Best Practice & Research Clinical Obstetrics and Gynaecology 23 (2009) 565–573

Contents lists available at ScienceDirect

Best Practice & Research Clinical Obstetrics and Gynaecology

journal homepage: www.elsevier.com/locate/bpobgyn

13

Recognising gestational trophoblastic disease

Dalya Alhamdan, MD *, Tommaso Bignardi, MD, Associate Lecturer, George Condous, MRCOG, FRANZCOG, Associate Professor in Gynaecology

Acute Gynaecology, Early Pregnancy and Advanced Endosurgery Unit, Nepean Centre for Perinatal Care, Nepean Clinical School, University of Sydney, Sydney, Australia

Keywords:
hydatidiform mole
partial hydatidiform mole
complete hydatidiform mole
trans-vaginal ultrasound
human chorionic gonadotropin
Doppler ultrasound

Gestational trophoblastic disease (GTD) is a group of interrelated tumours originating from the placenta. Hydatidiform molar (HM) pregnancy is the most common form of GTD; this includes both partial hydatidiform molar (PHM) and complete hydatidiform molar (CHM) pregnancies. The importance of such a condition derives from its potential for persistent trophoblastic disease; this is noted to be more common after a CHM (10–20%) compared to a PHM (0.1–11%). The recent routine use of high-resolution trans-vaginal ultrasound (TVS) in early pregnancy has improved the recognition and thus pre-surgical diagnosis of molar pregnancy. Pre-surgical recognition aids planning of surgery, decreases intra-operative complications and identifies women with potential persistent trophoblastic disease. Despite the introduction of TVS, its performance in preoperative diagnosis is quite poor. This is primarily because of the histomorphometric features of the hydropic villi. A significant proportion of HM cases demonstrates minimal hydropic change in the first trimester and therefore is likely to remain unidentifiable by ultrasound examination prior to surgical evacuation, even with improved sonographer expertise. The overall sensitivity for the ultrasound diagnosis of HM is 50–86%. Ultrasound diagnosis of CHM can be made in approximately 80% of the cases, whilst ultrasound diagnosis of PHM is less accurate and nearly 70% of cases will be missed. Correlation of the ultrasonographic findings with human chorionic gonadotropin levels can further improve the recognition of HM pregnancy

* Corresponding author. Nepean Clinical School South Block Level 5, Penrith 2750, NSW, Australia. Tel.: +61404805875.
E-mail addresses: doctord972@yahoo.com (D. Alhamdan), tommaso.bignardi@alice.it (T. Bignardi), gcondous@hotmail.com (G. Condous).

1521-6934/$ – see front matter
doi:10.1016/j.bpobgyn.2009.03.001

pre-surgery. Although ultrasound can be helpful in the diagnosis of molar pregnancies, histological confirmation is mandatory. Histological confirmation post-curettage is still the gold standard for the diagnosis of GTD. In this article, we critically evaluate the role of TVS in the pre-surgical recognition of GTD.

Gestational trophoblastic disease (GTD) is a group of interrelated tumours originating from the placenta.[1,2] The classification is based on histopathology, which is also considered the gold standard for the diagnosis of GTD.[3] GTDs include hydatidiform mole (HM) pregnancy (this includes partial (PHM) and complete mole (CHM)), invasive mole, choriocarcinoma and placental-site trophoblastic tumours. The last three sub-types are malignant tumours and are termed gestational trophoblastic neoplasias (GTNs). Invasive mole and choriocarcinoma mostly develop after an HM. The different forms of GTD have different pathological features, genetics, epidemiology, prognostic features as well as potential for persistent trophoblastic disease.[1,4] Pre-surgical early pregnancy trans-vaginal ultrasound (TVS) diagnosis of HM is not always possible but does confer benefits. It is important because it can prevent mismanagement of early pregnancy loss, plan dilatation and curettage (D&C), pre-empt the tissue diagnosis and prevent intra-operative complications. In this article, we critically evaluate the role of TVS in the pre-surgical recognition of GTD. We will not discuss GTNs in detail.

Epidemiology and pathology of molar pregnancy

PHMs are triploid in karyotype genomes from maternal/paternal origin: 69 XXY (~58% of cases), 69 XXX (~40% of cases) and 69 XYY (~2% of cases) usually with a foetus and focal oedema of chorionic villi and focal trophoblastic hyperplasia.[2,5–7] While CHMs are described as generalised swelling of the villous tissue and diffuse trophoblastic hyperplasia with no embryonic or foetal tissue and are diploid in karyotype totally derived from the paternal genome: 96% have an XX karyotype and 4% are XY.[2,5–7] PHM is more common in spontaneous miscarriages, whereas CHM is more common in elective termination of pregnancy.[8] The risk of persistent trophoblastic disease is greater after a CHM (10–20%) compared to a PHM (0.1–11%).[9,10] Studies show that 8–15% patients with CHM require chemotherapy, compared to only 1.5–6% with PHM.[10] The most established risk factor of HM requiring chemotherapy is the maternal age; most commonly among women <20 or >40 years of age.[11,12]

The incidence of HM varies in different regions of the world. In North America and Europe, ratios of HM are about 100 per 100 000 pregnancies; while in some areas of Asia and the Middle East the ratios range from 100 to 1000 per 100 000 pregnancies.[13–23] This large variation is yet to be explained.

Clinical recognition of molar pregnancy

In the 1960s and 1970s, before the widespread introduction of ultrasound, the most common presenting symptom for CHM was vaginal bleeding (89–97%).[24–26] Due to late diagnosis of CHM during this period (mean gestational age of 16–17 weeks), the prominent clinical features were uterine size larger than the gestational age in 38–51% of women and markedly elevated levels of human chorionic gonadotropin (hCG).[24–26] In the 1960s and 1970s, hyperthyroidism and respiratory insufficiency were reported in 7% and 2% of women, respectively.[27] In recent years, even with early ultrasound diagnosis, vaginal bleeding continues to be the most common presenting symptom, occurring in 84% of women with CHM, while other classical signs are rarely seen.[28]

Women with PHM historically have less prominent clinical features compared to CHM.[29] In modern practice, most PHMs commonly present with the ultrasound diagnosis of either an incomplete miscarriage or a missed miscarriage. Thus the diagnosis of PHM is usually made histologically post D&C.[30] Vaginal bleeding is also the most common presenting complaint in women with PHM, occurring