Original Article

Sonographic value in the diagnosis of gestational trophoblastic disease

Abdollahi Alireza[1], Mitra Mehrazma[2], Rahmani Maryam[3]

ABSTRACT

Objective: Hydatiform moles are a group of fertilization disorders characterized by an abnormal growth of chorionic tissues. It has an incidence of 1/347 in Iran. Early diagnosis of disease is of clinical importance. The aim of this study was to investigate the sensitivity of sonography in evaluation of Gestational Trophoblastic disease (GTD).

Methodology: A cross sectional hospital based study was designed. A total number of 95 women with sonography diagnosis of gestational trophoblastic disease, missed abortion, incomplete abortion and blighted ovum participated in the study. The patients underwent hysterectomy; the type of disorders was confirmed by pathology.

Results: Ninety five patients participated in the study with the mean age of 24.05. Eighty nine of them with Complete Hydatiform Mole (CHM) diagnosis and six of them with Partial Hydatiform Mole (PHM). There was a 87.5% sensitivity for diagnosis of molar pregnancies totally when there was 91.3% sensitivity in the diagnosis of CHM and 60% sensitivity in the diagnosis of PHM.

Conclusion: These findings showed that sonography is an effective diagnostic tool in the diagnosis of molar pregnancies; however it is more sensitive in the diagnosis of CHM than PHM. Further studies are warranted to elucidate the role of ultrasonography in future.

KEY WORDS: Sonography, Gestational Trophoblastic disease.

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1. Abdollahi Alireza,
Assistant Professor,
Department of Pathology,
2. Mitra Mehrazma,
Associate Professor,
Department of Pathology,
3. Rahmani Maryam,
Assistant Professor,
Department of Radiology,

1-3: Tehran University of Medical Science,
Tehran - Iran.

Correspondence:

Dr. Mitra Mehrazma,
Keshavarz Blvd,
Imam Hospitals Complex,
Tehran University of Medical Science,
Tehran - Iran.
E-mail: dr_p_abdollahi@yahoo.com

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INTRODUCTION

Gestational trophoblastic disease (GTD) is characterized by an abnormal growth of chorionic tissues.[1] They encompass hydatiform moles, choriocarcinomas and invasive moles.[2]

Hydatiform moles are the most prevalent forms which are classified into Partial Hydatiform Mole (PHM) and Complete Hydatiform Mole (CHM)[3], when choriocarcinomas and invasive moles are rare forms of gestational trophoblastic disease. Multiple organ metastasis to lungs, liver, kidneys, breast, pancreas, adrenal and thyroid glands have been reported in the later entities.[4]

The incidence of gestational trophoblastic disease have been reported to vary from 1/1200 to 1/2000 pregnancies in USA[5], 1/1347 to 1/3004 in Tunisia[6], 4.8/1000 to 2/10000 in Turkey[7] and 1/314 in Iran.[8] Due to the high incidence of GTD in Iran and the risk

of persistent Gestational Trophoblastic Disease (GTD) or Gestational Trophoblastic Neoplasia (GTN) in delayed evacuation, early diagnosis of molar pregnancies is of clinical importance.[9,10]

Besides there is great concern to find a sensitive, cost effective and non invasive tool in the diagnosis of GTD. Ultrasound allows for detailed, and, as far as is known, safe analyses of not only placental structure in the human but also its function.[11]

Variable sonographic features that predicted GTD have been reported.[12] Sonographic features of (CHM) usually describes a heterogeneous echogenic endometrial mass with multiple variable sized cyst, however only slightly more than half of first trimester molar pregnancies have the classic appearance.[2,13]

Vaginal bleeding is the most presenting symptom of GTD due to late diagnosis of CHM during this period of 16-17 weeks[3] Placental size larger than gestational age and elevated levels of âHCG are other clinical features.[3] However women with PHM historically have less prominent features compared to CHM.[3,14]

Although ultrasound can be helpful in the diagnosis of molar pregnancies, histological confirmation is mandatory.[3,9] The early detection of molar pregnancies results from sonographic diagnosis and early laboratory examination.[15]

The aim of this study was to investigate the sensitivity of sonography in the diagnosis of gestational trophoblastic disease by histopathological confirmation after surgical resection.

METHODOLOGY

A cross sectional hospital based study was designed which was conducted from Feb 2001 to Sep 2005 in a university hospital. A total number of 95 women with sonographic diagnosis of gestational trophoblastic disease, missed abortion, incomplete abortion, blighted ovum and unknown pathology who were eligible to undergo hysterectomy, participated in the study. The type of GTD was determined by two pathologist. The demographic data including age; number of pregnancies, past medical history of GTD of the patients was taken by the nurse. The research was carried out according to the principles of declaration of Helsinki; the local ethics review committee of Tehran University of Medical Science approved the study protocol. All participants gave written informed consent before participation.

The Statistical Package for the Social Sciences for Windows Release 12.0 SPSS version 15 was employed for analysis. Demographic data is presented in mean, median and SD. Non parametric correlation was employed to test the correlation between the type of gestational trophoblastic disease with the age of mother, the previous experience of GTD and the type of GTD, sensitivity of sonography was calculated. Furthermore OR with 95% confidence interval were calculated. A *P* value <0.05 was considered significant.

Table-I: Evaluation of sonography by pathological confirmation.

		Sonography	
		Positive	*Negative*
Pathology	Positive	77	11
	Negative	7	0

RESULTS

A total of ninety five patient participated in the study, 89 with complete hydatiform mole (CHM) and six with partial hydatiform mole (PHM). The youngest patient was 16; the oldest was 55 with the mean age of 24.05. Patients were divided into different groups according to age and the number of pregnancies they had (Figure-1). Sonographic evaluation of disease was compared with pathological diagnosis which is shown in Table-I. There was 87.5% sensitivity for sonographic evaluation of molar pregnancy totally; however it had 91.3% sensitivity for CHM diagnosis and 60% sensitivity for PHM diagnosis.

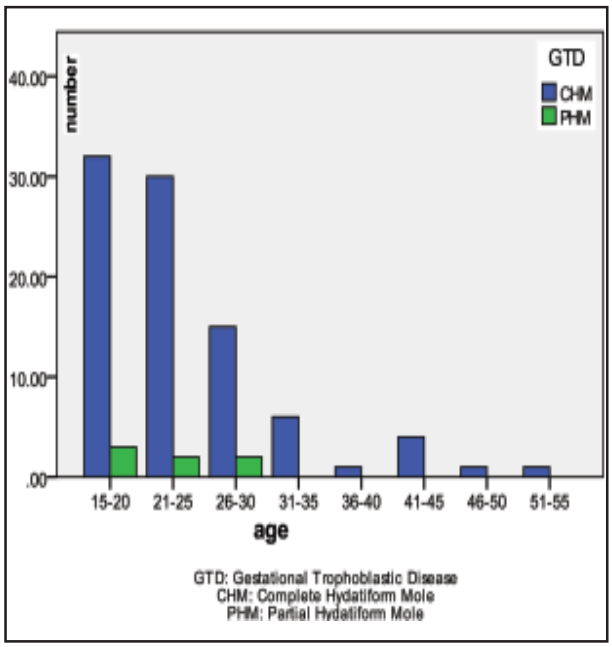

Figure-1: The patients stratified in different age groups.

DISCUSSION

The sonographic features of CHM is usually a heterogeneous echogenic endometrial mass with variable-sized cysts and no visible embryo. Only slightly more than half of first trimester molar pregnancies have a classical appearance, the rest may present as an anembryonic GS, incomplete abortion, or heterogeneously thick endometrium without the characteristic vesicular appearance.[13] The differential diagnosis of CHM in sonography consists of placental hydropic degeneration and placental psuedomole. The former occurs after fetal demise and can appear identical to CHM on sonography.[13] Placental pseudomole can be associated with preeclampsia and Beckwith-Wiedemann syndrome. There is presence of a fetus with normal growth in the first trimester.[13]

Sonographic appearance of partial mole are an enlarged placenta with focal areas of variable-sized cysts. The fetus has several congenital anomalies and growth retardation. The differential diagnosis for partial mole includes the 1-Twin pregnancy with one normal fetus and placenta with an accompanying complete hydatidiform molar pregnancy. Diagnosis is made on the basis of normal anatomy and growth of the fetus. 2-Fetal demise with hydropic degeneration of the placenta. Presentation is identical to partial molar pregnancy, and pathologic diagnosis is required. 3-Placental pseudomole. This condition can be seen in preeclampsia with mesenchymal dysplasia of the placenta. It is rare in the first trimester and is characterized by the presence of villous hydrops. 4-Infection.[13] In invasive moles sonography can demonstrate the presence of a uterine mass identical to a CHM and sometimes with invasion to myometrium or adnex.[13]

This study showed that the sensitivity of sonography in detection of GTD was near 87.5%. There was 91.3% sensitivity in the diagnosis of CHM against 60% sensitivity in the diagnosis of PHM. We were unable to determine other diagnostic values like specificity, positive predictive value, negative predictive value and accuracy due to the lack of control group.

Different diagnostic values for sonography in evaluation of Gestational trophoblastic disease have been reported. In a cross sectional study sonographic sensitivity in the diagnosis of GTD was 75.86%, which was sharply more accurate in the diagnosis of complete hydatiform mole 96.15% against 28% in case of partial hydatiform moles.[16]

In another study the overall ultrasound sensitivity was about 44% for GTD, 20% for PHMs and it was 95% for CHMs, they concluded that ultrasonography is more reliable for diagnosis of CHMs than for PHMs.[17] Other studies have reported the sensitivity 39% for ultrasound in the diagnosis of GTD, however all these studies have been hampered by a small sample size.[18] In Dobkin *et al* study which compared Doppler sonography with ultrasound sonography, there was 70% sensitivity for ultrasound, when there was 90% sensitivity for Doppler sonography.[19]

Nevertheless it should be taken into account that most of these studies are confounded by the competence of the sonographers. These findings suggest that sonographic expertists could potentially increase ultrasound detection rates for GTD, especially in a low income country with a higher incidence of GTD like Iran, when the majority of patients are unable to afford expensive diagnostic tools. Ultrasound is high-performance in the positive diagnosis of complete moles. It shows signs of invasion in case of trophoblastic tumors. In those cases, a radiological assessment guides the management even in the absence of histological proofs.[16]

In conclusion we have shown that ultrasound is a sensitive diagnostic tool in the diagnosis of GTD. The principle limitation of the present study is its cross sectional nature which preclude the determination of the direction of causality.

CONCLUSION

These findings showed that sonography is an effective diagnostic tool in the diagnosis of molar pregnancies. However it is more sensitive in the diagnosis of CHM than PHM. Further studies are warranted to elucidate the role of ultrasonography in future.

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