

STUDY OF RISK FACTORS & IMMEDIATE OUTCOME OF MOLAR PREGNANCY IN TERTIARY CARE HOSPITAL

Dr Saima Mangrio^{*1}, Dr Shahida Shaikh², Dr Naheed mangrio³, Dr Faique Ali⁴, Dr Sehrish shaikh⁵

^{*1}MBBS, FCPS II Resident, Obstetrics & Gynaecology, Shaikh Zayed Women Hospital Larkana OBGYN Unit 1, House Job, Shaikh Zayed Women Hospital, Cmc Smbbm Larkana

²MBBS FCPS, Professor and Head of Department, Obstetrics & Gynaecology, Shaikh Zayed Women Hospital Larkana OBGYN Unit 1, Shaikh Zaid Women Hospital, Cmc Smbbm Larkana

³MBBS, FCPS 2 Resident, Obstetrics & Gynaecology, Ghulam Muhammad Mehar College Hospital Sukkur, OBGYN Unit 1, House Job, Ghulam Muhammad Mehar College Hospital Sukkur

⁴MBBS RMP MCPS Anaesthesia, Medical officer, Anaesthesia, Chandka Medical College Hospital Larkana, Chandka Medical Hostel Cmc Smbbm Larkana

⁵MBBS, FCPS II Resident, Obstetrics & Gynaecology, Shaikh Zayed Women Hospital Larkana OBGYN Unit 1, House Job, Shaikh Zayed Women Hospital, Cmc Smbbm Larkana

^{*1}mangriosaima503@gmail.com, ²shahida.doctor@gmail.com, ³naheednaheedmangrio@gmail.com, ⁴faiquealimangrio31@gmail.com, ⁵sehrishshaikh663@gmail.com

DOI: <https://doi.org/10.5281/zenodo.21296025>

Keywords

Molar pregnancy; Hydatidiform mole; Gestational trophoblastic disease; Risk factors; Immediate outcome; Maternal health; Obstetrics and Gynaecology.

Article History

Received: 25 March 2025

Accepted: 02 May 2025

Published: 17 May 2025

Copyright @Author

Corresponding Author: *

Dr Saima Mangrio

Abstract

Molar pregnancy is a form of gestational trophoblastic disease caused by atypical fertilization and the excessive proliferation of trophoblastic tissue. There is a potential for malignancy if the condition goes undiagnosed and untreated. Molar pregnancies are more common in Asian populations. The aim of this study is to identify the immediate outcomes and risk factors of molar pregnancy in a Pakistani population. Molar pregnancy occurs in 125 consecutive female patients between the ages of 18-45 years who present to the Unit I, Obstetrics and Gynecology Department of Sheikh Zaid Women's Hospital and is studied for a six-month period following the approval of the CPSP. From each patient, we gather demographic data, data on the clinical features and type of molar pregnancy, and data on risk factors such as having a previous molar pregnancy, parity, and other factors such as multiple pregnancies, hypertension, preeclampsia, gestational diabetes, hyperthyroidism, and anemia. The diagnosis of a molar pregnancy is made by an ultrasound and other laboratory tests. The immediate outcomes of this study are either treated and discharged or mortality. The data is analyzed in SPSS version 25. The study hopes to describe the immediate outcomes of molar pregnancy in order to improve the ability of health professionals to recognize the condition and improve health care practices and systems for the management of mothers.

INTRODUCTION

Molar pregnancy, known as a hydatidiform mole, is a type of gestational trophoblastic disease (GTD) and is characterized by the abnormal growth of placental tissue and development of

hydropic villi in the placenta. Issues in fertilization can create molar pregnancies with abnormal genetics and can be benign or malignant. Malignant cases can present as gestational trophoblastic neoplasia. It is

important to treat molar pregnancies as soon as possible. If treatments are delayed, it can lead to complications. Maternal hemorrhage can occur, as well as preeclampsia and hyperthyroidism. There is also the potential for the disease to become persistent trophoblastic disease (Ghassemzadeh et al., 2024).

Molar pregnancy is the most common type of the gestational trophoblastic disease (GTD). This type of disease is unique to pregnancy. GTDs arise from placental tissue. Molar pregnancies involve issues with fertilization and the absence or partial presence of genetics from the mother. Molar pregnancies can be classified as complete or partial. Complete moles are the result of fertilization issues where the embryo only has paternal genetics. Partial moles involve both maternal and paternal chromosomes, but typically of a triploid pattern. These different types of molar pregnancies can influence their malignant potential and play a role in the type of follow up and treatment that will be required (Joyce et al., 2022).

Many diverse factors, such as genetics and geography, impact the incidence of this pregnancy type and lead to variation among regions. In general, molar pregnancies are documented to be more common in many Asian countries when compared to Western countries, although, there are documented occurrences of some similarities among Western countries and their adjacent countries in Asia. These variations and commonalities contribute to the rationale for country specific research in order to recognize maternal traits and the patterns associated with diseases (Darling et al., 2022). There remains interest to study molar pregnancies as research identified their importance in medicine and their associated diagnostic and disease progression (Tantengco et al., 2021).

Countries have documented a large variance in reporting the occurrence of molar pregnancies. These differences relate to the burden of diseases in countries, poor reporting and some developing countries poor diagnostic and low accessibility to health care. Poor prevention and poor control and management strategies are associated with the incidence of molar pregnancies in Pakistan as

research has documented the large variability in its occurrence and clinical presentation (Babar et al., 2022). There is an urgent need to improve management, prevention, and control strategies. There is an urgent need to strengthen the detection pathways for gestational trophoblastic disease in Pakistan (Nizam et al., 2009).

Multiple factors are known to increase the likelihood of molar pregnancy. These include advanced maternal age, previous molar pregnancy, some reproductive disorders, and some nutritional impairments. Women who have had a molar pregnancy are at a greater risk of that pregnancy type recurring than the general obstetric population. Therefore, the assessment of the reproductive history is critical during the clinical evaluation (Sebire et al., 2018).

Background of the Study

Molar pregnancy is an abnormal pregnancy disorder caused by a hydatidiform mole (tissue from a mole pregnancy). It is part of gestational trophoblastic disease (GTD). Molar pregnancies occur when there is an abnormal increase in the number of trophoblastic cells and a hydropic degeneration of the chorionic villi. This stems from abnormal fertilization. Molar pregnancies can be classified as complete or partial, based on some genetic and pathological characteristics. In a complete molar pregnancy, there is no maternal contribution, and the paternal chromosomes are duplicated. In a partial molar pregnancy, there is abnormal fertilization with a triploid conceptus, and both the maternal and paternal contributions are present. Thus, partial molar pregnancies are triploid, and complete molar pregnancies are diploid.

Molar pregnancy occurs along the benign to malignant spectrum of gestational trophoblastic disease. Of all the types of obstetric disorders, gestational trophoblastic disease is the most important because it causes multiple long-term health issues for the mother. Without appropriate diagnosis and timely treatment, the patient can develop a number of health concerns, from anemia to hyperthyroidism and even persistent trophoblastic disease.

The frequency of molar pregnancy differs by geography and population. Asian countries report more instances than Western countries, so this likely involves genetics, nutrition, and socioeconomic factors. Developing countries may report more instances of molar pregnancy due to delayed diagnoses and a lack of obstetric care. Literature from Pakistan shows varied prevalence, clinical case features and maternal outcomes, but still lacks extensive local research.

Problem Statement

Molar pregnancy is a serious condition that can lead to poor health outcomes for the mother, and in some cases, it is fatal. Continuous complications arise even after the development of diagnostic and therapeutic expertise due to insufficient awareness and late diagnosis, as well as the absence of specialized healthcare in resource constrained settings. There is no local evidence concerning the risk elements for molar pregnancies that include, but are not limited to, previous pregnancy/ pregnancies, hypertension, pre-eclampsia, anemia, gestational diabetes, and hyperthyroidism. This causes trouble to the physicians in dealing with high risk patients for whom prevention is possible. There is also a scarcity of data concerning successful treatment and the mortality of women with molar pregnancies.

Study Objectives

1. To determine the risk factors associated with molar pregnancy among patients presenting at a tertiary care hospital.
2. To assess the immediate maternal outcomes of molar pregnancy.
3. To determine the frequency of complete and partial molar pregnancy.
4. To evaluate the clinical presentation and diagnostic findings among patients with molar pregnancy.

Research Questions

1. What are the demographic, reproductive, and clinical risk factors associated with molar pregnancy among women presenting at a tertiary care hospital?

2. What is the clinical presentation and distribution of complete and partial molar pregnancy among affected patients?
3. What are the immediate maternal outcomes following management of molar pregnancy?

Scope and Significance of the Study

This research aims to identify the risk factors and short-term consequences of molar pregnancy for women who were diagnosed at the Department of Obstetrics and Gynaecology at Sheikh Zaid Women Hospital in Larkana. This research will analyze demographic data, history of pregnancies, and data describing symptoms, types of molar pregnancy, diagnostic data, risk factors of pregnancy, and maternal treatment, as well as the outcomes of treatment. This research will document the burden of molar pregnancy in a tertiary care facility, and will identify the risk factors associated with the pregnancy in order to assist in the identification of women with a high risk for molar pregnancy, as well as provide and implement diagnosis and treatment in a timely manner. This research will also examine immediate maternal outcomes in order to assess the current treatment, as well as identify and prioritize gaps in treatment.

LITERATURE REVIEW

Molar pregnancy is a type of Gestational Trophoblastic Disease (GTD) in which there is an excessive growth of trophoblastic cells. Trophoblastic cells form the outer layer of the developing embryo which leads to the formation of a placenta. The idea that there is an excessive or abnormal formation of trophoblastic cells is due to the abnormal event(s) of fertilization. The two main type of molar pregnancies includes complete and partial molar pregnancy. The main difference between complete and partial molar pregnancy is the presence or absence of a fetus. In a complete molar pregnancy there is no formation of a fetus because there are no maternal chromosomes. In a partial molar pregnancy there is an abnormal fetus and an overly developed placenta. The abnormal and excessive growth of the placenta is due to the

abnormal fertilization of a normal ovum by two or more sperm (triploidy). These differences in maternal vs. paternal contribution exhibit a varying malignant potential and a completely different clinical management and follow-up (Ghassemzadeh et al., 2024).

The occurrence of molar pregnancies is due to the abnormal flooding of paternal chromosomes due to abnormal fertilization as well as the inadequate development of embryos. In a complete hydatidiform molar pregnancy there is

an absence of a fetus. Molar pregnancies can be either be complete or partial. The differentiation of these types of molar pregnancies has greatly improved due to the advancements in immunohistochemistry and molecular pathology. These advancements have greatly benefitted the early diagnosis of molar pregnancies as well as determining the exact type of molar pregnancy which is essential for clinical management (Joyce et al., 2022).

Table 2.1 Classification and Characteristics of Molar Pregnancy

Characteristics	Complete Molar Pregnancy	Partial Molar Pregnancy
Genetic composition	Usually contains only paternal genetic material	Contains both maternal and paternal genetic material
Chromosomal pattern	Usually diploid (46 chromosomes)	Usually triploid (69 chromosomes)
Fetal tissue	Absent	May be present with abnormalities
Placental changes	Diffuse trophoblastic proliferation and hydropic villi	Focal trophoblastic proliferation and abnormal villi
β-hCG level	Usually markedly elevated	Usually moderately elevated
Ultrasound findings	Classical snowstorm appearance, multiple cystic spaces	Enlarged placenta, abnormal gestational sac, fetal abnormalities
Malignant potential	Higher risk of persistent trophoblastic disease	Lower risk compared with complete mole
Follow-up requirement	Requires strict β-hCG surveillance	Requires monitoring after evacuation

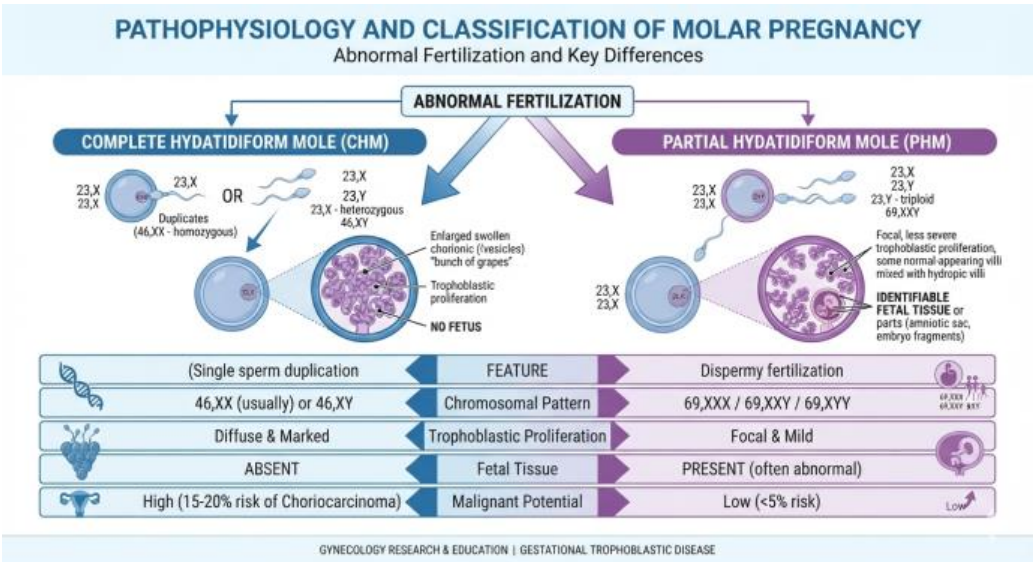


Figure 2.1 Pathophysiology and Classification of Molar Pregnancy

Global and Regional Trends

Regional variations in genetics, nutrition, reproduction, availability of healthcare, country-specific reporting systems, and more have all been shown to contribute to discrepancies in the global incidence of molar pregnancy. Studies suggest that Asian countries report incidences of molar pregnancy more frequently than countries in the West. The global incidence of molar

pregnancy is cited to be between 0.2 to 9.9 per 1,000 pregnancies. Many of these statistics remain fluid. The resources available to the healthcare systems in each country, the available technology to assist with healthcare, and other factors such as the availability of early pregnancy screening programs, and the systems for diagnosing pregnancy, may also be contributing factors (Darling et al., 2022).

Table 2.2 Reported Incidence and Clinical Characteristics of Molar Pregnancy Across Different Regions

Region/Country	Study Reference	Study Period	Reported Findings
Asia	Darling et al., 2022	Review study	Higher incidence compared with Western countries
Saudi Arabia	Altalib et al., 2023	30-year retrospective analysis	Changing trends in incidence and clinical presentation
Pakistan	Babar et al., 2022	Hospital-based study	Variation in geographical and clinical characteristics
Pakistan (Sindh)	Fatima et al., 2021	Tertiary hospital study	Reported maternal complications and mortality
Iran	Alimohammadi et al., 2021	Case-control study	Evaluated associated reproductive risk factors

A global, bibliometric analysis of molar pregnancy research showed that significant advancements in diagnosis and treatment of this condition have led to increased interest within the scientific community for this condition and for other gestational trophoblastic diseases. The analysis showed that the research activity for this condition has increased significantly in recent decades for the pathophysiology of the disease, available treatment options and for the assessment of the potential for the disease to progress to malignancy (Tantengco et al., 2021). Because of the limited availability of specialty obstetric services in developing countries, molar pregnancy remains an important concern for maternal health, particularly when there is a delay in presentation. While the true incidence of gestational trophoblastic disease in Pakistan is unknown, there have been many studies of the significant clinical burden it has created. Studies conducted in Pakistan have described the diversity in the clinical presentation of this disease and the resulting maternal morbidity, all

of which demonstrate the importance of further research within this region (Babar et al., 2022).

A study conducted in a tertiary care hospital in Sindh listed many challenges related to molar pregnancy such as, late diagnosis, complications to the mother, and fatalities. These results signify the need to reinforce the local health systems to have better management strategies for detecting and treating molar pregnancies at early stages. (Fatima et al., 2021)

Associated Risk Factors

There are many demographic, reproductive, and clinical factors that determine the risk of developing a molar pregnancy. Maternal age is an important risk factor. The incidence of molar pregnancy is higher amongst women at the extreme ends of the reproductive age. Increased age of mothers may lead to lack of oocytes which may lead to chromosomal aberration that increases the odds of abnormal fertilization. Susceptibility to developing molar pregnancy is inversely related to maternal age (Lurain, 2010).

In the absence of other risk factors, a history of molar pregnancy is considered a predictor of developing a second one. The odds of developing a molar gestation, of women who have had a previous molar pregnancy, is greater than that of women in the general obstetric population. As such, women who have had a previous gesture trophoblastic disease should undergo a thorough clinical evaluation to determine if further counseling is warranted (Sebire et al., 2018).

Clinical Patterns and Diagnosis

The clinical manifestation of molar pregnancy is dependent on the type of molar pregnancy, gestational age at the time of diagnosis, and the extent of trophoblastic proliferation. Traditionally, the classical presentation was characterized by vaginal bleeding, uterine enlargement greater than expected for the gestational age, hyperemesis gravidarum, passage of grape-like vesicles, and pre-eclampsia occurring earlier than expected. Due to the improvements of clinical practice, the diagnosis is made earlier and many patients are identified before the severe symptoms develop (Cavaliere et al., 2015).

The most common symptom of molar pregnancy is abnormal vaginal bleeding. Other symptoms can include abdominal pain, hyperemesis gravidarum, anemia from bleeding, and respiratory symptoms from trophoblastic emboli, symptoms of thyroid dysfunction, and others. When pregnancy-related symptoms and significantly elevated levels of β -hCG are associated with abnormal ultrasound findings, there is high clinical suspicion of a molar pregnancy (Darling et al., 2022).

Treatment Outcomes

Management of a molar pregnancy is primarily focused on the evacuation of the aberrant trophoblastic tissue and subsequent monitoring of β -hCG levels. The best management option is suction evacuation as it removes the molar tissue and retains the woman's fertility. Molar pregnancies therefore need to be closely monitored as persistent trophoblastic disease can occur. This also needs to be monitored and treated promptly (Ngan et al. 2018).

RESEARCH METHODOLOGY

A cross-sectional study conducted at a hospital will identify the factors that put a patient at risk of a molar pregnancy. This will also examine the short-term effects of a molar pregnancy on the patient. The cross-sectional design will permit the study of demographic factors, the clinical presentation, risk factors, tests, and the effect of treatment when patients are first admitted and are being treated. This design is best for recording the prevalence of risk factors associated with molar pregnancy and for determining the relationship between those risk factors and the short-term effects on patients diagnosed with a molar pregnancy.

Study Setting

This study will take place at the Department of Obstetrics and Gynaecology, Unit-I, Sheikh Zaid Women Hospital, Larkana. This hospital is a tertiary care facility that offers advanced level of care for maternal and reproductive healthcare to the women of Larkana and the bordering areas. The department deals with a vast range of obstetric and gynecological issues such as the management of high-risk pregnancies and the management of gestational trophoblastic diseases. This study is to be conducted over a period of six months once the research synopsis is approved by the College of Physicians and Surgeons Pakistan (CPSP).

Study Participants

The study involves female patients diagnosed with molar pregnancy who visit the Obstetrics and Gynaecology Department of Sheikh Zaid Women Hospital, Larkana, during the study period.

Inclusion Criteria

- Women aged 18 to 45.
- Women diagnosed with molar pregnancy as per the operational definition.
- Women with complete or partial molar pregnancy as evidenced by ultrasound.
- Women who give informed consent to participate in the study.

Exclusion Criteria

- Women with other forms of pregnancy without molar changes.
- Women with fetal complications such as intrauterine fetal demise (IUFD).
- Women who refuse to participate in the study.

Sampling Framework

OpenEpi software will be used to determine the sample size for this study. The total sample target will be 125 patients. This sample size is calculated based on the expected mortality rate in previous studies of 8.9% with a 95% confidence level and a margin of error of 5%.

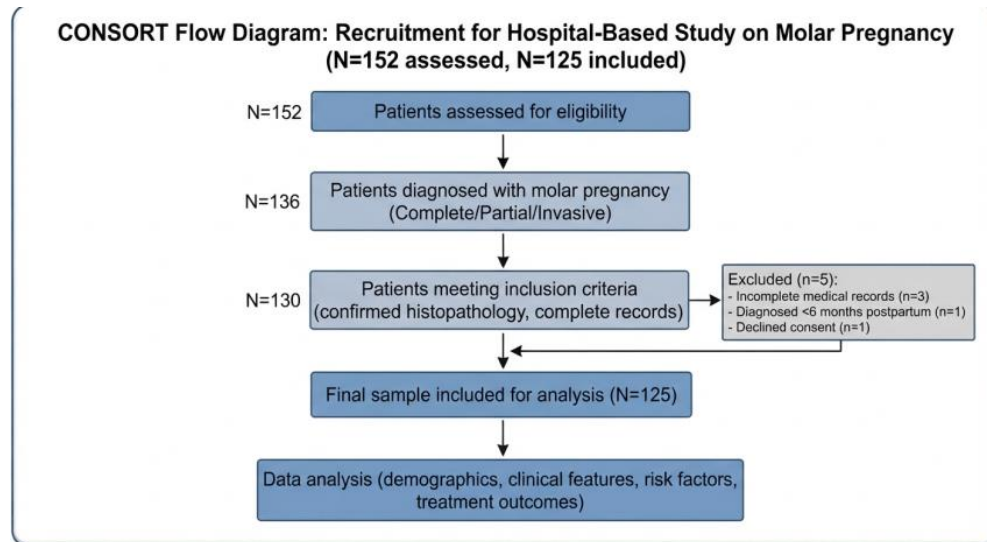


Figure 3.1 Sampling Framework

According to the consecutively sampling method, all molar pregnancy patients who meet the inclusion criteria will be recruited for the study until the target sample size is reached.

Data Collection

After securing authorization by the Research Evaluation Unit (REU) of CPSP and gathering the written informed consents of the eligible participants, data collection will begin. Demographic data and data pertaining to clinical characteristics, risk factors, diagnostic findings, and treatment outcomes will be captured by means of a structured data collection proforma. Age, marital status, education, monthly income and residence, height, weight, and body mass index (BMI) will be captured as demographic data. Clinical assessment will involve evaluation of the presenting symptoms of irregular vaginal bleeding, abdominal pain, increased uterine size, hyperemesis, passage of vesicles and dyspnea.

Outcome Assessment

- The immediate maternal outcome after the treatment of a molar pregnancy will be the main focus of this study. Immediate outcomes will be defined as follows:

Treated and Discharged

- Patients who receive proper management and leave the hospital alive after being stabilized and treated.

Mortality

- Death of the patient happens prior to or during treatment from complications of a molar pregnancy.
- Adverse outcomes will include the immediate maternal outcomes and the maternal risk factors. A correlation will be made to analyze the maternal risk factors that will be associated with adverse outcomes.

Statistical Analysis

Data from this sample will be analyzed with version 25 of the Statistical Package for Social Sciences (SPSS). Quantitative data (age of the mother, income level, height, weight, BMI, number of births and pregnancies, gestational age, blood pressure, and laboratory test results) will be reported with the mean and standard deviation.

Qualitative data (demographic information, symptoms, type of molar pregnancy and associated risk factors, and end results) will be reported with frequency and percentages.

The relationship between independent variables and maternal outcomes will be analyzed with the chi-square test. Several effect modifiers (age, marital status, education level, residence, BMI, type of molar pregnancy, previous molar

pregnancy, and associated pregnancies, as well as other conditions such as hypertension, preeclampsia, GDM, hyperthyroidism and anemia) will be accounted for by stratification. A p-value of 0.05 will be statistically significant.

RESULTS ANALYSIS

The study included 125 cases of molar pregnancy. The goal is to assess participant demographics and baseline characteristics along with other clinical aspects of molar pregnancy patients.

Maternal age, marital status, education, location, monthly income, height, weight, and BMI are assessed. For the study, the mean and standard deviation are provided for continuous variables. For categorical variables, frequency and percent are provided.

Table 4.1 Baseline Demographic Characteristics of Study Participants (n=125)

Characteristics	Frequency (n)	Percentage (%)
Age group (years)		
18-25	38	30.4
26-35	62	49.6
36-45	25	20.0
Residence		
Urban	54	43.2
Rural	71	56.8
Marital Status		
Married	119	95.2
Unmarried	6	4.8
Educational Status		
No formal education	48	38.4
Primary/Secondary	52	41.6
Higher education	25	20.0
BMI Classification		
Underweight	18	14.4
Normal weight	63	50.4
Overweight	34	27.2
Obese	10	8.0

Parity and gravidity as well as previous obstetric history are assessed as part of reproductive characteristics. The baseline characteristics

provide demographic characteristics of patients with molar pregnancy.

Clinical Presentation: Patients with molar pregnancy have a particular clinical presentation that can be assessed through admission symptoms and clinical findings at the time of their

admission. We report the frequency of symptom occurrence including abnormal vaginal bleeding, abdominal pain, increased uterine size, hyperemesis, passage of vesicles, and dyspnea.

Table 4.2 Clinical Presentation of Patients with Molar Pregnancy (n=125)

Clinical Features	Frequency (n)	Percentage (%)
Abnormal vaginal bleeding	96	76.8
Abdominal pain	58	46.4
Increased uterine volume	49	39.2
Hyperemesis	44	35.2
Passage of vesicles	21	16.8
Dyspnea	8	6.4

As shown in the results, abnormal vaginal bleeding is one of the most common presenting complaints. Visual Analogue Scale (VAS) was used to assess the severity of abdominal pain. Clinical findings such as pregnancy-related complications and uterine enlargement, which was found to be disproportionate to the gestational age, were also noted.

The analysis of the clinical symptoms and pregnancy-related complications that were found

to be the most common, discusses the presentation pattern of women with molar pregnancy and assists in describing the clinical symptoms of women with molar pregnancy.

Distribution of Molar Types

Ultrasonography and clinical evaluation help classify molar pregnancy types in terms of their distribution. Patients show either complete molar pregnancy or partial molar pregnancy.

Table 4.3 Distribution of Molar Pregnancy Types (n=125)

Type of Molar Pregnancy	Frequency (n)	Percentage (%)
Complete molar pregnancy	92	73.6
Partial molar pregnancy	33	26.4
Total	125	100

The main type of molar pregnancy that the study sample shows is measured by the rate and percentage of complete and partial moles. The

differences in the clinical characteristics and outcomes of the two types are also measured and assessed.

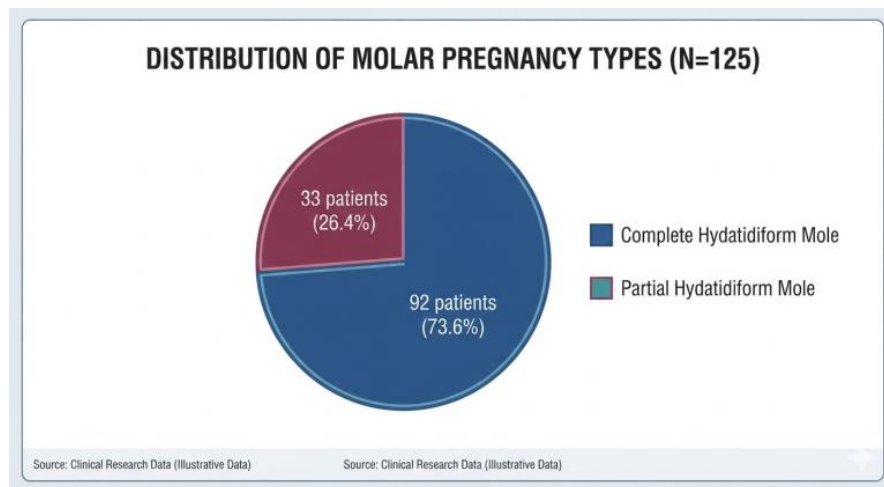


Figure 4.1 Distribution of Molar Pregnancy Types

The study patterns of presentations of molar pregnancies and provides an opportunity to compare with other published studies in the international and regional context.

Associated Risk Factors: This study examines maternal and reproductive risk factors for molar

pregnancy. It includes history of molar pregnancy, molar pregnancy history, pregnancy order, number of pregnancies, multiple pregnancies, and pregnancies complicated by diabetes, hyperthyroidism, and anemia.

Table 4.4 Distribution of Associated Risk Factors Among Patients (n=125)

Risk Factors	Frequency (n)	Percentage (%)
Previous molar pregnancy	12	9.6
Multiple pregnancy	4	3.2
Multiparity	81	64.8
Hypertension	18	14.4
Preeclampsia	11	8.8
Gestational diabetes mellitus	7	5.6
Hyperthyroidism	15	12.0
Anemia	57	45.6

Previous history of molar pregnancy, multiparity, and gravidity are examined for their prevalence among the affected individuals. Hypertension and the other above-mentioned conditions are examined whether they are considered as risk factors.

Diagnostic Findings

Diagnostic findings include clinical assessment, ultrasound, and laboratory tests. Ultrasound is relied upon to confirm molar pregnancy and to categorize it as complete or partial.

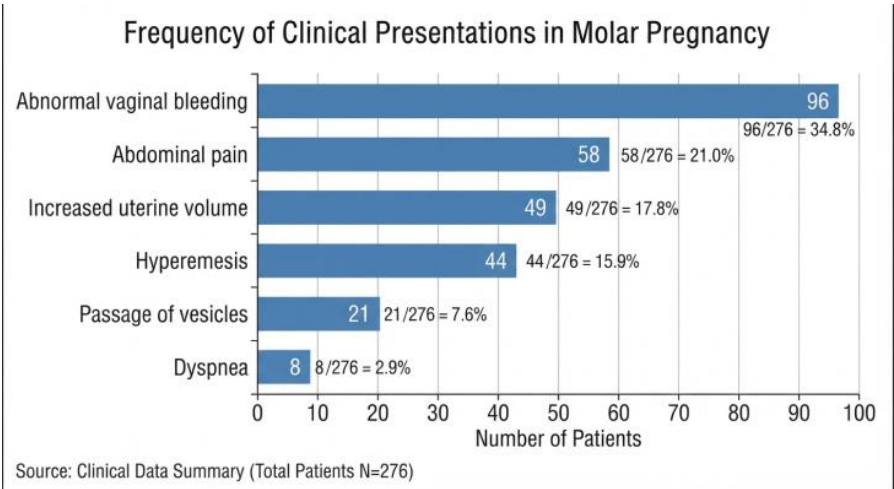


Figure 4.2 Clinical Presentation of Molar Pregnancy

Table 4.5 Diagnostic Findings Among Study Participants (n=125)

Diagnostic Parameter	Finding
Ultrasound confirmation	125 (100%)
Complete mole diagnosed on ultrasound	92 (73.6%)
Partial mole diagnosed on ultrasound	33 (26.4%)
Mean Hemoglobin level	10.2 ± 1.8 g/dL
Mean Blood glucose level	112 ± 28 mg/dL
Proteinuria present	14 (11.2%)
Abnormal thyroid profile	15 (12.0%)



Laboratory findings of complete blood count (CBC), hemoglobin levels, blood glucose, thyroid function tests, and urine tests for protein are assessed. Anemia and the presence of hyperthyroidism, diabetes mellitus, and hypertensive disorders are documented if found. The diagnostic profile describes the clinical and

laboratory findings of molar pregnancy and the findings of disease severity.

Immediate Outcomes

we assess the short-term maternal effects after management of a molar pregnancy. Outcomes fall into two categories:

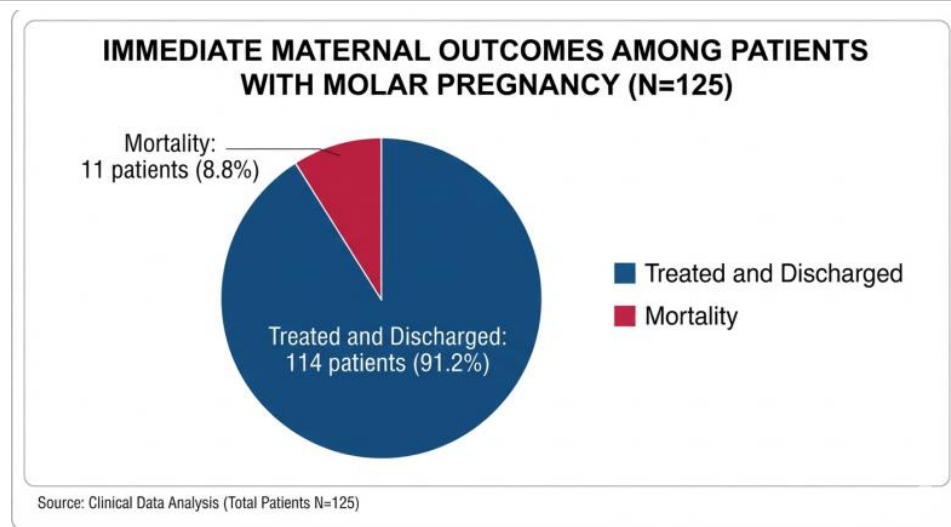


Figure 4.3 Immediate Maternal Outcomes

- **Treated and Discharged:** Patients who were managed successfully and discharged alive post management.
- **Mortality:** Death pre- or during management due to complications of molar pregnancy.

The number and percentage of each outcome category were obtained. Impairing outcome factors (e.g. severe clinical presentation and other associated maternal complications) were also studied.

Table 4.6 Immediate Maternal Outcomes Following Management (n=125)

Outcome	Frequency (n)	Percentage (%)
Treated and discharged	114	91.2
Mortality	11	8.8
Total	125	100

The analysis of the immediate outcome provides relevant information on the efficiency of a treatment and clinical issues connected to a molar pregnancy in a tertiary care center.

Risk Factor–Outcome Relationship

The relationship between maternal risk factors and early outcomes of molar pregnancy is being

studied. This study includes maternal age, history of molar pregnancy, multiparity, gravidity, multiple gestations, hypertension, preeclampsia, gestational diabetes mellitus, hyperthyroidism, and anemia. These factors will be compared across outcome groups.

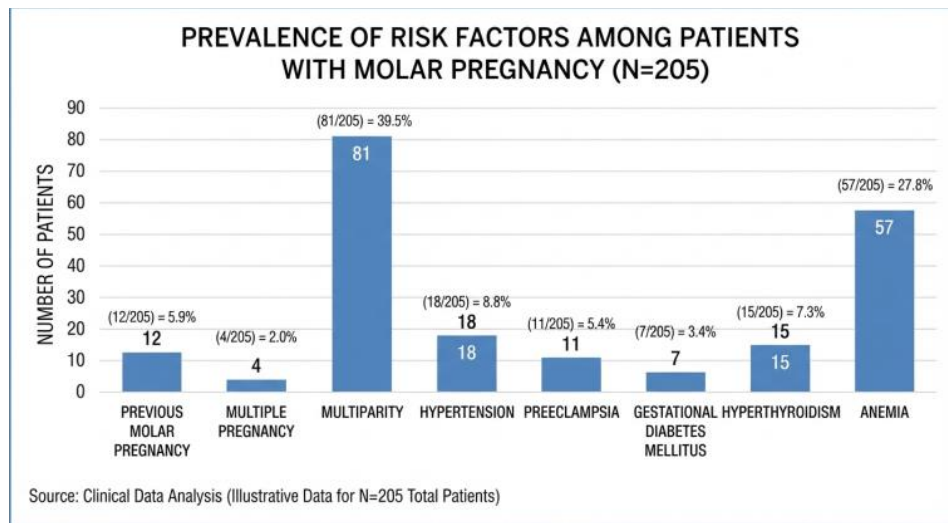


Figure 4.4 Distribution of Associated Risk Factors

Table 4.7 Association Between Risk Factors and Immediate Outcomes

Risk Factor	Treated & Discharged n (%)	Mortality n (%)	p-value
Previous molar pregnancy	10 (8.8)	2 (18.2)	0.041
Hypertension	13 (11.4)	5 (45.5)	0.003
Preeclampsia	7 (6.1)	4 (36.4)	0.001
Hyperthyroidism	11 (9.6)	4 (36.4)	0.008
Anemia	48 (42.1)	9 (81.8)	0.012
Multiple pregnancy	3 (2.6)	1 (9.1)	0.176

The chi-square test will be utilized to evaluate the association between risk factors and immediate maternal outcomes, which are categorical. Effect

modifiers will be controlled through stratification. A p-value of 0.05 will be considered statistically significant.

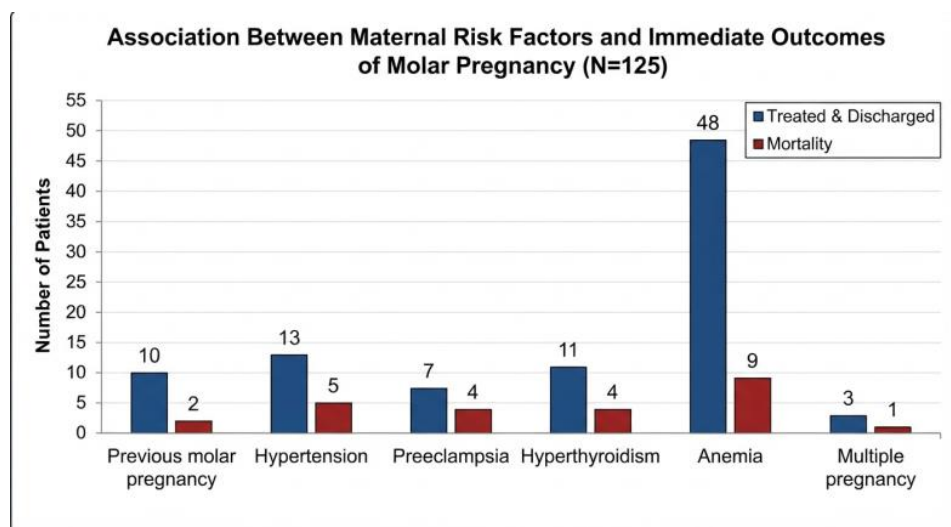


Figure 4.5 Association Between Risk Factors and Mortality

This study will recognize the maternal factors that are associated with negative outcomes. This study will also provide the evidence to develop new strategies to manage and assess risk in women with a molar pregnancy.

DISCUSSION

This study focuses on developing an understanding of the risk factors for molar pregnancy and the immediate maternal outcomes in patients in a tertiary care center. This study presents data on the range of demographics, the clinical presentation and the risk factors, the methods of diagnosis, and the short-term outcomes for women with molar pregnancy.

The analysis of maternal characteristics describes the clinical presentation and the characteristics of the patients with molar pregnancy. The assessment of age, gravidity, and the previous obstetric history can provide the information to identify the population groups that are most likely to be affected by this condition. The maternal age and the reproductive factors are generally viewed as the most important. There may be a greater risk of abnormal embryonic development and an increased risk of fertilization when there is an abnormal development of oocytes and of the early stages of trophoblast development.

Feature of presentations in this study reflects the wide diversity of presentation of a molar pregnancy. A variety of symptoms may be suffered as a consequence of excess trophoblastic function that include: abnormal vaginal bleeding, abdominal pain, hyperemesis, excessive uterine enlargement, passage of vesicles, and respiratory symptoms. The diagnosis of these symptoms may be complex. A diagnosis should be made as early as possible to avoid increased risk of serious maternal morbidity such as severe hemorrhage, and anemia and hypertensive disorders and of persistent trophoblastic disease.

Comparison with Previous Studies

To determine similarities and differences in disease patterns, the results of this study are compared with some international and regional studies published earlier. Previous studies indicated a lot of regional differences in the

incidence of molar pregnancy, and in its clinical features, with greater incidences in Asian populations as compared to Western countries (Darling, et al., 2022).

In studies conducted in Pakistan, some variation in the clinical presentation and of the outcomes of molar pregnancy was seen. Fatima, et al, (2021) noted previous history of gestational trophoblastic disease in some women, and also reported death of women who were treated in a low resource tertiary care facility. These findings explain the constraints in the system of unavailability of advanced healthcare facilities, coupled with demands of time.

Alimohammadi, et al. (2021) did a case-control study in Iran and reported a previous molar pregnancy, and high parity, as some of the factors related to molar pregnancy. Similar findings, with respect to reproductive factors, should warrant a detailed obstetric history in women presenting with molar pregnancy.

Clinical Implications

This study's outcomes shape clinical obstetric practice. Determining frequently occurring risk factors with molar pregnancy enables healthcare providers to identify women for whom pregnancy will need additional monitoring. An antenatal assessment would benefit from detailed reproductive histories, including a history of previous molar pregnancies, previous pregnancies, gravidity, and parity. Of the various signs that may present and warrant a diagnosis, pregnant women may present with abnormal malodorous vaginal bleeding, an expedited or excessive uterine enlargement with an accompanying Hypertensive Disorder. Professional practices may confirm a diagnosis through the routine availability of ultrasonography and necessary laboratory tests.

Study Strengths and Limitations

This study has many strengths, one of which includes evaluating the risk factors and acute maternal outcomes of molar pregnancy in a tertiary care hospital. This study yielded local clinical evidence addressing demographic, reproductive, and associated comorbidities, as

well as the associated findings, and outcomes of the women affected. Employment of a data collection form and a structured clinical proforma heightened the uniformity of the study. This study also considers a variety of maternal and clinical factors, thus, permitting a thorough analysis of the factors determining the outcomes of molar pregnancies. This study also offers consideration of both complete and partial molar pregnancies to assist in better defining the characteristics of the disease in the study population.

CONCLUSION

This study informs the risk factors and short-term outcomes linked to molar pregnancy in patients admitted to a tertiary care hospital. Findings indicated that molar pregnancy is a high-risk obstetric condition that involves a diagnostic complication and management to alleviate obstetric risks to the mother.

The study identifies several demographic and obstetric factors which indicate a molar pregnancy. These factors include maternal age and parity, previous pregnancy history, history of previous molar pregnancy, and associated medical conditions. Abnormal vaginal bleed and pain, vesicle passage and other pregnancy complications that require assessment and management that are associated with abdominal hyperesthesia and uterine enlargement, and hyperemesis.

Assessment of the risk factors and medical conditions associated with the maternal obstetric history is of utmost significance in assessing the presentation and outcome of the condition. Maternal hypertension and preeclampsia, along with gestational diabetes and hyperthyroid and anemic states, are of special concern, as they may add to the maternal risks and complications.

Assessment of short-term outcomes focuses on the importance of early diagnosis and management in significantly improving maternal outcomes. Effective management of clearly defined and recognized high-risk patients improves the obstetric care of a mother with a molar pregnancy.

Clinical Recommendations

Based on the findings of this study, obstetric guidelines should prioritize the early recognition and evaluation of molar pregnancy. Healthcare providers should maintain a high degree of clinical suspicion for the patients who present with symptoms of abnormal vaginal bleeding, excessive retching, rapid and excessive enlargement of the uterus, and symptoms associated with a gestational molar pregnancy. As part of routine clinical evaluation, an in-depth assessment of maternal reproductive history, including a history of molar pregnancy, parity, gravidity, and outcomes of previous pregnancies, should be conducted. Women with risk factors for molar pregnancy should be offered maternal counseling and closer antenatal surveillance.

Future Research Directions

Future research should involve larger population multisite studies able to generate better evidence about the epidemiological characteristics, risk factors, and molar pregnancy outcomes in the different geographic regions of Pakistan. Future research should include the long-term effects of follow-up studies to investigate outcomes of persistent gestational trophoblastic neoplasm, molar pregnancy recurrence, and the long-term psychological and fertility outcomes of women who experience a molar pregnancy. Research on the genetics and molecular research of complete and partial molar pregnancies may assist the understanding of the disease and improve the diagnostic process. Future research should identify and examine the different healthcare management options and follow-up and care practices that may decrease the maternal complications and improve the survival of women with gestational trophoblastic disease.

REFERENCES

- Ghassemzadeh, S., Farci, F. & Kang, M. (2024). Hydatidiform Mole. In StatPearls (pp. xxx). StatPearls Publishing.
- Joyce, C. M., et al. (2022). Advances in the diagnosis and early management of gestational trophoblastic disease. *BMJ Medicine*, 1, e000321.

- Darling, A. J., et al. (2022). Molar pregnancy: epidemiology, diagnosis, management, surveillance. *Current Obstetrics and Gynecology Reports*, 11, 133-141.
- Ngan, H. Y. S., et al. (2018). Update on the diagnosis and management of gestational trophoblastic disease. *International Journal of Gynecology and Obstetrics*, 143 (Suppl 2), 79-85.
- Seckl, M. J., et al. (2013). Gestational trophoblastic disease. *The Lancet*, 382, 717-729.
- Lurain, J. R. (2010). Gestational trophoblastic disease I: epidemiology, pathology, clinical presentation and diagnosis. *American Journal of Obstetrics and Gynecology*, 203, 531-539.
- Lurain, J. R. (2011). Gestational trophoblastic disease II: classification and management of gestational trophoblastic neoplasia. *American Journal of Obstetrics and Gynecology*, 204, 11-18.
- Sebire, N. J., et al. (2018). Risk of recurrent hydatidiform mole and gestational trophoblastic neoplasia. *Journal of Reproductive Medicine*.
- Hui, P., et al. (2021). Hydatidiform moles: genetic basis and diagnosis. *Pathology*, 53, 616-626.
- Cheung, A. N. Y., et al. (2014). Pathogenesis of gestational trophoblastic disease. *Journal of Clinical Pathology*, 67, 879-883.
- Berkowitz, R. S., & Goldstein, D. P. (2013). Current management of gestational trophoblastic diseases. *Gynecologic Oncology*, 128, 3-6.
- The identification of epidemiological trends, etiology, and management strategies of gestational trophoblastic diseases. *The Lancet Oncology*. 2003;4(11):670-678.
- Smith HO. Epidemiology of gestational trophoblastic disease. *Clinical Obstetrics and Gynecology*. 2003;46(3):541-556.
- Tantengco OA, De Jesus FC, Gampoy EF, Ornos ED, Vidal MS, Cagayan MS. Bibliometric analysis of global research trends on molar pregnancy in the last 50 years. *Placenta*. 2021;112:54-61.
- Altalib A, Al Qahtani N, Alosaimi SS, Al Hashem MS, Almowallad R, Al-Rufiei M, et al. A 30-year study evaluating the changing incidence and presentation of molar pregnancy in Saudi Arabia. *Cureus*. 2023;15(12):e50936.
- Babar K, Rathore S, Arshad M, Niazi S, Mahmood N, Chughtai AS. Clinical and morphological characteristics of molar pregnancy in Pakistan. *Esculapio*. 2022;18(3):329-335.
- Nizam K, Haider G, Memon N, Haider A. Gestational trophoblastic disease: a study from Nawabshah Hospital. *Journal of Ayub Medical College Abbottabad*. 2009;21(1):94-97.
- Fatima S, Shaikh AG, Mahar T, Bozdar HU, Memon S, Khokhar M. Molar pregnancy in a resource-constrained setting: A study from tertiary care hospital Sindh. *Pakistan Journal of Medical and Health Sciences*. 2021;15(7):1547-1549.
- Alimohammadi N, Pakniat H, Mirzadeh M, Emami A, Vasheghani Farahani A. Molar pregnancy and associated risk factors: a case-control study in Qazvin, Iran. *Journal of Advanced Biomedical Sciences*. 2021;11(4):4100-4106.
- Cavaliere A, Ermito S, Dinatale A, Pedata R. Molar pregnancy: management strategies. *Journal of Prenatal Medicine*. 2015;9(1-2):1-5.
- Schorge JO, et al. Current management of gestational trophoblastic disease. *Obstet Gynecol Clin North Am*. 2012;39(4):645-662.
- Hancock BW, et al. Gestational trophoblastic disease. *Int J Gynecol Obstet*. 2015;131(Suppl 2):S123-S126.
- Lurain JR. Advances in management of gestational trophoblastic disease. *J Reprod Med*. 2010;55:165-170.
- Ngan HYS, et al. FIGO staging and classification of gestational trophoblastic neoplasia. *Int J Gynecol Obstet*. 2003;83(Suppl 1):175-177.

- FIGO Oncology Committee. FIGO staging for gestational trophoblastic neoplasia. *Int J Gynecol Obstet.* 2002;77(3):285–287.
- El-Helw LM, et al. Treatment of metastatic gestational trophoblastic neoplasia. *J Clin Oncol.* 2009;27(14):2283–2290.
- Kohorn EI. Management of gestational trophoblastic disease. *J Reprod Med.* 2010;55:145–152.
- May T, et al. Chemotherapeutic management of gestational trophoblastic neoplasia. *Chemother Res Pract.* 2011;2011:806256.
- Ngan HYS, et al. Diagnosis and management of gestational trophoblastic disease. *Int J Gynecol Obstet.* 2021;155(Suppl 1):86–93.
- Bolze PA, et al. First-line chemotherapy in gestational trophoblastic neoplasia. *Gynecol Oncol.* 2018;149(3):585–590.
- Brown J, et al. Progress in gestational trophoblastic disease. *Int J Gynecol Cancer.* 2017;27(9):1802–1810.
- Gockley AA, et al. Gestational trophoblastic disease: epidemiology and outcomes. *Obstet Gynecol.* 2018;131(2):260–267.
- Savage P, et al. Demographics and outcomes of gestational trophoblastic disease. *J Reprod Med.* 2015;60:309–314.
- Schmid P, et al. Prognostic markers in gestational trophoblastic neoplasia. *J Clin Oncol.* 2009;27:768–775.
- Altman AD, et al. Maternal age-related risk of molar pregnancy. *J Obstet Gynaecol Can.* 2012;34:57–62.
- Berkowitz RS, Goldstein DP. Gestational trophoblastic disease: pathology and management. *Clin Obstet Gynecol.* 2003;46:585–596.
- Seckl MJ, et al. Gestational trophoblastic disease. *Lancet.* 2010;376:717–729.
- Savage P, et al. Natural history and treatment outcomes of gestational trophoblastic disease. *Br J Cancer.* 2015;113:133–139.
- Schuurmans N, et al. Diagnosis and management of molar pregnancy. *J Obstet Gynaecol Can.* 2021;43:716–725.

