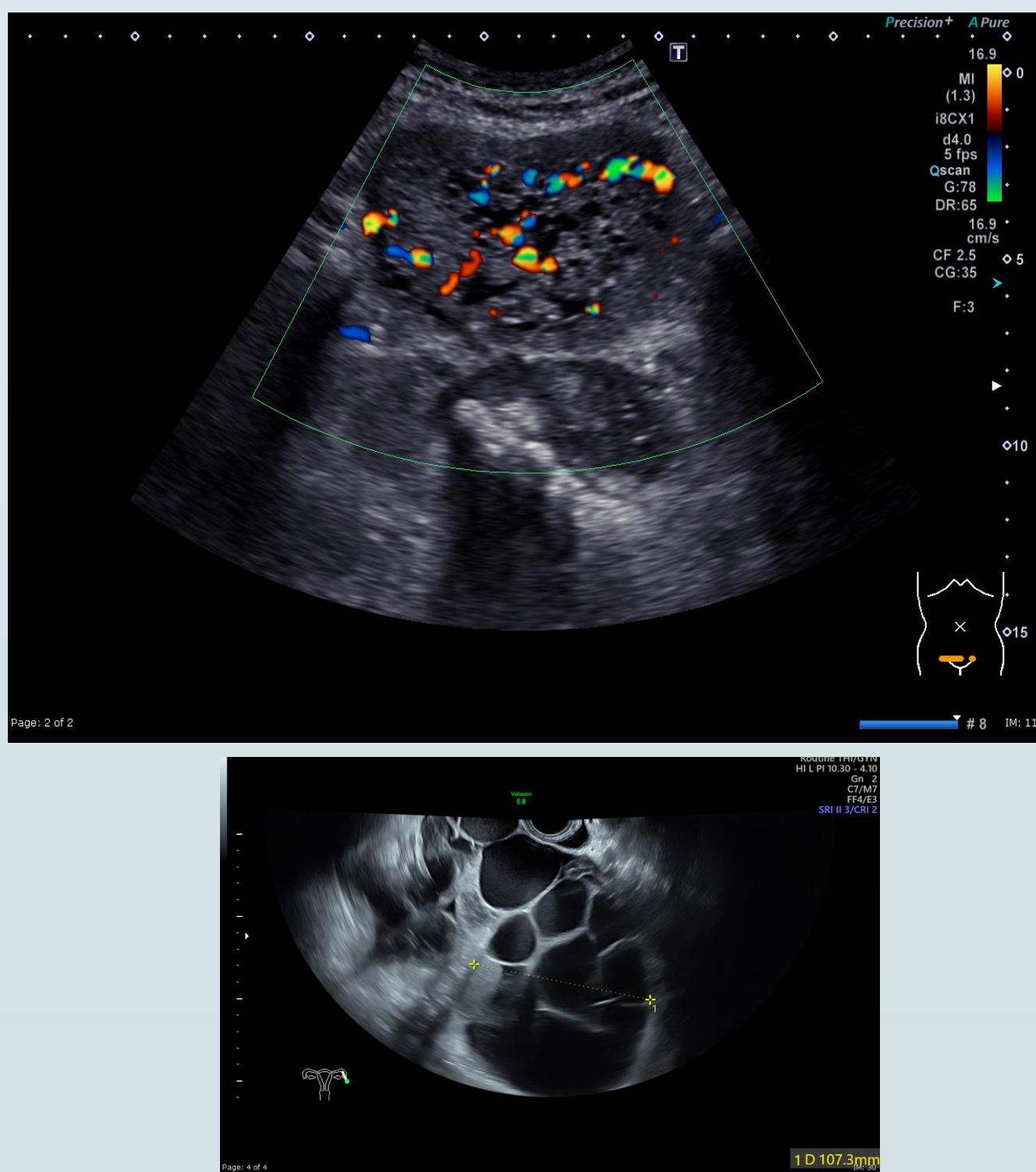


Fig 4 and 5: Partial mole - areas of mixed echogenicity, OHSS appearance of ovary

Results and discussion

Findings across the four cases demonstrated the diverse ultrasound presentation of molar pregnancies. Ultrasound findings in complete molar pregnancy commonly are expected to demonstrate an enlarged uterus with multiple cystic spaces ('snowstorm' or 'bunch of grapes' appearance), often accompanied by bilateral theca lutein cysts and high vascularity on doppler. [2] Partial moles are expected to differentiate similar features on ultrasound with the addition of a gestational sac (sometimes containing a growth restricted fetus. [3] Variations were noted in vascularity patterns, ovarian size, and the extent of endometrial involvement, underscoring the heterogeneity of molar pregnancy imaging.

Ultrasound Features:

- Complete Molar Pregnancy: Markedly thickened, heterogeneous endometrium with cystic areas resembling a "snowstorm" or "cluster of grapes." Vascularity may be absent or reduced. Corpus luteal cysts are common, with normal ovarian size.
- Partial Molar Pregnancy: focal areas of mixed echogenicity with cystic vesicles and prominent vascularity on Doppler imaging. Grossly enlarged ovaries and free fluid in the pouch of Douglas (POD) may indicate ovarian hyperstimulation syndrome (OHSS).
- Non-Molar Pregnancy: May mimic molar pregnancies, such as hypervascular areas, but histopathology and normal β -hCG levels exclude GTD.
- Persistent GTD: Cystic mass with internal vascularity and persistently elevated β -hCG levels post-evacuation signify invasive disease. Enlarged ovaries and free fluid may be present.

Conclusion

Ultrasound presentation in molar pregnancies can vary widely, impacting diagnosis and management. By comparing imaging findings across four cases, this case series emphasizes the importance of recognizing distinct imaging patterns associated with molar pregnancies. The educational insights gained support the development of more nuanced diagnostic criteria for early recognition and intervention in gestational trophoblastic diseases.

References

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2. Radiopaedia.org. Complete Hydatidiform Mole [Online]. Available from: <https://radiopaedia.org/articles/complete-hydatidiform-mole?lang=gb> [Accessed November 2024].
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