

# A One-Year Epidemiological Perspective of Molar Pregnancies at Orotta Maternity Referral Hospital: Asmara, Eritrea

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**Abstract:** Gestational trophoblastic diseases (GTD) are a group of diseases originating from the placenta, with significant morbidity and mortality, especially in developing countries. A one-year prospective study on GTD was done to determine the incidence of GTD identify the risk factors; explain the clinical presentation; describe the management; and record the outcomes at Orotta Maternity Referral Hospital (OMRH) Asmara, Eritrea; A protocol for the prospective study of GTD was prepared with involvement of colleagues. All collected data was reviewed and finalized by the author. Statistical analysis was done using Statistical Package for the Social Sciences (SPSS). During the study period a total of 6845 deliveries and 45 cases of GTD were recorded at OMRH. This gives an incidence of 6.6 per 1000 deliveries. Primigravid mothers were more affected. The majority of cases were complete molar pregnancy (87%) and vaginal bleeding was the main presentation. Pregnancy test result was read as negative in 7% of cases. Of the cases followed, 77.7% recovered while 11.1% required chemotherapy because of persistent disease and 8.9% were lost to follow up. The study confirms higher incidence, of GTD in Eritrea as compared to results of some African countries. The need to strengthen histological services and quantitative serum tests were identified as crucial in the effective management of GTD at OMRH. A standard and systematic approach of diagnosis, treatment and strict follow-up of cases is required for better outcome.

**Keywords:** Gestational Trophoblastic Diseases, Complete Molar Pregnancy, Evacuation and/or Suction of the Uterus, Methotrexate

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## 1. Introduction

Gestational trophoblastic disease (GTD) includes a group of diseases that originate from the placenta. It includes complete and partial moles, placental site trophoblastic tumors, choriocarcinomas and invasive moles. The mortality related to these diseases has improved markedly with proper evacuation, follow up and chemotherapy. The incidence of molar pregnancy has marked variations that depend on geographic and ethnic differences. These variations in the

incidence of molar pregnancy might be overestimated by reporting biases, and the type of data collection [1]. Higher incidence of GTD is reported in china, south East Asia and some African countries [2]. The incidence of GTD varies greatly in different parts of the world, with 0.4 per 1000 birth in United States of America to 12.5 per 1000 births in Taiwan. Some African countries have reported prevalence of 4.6:1000, 2.8:1000, and 3.42:1000 deliveries in Nigeria, Ethiopia and Uganda respectively [3-5].

There are numerous potential risk factors for the development of complete hydatidiform mole. Studies have

documented prior hydatidiform mole predisposes to another molar pregnancy. Advanced or very young maternal age has also consistently been correlated with higher rates of complete hydatidiform mole [6]. The risk or reoccurrence of molar pregnancy in a later conception was about 1%, in mothers who had a history of one molar pregnancy before and the incidence of a molar gestation after two molar pregnancies was around 23.1% [7].

The most common presentation in GTD is history of amenorrhea, vaginal bleeding, anemia and vomiting. Confirmation of diagnosis is made with serum Beta Human Chorionic Gonadotropin (B-HCG), ultrasound findings and histopathology. In other studies, instead of quantitative serum B-HCG qualitative urine B-HCG and urine pregnancy tests are described in the diagnosis and follow-up of GTD but the different assays and their sensitivity must be analyzed cautiously [8-10].

In the management of molar pregnancy, suction curettage of the uterine contents has become the standard method of treatment and its usage has increased with time [11, 12]. Abdominal hysterectomy is indicated for patients above 45 years of age and those with massive bleeding. Methotrexate is used as a prophylaxis in some centers, but is commonly used for persistent cases of GTD [7, 13].

Medical methods of evacuation, such as misoprostol and oxytocin result in higher rate of incomplete evacuation, and so are not recommended in cases of complete molar (CM) [11]. Follow-up after evacuation or hysterectomy of a hydatidiform mole with serial serum B-HCG is essential to detect trophoblastic complications (invasive mole or choriocarcinomas), that develop in approximately 15-20% of women with complete mole and 1-5% with partial mole [14]. Follow-up requires serial serum quantitative HCG measurements or urine tests every 1-2 weeks for 6 months [after the spontaneous return to normal]? [15, 16]. Conditions, such as complete molar pregnancy, which produces large amounts of beta human chorionic gonadotropin ( $\beta$ -HCG), may cause a false negative result in a qualitative urine tests due to an oversaturation of the assay system, known as the “hook effect”, which is described well in a study done by Pang et al.

No study was done in Eritrea related to GTD. This study aims to determine the incidence, risk factors, clinical presentations, diagnosis, management and outcomes of molar pregnancy at Orotta Maternity Referral Hospital (OMRH).

## 2. Methodology

### 2.1. Study Design

This is a prospective, institution based, descriptive study to determine the incidence, presentation, management and outcome of molar pregnancy.

### 2.2. Setting

The study was conducted at Orotta Maternity Referral Hospital in Asmara Eritrea (OMRH). The Hospital, located in

the capital city, gives Obstetrics and Gynecology services, with an average of 7000 deliveries a year. All new cases of GTD from January first, 2020 to December 31, 2020 were enrolled in the study. They were followed up for 6 months after treatment. Data was collected by using prepared form.

### 2.3. Participants

The prospective study involved women on whom a clinical diagnosis of GTD (molar pregnancy) was made during the year of the study period. Diagnosis was done clinically; by pregnancy test result; and by ultrasound evaluation. Histopathological examination was done after evacuation of the uterus, on suspicious cases. Those with negative result for GTD were excluded from the study.

### 2.4. Data Sources and Collection

Data was collected from the patients' charts and patients' interview using a prepared form. The Information was recorded starting with socio-demographic characteristics and going through obstetric and gynecological history. Evacuation of the uterus was done by suction or curettage and some patients were given misoprostol, depending on physician's preference. Hysterectomy was performed when indicated. Further information was collected upon discharge of patients and during the 2 weekly follow-up visits, which stretches for at least 6 months. Urine test for HCG was used for diagnosis and urine B-HCG in titer was the method used to follow up all patients. Those who persisted according to the criteria set by the International Federation of Gynecology and Obstetrics (FIGO) were treated with methotrexate chemotherapy. methotrexate 25mg oral in 5-day course for 3 to 5 cycles was used.

### 2.5. Statistical Methods

Frequencies and percentages were used to describe the characteristics of the study population. SPSS (Statistical Package for Social Sciences) was used for data analysis. Specifically, cross tabulation was used to analyze treatment modality and outcome association. The number of live births in the hospital within same year was used as denominator.

## 3. Results

During the study period of one year, 45 mothers were diagnosed with molar pregnancy and managed in OMRH; of which 39 (87%) were complete mole and 6 (13%) were partial mole. The total number of deliveries in the Referral Maternity Hospital during the study period was 6845, giving an incidence rate of molar pregnancy of 6.6/1000 deliveries. The results of the study showed that the mean age parity, gestational age (weeks) and uterine size (weeks) was 30, 2, 14, 16 respectively. The average hospital stay was 6 days. The youngest age in the study group was 19 and the oldest was 46 years old. More than one half ( $n=26$ ) of the cases were in the age group of 30 years or younger. Only 6 (13%) women were above the age of 40. The highest incidence of

molar pregnancy (38%) was observed in Primigravid mothers. The blood group was type O in 40% of the cases. The proportion of Christians and Muslims in Eritrea is about 50% each, but the study showed that 87% of them were Christians and 13% Moslems. The Tigrigna ethnic group, who constitute about 50% of the population, accounted for 89% of the women affected by molar pregnancy. The majority (71%) came from the Central Region, which includes the capital city of Asmara (see table 1).

The gestational age was less than 14 weeks in 64.4% of the patients. The majority (89%) of the patients presented with vaginal bleeding and /or vomiting. The rest (13%), reported with a missed period as the main complaint. In 87% of the cases the ultrasound findings revealed snow storm appearance. In 93% of the cases, the pregnancy test was positive and in 7% it was negative. The majority (67%) of molar pregnancy was diagnosed during the first trimester, while the rest (28% and 5%) were diagnosed during the second and third trimester respectively.

The uterine size was larger for gestational age in 26 (58%) of the cases; smaller than gestational age in 15 (33%) of the cases; and the same size as gestational age in 4 (8%) of the cases.

In 96% of the cases, there was no history of molar pregnancy. Contraceptive usage was reported in 26.7% of the cases.

Most of the cases (95.6%) were managed by suction curettage or dilatation and curettage (D&C) with or without misoprostol. Total abdominal hysterectomy (TAH) was performed in 4.4% of the cases. Blood transfusion was given to 16 (25.6%) of the patients. In 5 (11.1%) of the patients, the B-HCG titer persisted, indicating gestational trophoblastic neoplasia (GTN) and were treated with Methotrexate. One patient died while on treatment with chemotherapy after developing lung and brain metastasis.

The majority of the patients (77.7%) completed follow up with negative results; 11.1% were on treatment; and 8.9% were lost to follow-up. (see table 2).

**Table 1.** Demographic characteristics of women with molar pregnancy.

Characteristics	Number and (%)
Age (years)	
<= 25	8 (18)
26-30	18 (40)
31-35	5 (11)
36-40	8 (18)
>40	6 (13)
Parity	
Para 0-1	17 (38)
Para2-4	19 (42)
Grand multiparous	9 (20)
Religion	
Christian	39 (87)
Muslim	6 (13)
Address	
Central region	32 (71)
Other region	13 (29)
Ethnicity	
Tigrigna	40 (89)
Tigre	1 (2)

Characteristics	Number and (%)
Saho	3 (7)
Nara	1 (2)
Type of Molar pregnancy	
Complete mole	39 (87)
Partial mole	6 (13)
Blood group	
A	8 (18)
B	16 (36)
AB	2 (4)
O	18 (40)
Unknown	1 (2)

## 4. Discussion

The incidence of molar pregnancy in our study was 6.6/1000 deliveries (1 in 152 deliveries). This finding reveals a higher figure than studies done in South East Nigeria, two teaching Hospitals in Ethiopia and Mulago Hospital in Uganda, where the incidence was 2.8/1000, 3.42 per 1,000 and 4.6 per 100 deliveries respectively [3-5]. In general, the incidence of GTD is low in Europe and USA studies [12], but highest in South East Asia, with incidence as high as 12/1000 deliveries in Indonesia [17]. Various factors may play a role in the difference of the incidence of GTD, which include the study population, difference in health care systems, genetic factors, socio economic and cultural differences.

The majority of cases in our study were in the age-group of 26-30 years and during their first pregnancy. This is similar to the findings of studies done in India and in Hawassa (Ethiopia) [2, 18]. Our finding of 13% in the age group above 40 years is similar to the findings of studies done in Hawassa (Ethiopia) and Egypt by Zekaria [18, 19]. The majority of the patients were Tigrigna speaking Christians from the Central Region, where the hospital is located. As described by many studies, complete molar pregnancy was more common (87%) in our study, which is consistent with the results of studies done in Ethiopia and Italy [4, 20].

Vaginal bleeding, after a missed period, is the main presentation of patients with molar pregnancy in most studies [2, 4, 18]. In settings, where routine ultrasound exam is done, patients are diagnosed early, before they develop complications as the study from Egypt (by Zekaria et al) shows [19]. The uterine size was larger for gestational age in 58.8% of the cases, which is similar to findings described in other studies [2]. We used urine pregnancy test kit for diagnosis and follow up. Urinary B-HCG was negative in 6.7% of the cases which is described as hook effect in study done by Pang Y P et. al, with high serum HCG resulting in a negative outcome [8]. [Test kits for qualitative serum and urinary HCG for GTD use are described in other studies with positive but cautious analysis of results in relation to HCG sub units and test kit brands. All our patients test later turned to be positive after titration and during follow up].

Despite the advantage of suction over medical methods [Misoprostol] with or without dilatation and curettage (D&C) significant numbers of our cases were treated with misoprostol and D&C because of the attending physician's

preference. This is in contrast to many centers and studies where suction is the preferred mode except a study in two teaching hospitals in Ethiopia, where the mode of evacuation included different modalities of evacuation including oxytocin with curettage, D&C, Manual vacuum aspiration etc... [4]. In the analysis of our study, the risk of persistent disease was similar with suction and other methods of evacuation which included Misoprostol with evacuation and curettage (E&C) or D&C. The few number of cases may be the possible explanation.

Blood transfusion was necessary for 25% of cases. Anemia is the most common complication in most studies, which, show a rate of transfusion similar to our study. However, one study from Egypt showed 70% of cases required blood transfusion [19].

The patients with persistent disease (11.1%) were treated with Methotrexate. The risk of persistent disease is higher in complete molar than partial molar. Cochrane Library summarizes the risk of developing persistent disease (GTN) is reported to be 16% to 20% in women with Complete molar and 0.5% to 1% in women with Partial mole [17].

Loss to follow up is a major problem in developing countries, possibly due to long distance to reach a health facility and the low educational level of patients. In our study 8.9% were lost to follow up. Studies from Ethiopia and Nigeria report much higher rates of loss to follow up (75.3%) and (65.4%) respectively [4, 21]. This could be the reason for stronger counselling and also the need to treat cases with chemotherapy for high risk patients to follow up, suggested by study from Uganda and Cochrane summary by Wang et al. [5, 17].

**Table 2.** Reproductive history, gestational age, ultrasound finding and treatment.

Variable		Frequency	Percent
History of molar pregnancy	Yes	2	4.4
	No	43	95.6
History of contraceptive usage	Yes	12	26.7
	No	30	66.7
	Unknown	3	6
	<14	29	64.4
Gestational age in weeks	14-28	12	26.7
	>28	2	4.4
	Unknown	2	4.4
	Vaginal bleeding and /or vomiting	40	88.9
Main complaint	Missed period	5	11.1
	Positive	42	93.3
Pregnancy test	Negative	3	6.7
	Snow storm	39	86.7
Ultrasound finding	Complex and mixed	6	13.3
	Evacuation and curettage with or without misoprostol	25	55.5
Treatment	Suction	18	40
	Hysterectomy	2	4.4
Blood transfusion	Yes	16	25.6
	No	29	64.4
outcome	Recovered	35	77.7
	Died	1	2.2
	Persistent	5	11.1
	Lost from follow up	4	8.9

## 5. Limitation of Study

The study was done in one referral hospital which restricts the study population to a group of women living around the main capital city. The other limitation was that histopathology examination was not routinely used or available during the study period. Despite the limitations, this prospective study has provided baseline information on the incidence of molar pregnancy in Eritrean. It could also be used as a reference article to further research on molar pregnancy among Eritrean women.

## 6. Conclusion

This is the first study in Eritrea and shows the incidence of molar pregnancy to be on the high side, at 6.6/1000 deliveries. Complete molar pregnancy is more common than partial mole (87% and 13% respectively). Mothers having

their first pregnancy appear to be affected more frequently. Some patients with molar pregnancy presented with negative urine pregnancy test.

## 7. Recommendations

There is a need to introduce serum B HCG for the diagnosis and follow up of GTD and to perform histopathology in high risk and suspicious cases. Prophylactic chemotherapy is recommended for high risk patients. A standard management protocol is also required for better outcome.

## Authors Contribution

D E and D S were involved in the designing and proposal writing of the study, clinical record reviewing for data collection, data analysis, and interpretation of the study

findings, report writing, report reviewing and final paper preparation.

O G was involved in interpretation of the study, report writing, reviewing and final paper preparation.

A T was involved in data analysis and interpretation of findings.

L I participated in data collection and review of paper. All authors read and approved the final manuscript.

## Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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