

Hydatidiform Mole Types and Age Demographics in Sindh Province, Pakistan

PARSA KAINAT¹, MUHAMMAD RAHIL KHAN², SURESH KUMAR³, FIDA HUSSAIN⁴, ABDUL AZIZ SHAIKH⁵, MARYAM ANMOL⁶

¹Resident Pathologist, Department of Pathology/ Liaquat University of Medical and Health Sciences Jamshoro Sindh

²Assistant Professor, Department of Pathology/ Liaquat University of Medical and Health Sciences Jamshoro Sindh

³Assistant Professor, Department of Pathology/ Dow University Of Health Sciences (Duhs)

⁴Lecturer Pathology, Department of Pathology/ Bilawal Medical College LUMHS Jamshoro Sindh

⁵Associate Professor, Department of Pathology/ Liaquat University of Medical and Health Sciences Jamshoro Sindh

⁶Resident Pathologist, Department of Pathology/ Liaquat University of Medical and Health Sciences Jamshoro Sindh

Corresponding author: Parsa Kainat, Cell: 03330134484

ABSTRACT

Hydatidiform mole can be classified as partial and complete depending on the clinical and histopathological features. There is regional variation in incidence of hydatidiform mole with more cases seen in Asia, Africa and other developing countries. This cross-sectional descriptive study was done at the department of histopathology in Diagnostic and research laboratory Hyderabad Sindh. A total of 261 cases were added in the study including 251 cases of suction and evacuation and 10 cases of hysterectomy. The mean age was 27.16±6.66 with age range of 17-60 years. In our study out of 260 samples, 155(59.6%) were of complete mole while 105(40.4%) were of partial mole. The incidence of mole was highest in the age group 26-30 years. The prevalence of hydatidiform mole was notably higher in comparison to numerous other studies. In conclusion, it is recommended that all abortion specimens undergo evaluation to prevent misdiagnosis of gestational trophoblastic disease and to ensure appropriate treatment and follow-up, thereby minimizing the risk of complications.

Keywords: Hydatidiform mole. Complete mole. Partial mole. Molar pregnancy.

INTRODUCTION

Gestational trophoblastic disease is a broad term that encompasses complete and partial hydatidiform mole, invasive mole, choriocarcinoma and placental site trophoblastic tumors. These are pregnancy related disorders commonly presenting with spontaneous abortion. Among these, Complete and partial hydatidiform mole are the most frequent diseases.¹

Hydatidiform mole is a type of pregnancy with anomalous development of embryo which can be seen on histologic examination as proliferation of trophoblastic cells and formations of fluid filled cavities termed as cistern.² Hydatidiform mole is a complication of trophoblastic cells that form the placenta. Mole is a medical term that refers to group of cells while hydatidiform means a cyst or sac filled with fluid. Their diagnosis and timely management are indeed a great challenge for clinicians due to their recurrence and complications. Women with previous history of molar pregnancy carry a 6-fold risk of recurrence while in those with 2 positive histories, the risk is 20 times more. The risk of recurrence also increases with age, women above 40 years of age carry 7.5 times higher risk. Some of the susceptibility genes are homozygous mutation in NLRP7 and KHDC3L gene.³

Hydatidiform mole can be classified as partial and complete depending on the clinical and histopathological features. There is a conflicting data on histopathological examination of complete and partial mole. However, both are considered as premalignant and their timely diagnosis and early detection is critical for ensuring patient's health and wellbeing. Complete mole can become aggressive and invasive in about 20% of cases and convert into choriocarcinoma.⁴

Few theories explain insufficient fetal blood circulation as causative factor in pathogenesis of hydatidiform mole. When the fetal circulation is insufficient, the trophoblast cells, which obtain nourishment from the mother via the intervillous chamber, transport fluid to the villi. When the blood circulation in the villi is impaired, fluid accumulates within the mesenchymal tissue of the villi, leading to the formation of small cysts. This process persists and eventually leads to the development of a hydatidiform mole.⁵

Helle⁶ et al discussed the exact incidence of hydatidiform mole is variable as total number of early pregnancies cannot be measured accurately. Sometimes hydatidiform mole disappears on its own even before the pregnancy is revealed. The parameters such as total number of viable pregnancies or total deliveries does not include all early pregnancies.

Blood level of HCG is crucial in the assessment of gestational trophoblastic diseases. However, it is not a very

sensitive test as false positive results have also been observed in few cases. In some patients, a low level of HCG is found in blood in the absence of pregnancy or any other gestational trophoblastic disease and it becomes essential to determine whether it is genuine or false. Another possibility is that low-level genuine HCG might be attributed to the release of HCG from the pituitary. Other placental hormones like human placental lactogen (HPL), Inhibin, Activin, and progesterone have been explored as tumor markers and for GTD monitoring.⁷

There is regional variation in incidence of hydatidiform mole with more cases seen in Asia, Africa and other developing countries. In the developed countries, the incidence of complete mole is 1-3 per thousand pregnancies and that of partial mole is 3 per thousand pregnancies. There are numerous dietary and nutritional causes that contribute to development of molar pregnancy. This is the reason why the findings from various studies cannot be generalized as the population under study, the diagnosed parameters and the definition of the disease differ.⁸

This study aims to determine the incidence of complete and partial hydatidiform mole and to understand their distribution in different age groups.

METHODOLOGY

This cross-sectional descriptive study was done at the department of histopathology in Diagnostic and research laboratory Hyderabad Sindh. All cases of molar pregnancy received at the department of histopathology in the duration from January 2021 to December 2022 were retrospectively identified and included in the study irrespective of age. Non-probability convenience sampling technique was used and a total of 261 cases were added in the study including 251 cases of endometrial currenting and 10 cases of hysterectomy. The biopsy reported of patients were retrieved from the laboratory record. Two histopathologist confirmed the microscopic diagnosis. Specimen with insufficient biopsy material or those received with the clinical diagnosis of molar pregnancy but with a different final diagnosis on histopathology were excluded.

Statistical Analysis: Excel 2021 and SPSS version 2022 were used for statistical analysis. Descriptive statistics were applied to calculate frequency and percentages. For the quantitative variables i.e., age, mean and standard deviation was calculated while for qualitative variables such as histopathological diagnosis and type of biopsy specimen, frequency and percentage were calculated.

RESULTS

In our study, 260 histopathologic specimens were included, 250 were removed by suction and evacuation while in remaining cases hysterectomy was done. The mean age was 27.16±6.66 with age range of 17-60 years. Most cases were of complete mole 155(59.6%) as shown in table 1. Age wise distribution of hydatidiform mole was done in 5 groups with frequent cases in age group 3 (26-30years) as shown in table 2.

Table 1: Descriptive distribution of the Types of hydatidiform mole

Types of Hydatidiform mole	Frequency	Percent
Complete mole	155	59.6
Partial mole	105	40.4
	260	100

Table 2: Descriptive distribution of the different age groups

Group no	Age range	Frequency	Percentage
1	<20	49	18.8
2	21-25	78	30.0
3	26-30	81	31.2
4	31-35	30	11.5
5	>35	22	8.5
		260	100.0

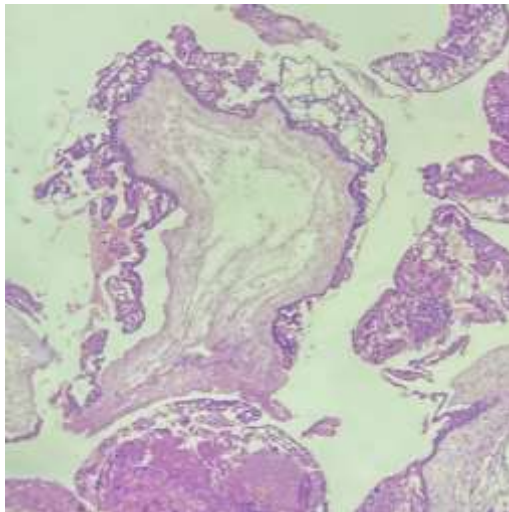


Figure 1: Microscopic image of Complete hydatidiform mole at 40x

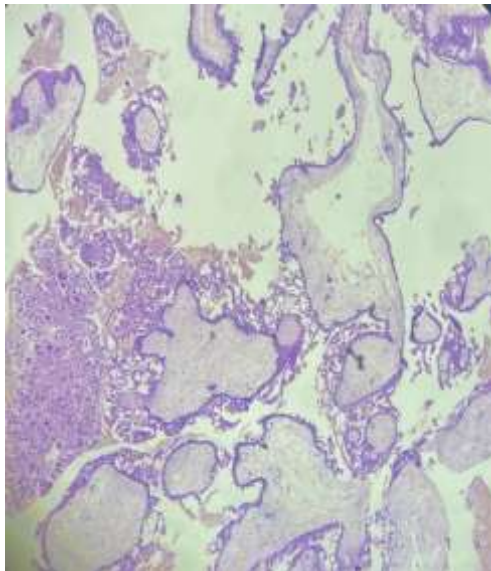


Figure 2 Microscopic image of Complete hydatidiform mole at 4x

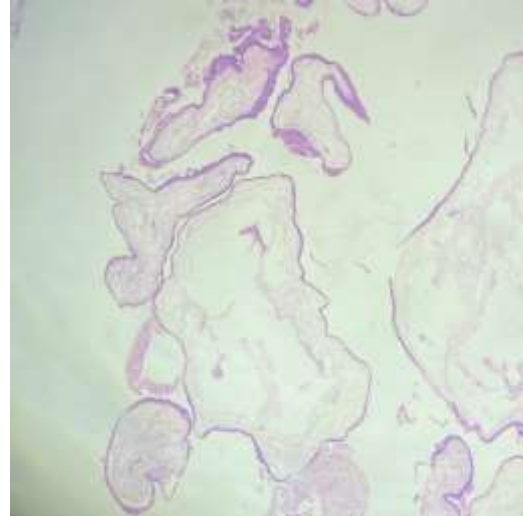


Figure 3: Microscopic image of Partial hydatidiform mole at 40x

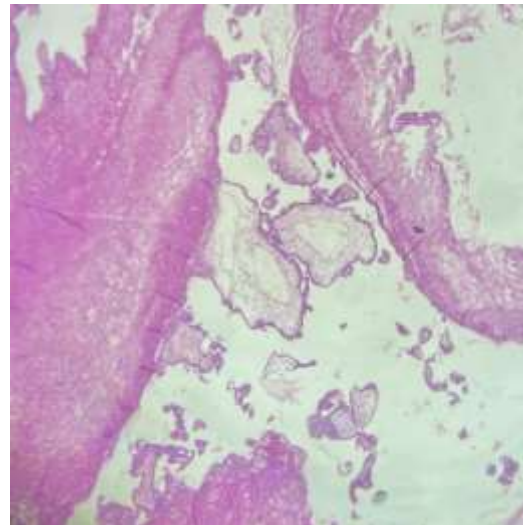


Figure 4: Microscopic image of Partial hydatidiform mole at 4x

DISCUSSION

Termination of pregnancy in first trimester occurs clinically in almost 10 percent of cases. It is seen on ultrasonography as fetal sac with no cardiac activity. The causes for first trimester losses are variable including, molar pregnancy, structural anomalies of uterus, genetic anomalies, environmental and hormone related factors. Histopathologic examination of early pregnancy losses is often done to rule out any molar change. Molar pregnancy is diagnosed with ultrasonography as first choice however majority of cases upon histopathologic examination reveal retain products of conception.⁹

Gestational trophoblastic diseases constitute 1% of all gynecologic diseases.¹⁰ In our study 3.8% patients underwent hysterectomy for molar pregnancy while a study reported 6.5% cases of hysterectomy for molar pregnancy.¹¹ For women aiming to preserve their fertility, it is recommended that they undergo suction evacuation rather than hysterectomy. However, depending on the individual patient's preferences, hysterectomy can be considered as an alternative for women who are of advanced age or have already completed their families.¹²

In our study out of 260 samples, 155(59.6%) were of complete mole while 105(40.4%) were of partial mole. This is consistent with okunade¹³ et al that the occurrence of complete

mole surpasses that of partial mole in terms of frequency. In contrast, kalsoom¹⁴ et al(2015) showed 66% and a study by Nawras¹⁵ et al revealed 52% greater number of cases attributed to partial mole compared to other types of molar pregnancies.

Mean age in our study was 27±6.66 years similar to a study done in India¹⁶ and Iraq³ with mean age of 28 years. Different research conducted in India¹ and Turkey¹⁷ revealed that the average age recorded was 29 years. Two studies done in Lahore revealed mean age above 30 years.^{14 18}

The minimum age in our study was 14 years while maximum was 60 years in contrast to a study done by nawras¹⁵ et al showed 45 years as maximum. The incidence of mole in our study was highest in the age group 26-30 years. However, shazly¹⁹ et al showed that highest incidence is seen in age group of less than 20 years. The likelihood of hydatidiform mole occurrence rises when a woman is either very young or at an advanced age^{19 20 21} In our study increased number of cases were seen in the reproductive age and it gradually declined after 35 years because mostly women were married and had complete their families. In various geographical regions and among diverse ethnic groups, the age at which women become mothers is consistently identified as the primary risk factor associated with hydatidiform mole.²² A number of studies have proposed that molar pregnancy is strongly associated with specific factors. These factors include nulliparity (having never given birth), lower socioeconomic status, and deficiencies in essential nutrients such as protein, folic acid, and carotene. Understanding these potential contributors can provide valuable insights into the development and prevention of molar pregnancy.²³

Nonetheless, the hormonal dynamics and ovum maturation occurring between the ages of 14 and 29 could potentially contribute to the development of hydatidiform mole. There exist two primary risk factors that elevate the likelihood of experiencing a molar pregnancy. First, when the female is either too young (under 20 years) or too old (over 35 years) to conceive, and secondly, when there is a previous history of molar pregnancy.²⁴

The prevalence of hydatidiform mole was notably higher in comparison to numerous other studies. This could be attributed to the deliberate preoperative selection of specimens for histopathological examination or differences in methodologies employed.

CONCLUSION

It is advisable to conduct a population-based study in order to accurately determine the actual occurrence rate of molar pregnancy in Pakistan. Furthermore, it is recommended that all abortion specimens undergo evaluation to prevent misdiagnosis of gestational trophoblastic disease and to ensure appropriate treatment and follow-up, thereby minimizing the risk of complications.

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