

How Accurate is Ultrasound in Diagnosing Molar Pregnancy?

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Introduction

If a molar pregnancy is suspected after an ultrasound examination, the RCOG (2020) recommends surgical management. However, as Figures 1 and 2 demonstrate, diagnosing molar pregnancy with ultrasound is challenging with many cases undetected at ultrasound.

This project aimed to assess the accuracy of NUH's ultrasound service in diagnosing molar pregnancy, with the objectives of finding how many proven cases of molar pregnancy were suspected after ultrasound examination, and to analyse the data collected to determine whether current practice at NUH needs to be adapted.

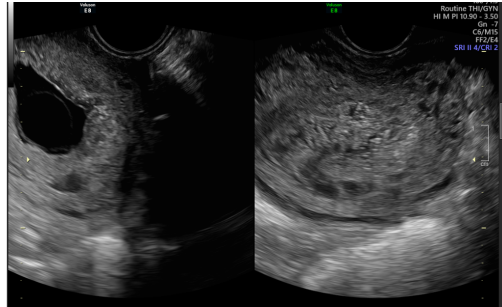


Figure 1: Case example of a histologically confirmed PMP

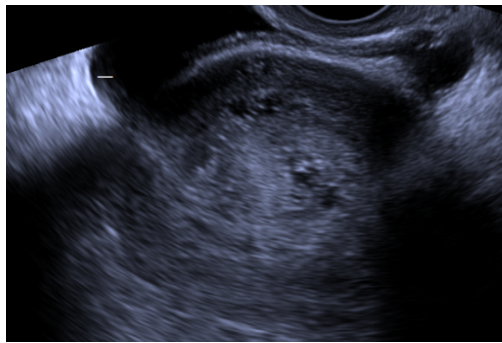


Figure 2: A further case example (from the week after the case in Figure 1) where a PMP was queried in the ultrasound report but histology concluded uncomplicated miscarriage

Method

This project was a retrospective single centre study with a descriptive design. A literature review, including critical appraisal of literature, demonstrated the relevant previous research and provided a clear rationale for the project.

Data was collected from 1 January 2015 to 31 December 2021. All cases of histologically proven molar pregnancy at NUH were found. The ultrasound report for these cases was accessed to determine if a molar pregnancy was suspected after ultrasound examination.

An image review (see Table 1) was performed to assess whether pre-determined sonographic features of molar pregnancy were demonstrated in cases of PMP where a molar pregnancy was not diagnosed on ultrasound examination.

Statistical analysis was undertaken to determine key correlations that informed the project's discussion.

Table 1: Ultrasound features of PMP used in the image review

Enlarged or thickened placenta
Cystic changes in the placenta may or may not be present
Can be associated with:
- An empty sac
- A gestation sac with a yolk sac
- Or a gestation sac with an embryo / foetus
Cases where a PMP was proven by histology but not suspected on ultrasound were included

Results

Data collection found 108 participants with a histologically proven molar pregnancy. 34% were CMP while 66% were PMP.

- 92% of CMP were diagnosed at the ultrasound examination.
- 27% of PMP were diagnosed at the ultrasound examination.

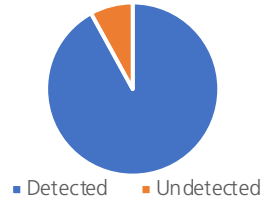


Figure 3: CMP diagnosed by ultrasound

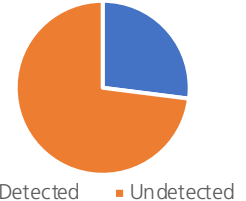


Figure 4: PMP diagnosed by ultrasound

49% of cases were participants who presented for their routine Dating scan.

There was no statistically significant difference ($p = <0.001$) in the detection rates by gestational age.

The image review found that 84% of the cases where a PMP was undiagnosed by ultrasound had sonographic features of the condition.

Discussion

It was a surprise that so many participants presented at the Dating scan. This shows that molar pregnancy is not a phenomenon confined to the EPAU. All obstetric sonographers need to be able to diagnose it.

The results found that PMP is much harder to detect on ultrasound than CMP. NUH's detection rates are consistent with the other studies found in the literature review.

Every centre demonstrated the challenge of detecting PMP, but this project's image review showed a high number of cases that had sonographic features of PMP but were not diagnosed at ultrasound. This proves that there is room for an improvement in detection rates and links to the point that all obstetric sonographers need to be aware of the features of molar pregnancy.

Some studies (Memtsa et al 2020, Ross et al 2018), where the ultrasound was performed by a gynaecologist, demonstrated better detection rates for PMP. At NUH, the scans are performed by qualified sonographers with non-medical backgrounds. This could suggest that gynaecology doctors better at detecting PMP; perhaps because they have more experience of complex pathologies or a special interest in early pregnancy. It could also be that gynaecologists have a better appreciation of the clinical situation or the case has been referred to them from more routine settings.

Conclusion and Relevance to Practice

The results from NUH are consistent with the results from other centres. However the image review has shown that detecting molar pregnancy is operator dependent and that there is room for an improvement in detection rates.

This project can therefore recommend that practice needs to be adapted at NUH. This could take the form of enhanced training for trainees and preceptorship sonographers, and dedicated CPD for experienced practitioners. Particular note should be made of the large number of cases that present at the ANC.

It would be necessary to re-research after this training / CPD to assess its impact. Future research could also assess the numbers of 'molar' on ultrasound reports that were not confirmed by histology. The image review in this study was unblinded and performed by the lead author; this method could be made more robust in future projects.

REFERENCES

- Memtsa, M., Johns, J., Jurkovic, D., Ross, J., Sebire, N. and Jauniaux, E. (2020). Diagnosis and outcome of hydatidiform moles in missed-miscarriage: a cohort study, systematic review and meta-analysis. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 253. (October), pp. 206 – 212.
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