DOI 10.26724/2079-8334-2026-2-96-272-276
UDC 618.36-006.04-07-08

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EARLY PREGNANCY FOLLOWING HYSTEROSCOPIC MANAGEMENT OF COMPLETE HYDATIDIFORM MOLE

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Complete hydatidiform mole is a form of gestational trophoblastic disease requiring timely diagnosis, complete uterine evacuation, and careful postoperative monitoring of beta-human chorionic gonadotropin levels. This article presents a clinical case of a 22-year-old primigravida who presented at 8 weeks of amenorrhea with vaginal bleeding. Transvaginal ultrasound revealed a heterogeneous intrauterine structure with cystic spaces, while serum beta-human chorionic gonadotropin was markedly elevated. The patient underwent hysteroscopy-assisted evacuation under general anesthesia using controlled intrauterine pressure, aspiration with a Karmen cannula, and mechanical removal of residual chorionic villi under direct visualization. The procedure was completed without complications, with minimal blood loss and rapid postoperative recovery. Histopathological examination confirmed complete hydatidiform mole. Although beta-human chorionic gonadotropin initially decreased, subsequent elevation raised suspicion of persistent gestational trophoblastic disease. Further evaluation and repeat curettage demonstrated progesterone-related endometrial changes, suggesting early new pregnancy rather than residual molar tissue. This case highlights the diagnostic value of hysteroscopy, the importance of beta-human chorionic gonadotropin surveillance, and the need for early contraceptive counseling after molar evacuation.

Key words: hydatidiform mole, hysteroscopy, β-hCG, pregnancy, trophoblastic disease.

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РАННЯ ВАГІТНІСТЬ ПІСЛЯ ГІСТЕРОСКОПІЧНОГО ЛІКУВАННЯ ПОВНОГО МІХУРОВОГО ЗАНОСУ

Повний міхуровий занос є однією з форм гестаційної трофобластичної хвороби, що вимагає своєчасної діагностики, повного видалення патологічної тканини з порожнини матки та ретельного післяопераційного контролю рівня бета-субодиниці хоріонічного гонадотропіну. У статті представлено клінічний випадок 22-річної пацієнтки, яка вперше завагітніла та звернулася на 8-му тижні аменореї зі скаргами на вагінальну кровотечу. Під час трансвагінального ультразвукового дослідження було виявлено гетерогенну внутрішньоматкову структуру з кістозними включеннями, а рівень бета-субодиниці хоріонічного гонадотропіну був значно підвищений. Пацієнтці було виконано гістероскопічно асистовану евакуацію вмісту порожнини матки під загальною анестезією з контролем внутрішньоматкового тиску, аспірацією канюлі Кармена та механічним видаленням залишкових хоріональних ворсинок під прямою візуалізацією. Операція пройшла без ускладнень, з мінімальною крововтратою та швидким відновленням. Гістологічне дослідження підтвердило повний пухирцевий занос. Подальше підвищення рівня бета-субодиниці хоріонічного гонадотропіну викликало підозру на персистуючу трофобластичну хворобу, проте повторне обстеження вказало на ранню нову вагітність. Цей випадок підкреслює значення гістероскопії, моніторингу бета-субодиниці хоріонічного гонадотропіну та контрацептивного консультування.

Ключові слова: міхуровий занос, гістероскопія, β-ХГЛ, вагітність, трофобластична хвороба..

Gestational trophoblastic disease (GTD) encompasses a spectrum of both benign and malignant lesions originating from placental tissue within the uterine cavity [11, 17]. This classification includes hydatidiform mole, invasive mole, placental site trophoblastic tumor, choriocarcinoma, and epithelioid trophoblastic tumor [1, 2, 5]. Hydatidiform mole (HM) constitutes a substantial majority, representing 80 % of GTD cases. HM manifests in two primary forms: complete and partial. Complete HM results from the fertilization of an ovum without a maternal chromosome by one sperm cell, subsequently duplicating its DNA (genotype 46XX), or by two sperm cells (genotype 46XY or 46 XX). On the other hand, partial HM arises from dispermic fertilization of a healthy ovum, resulting in genotypes such as 69XXY, 69XXX, or 69XYY [3, 4, 9].

Common clinical features associated with HM include vaginal bleeding, uterine enlargement, pelvic pain, hyperemesis, pregnancy-induced hypertension, and ovarian theca lutein cysts. Diagnostic evaluations typically include a comprehensive history, assessment of beta-human chorionic gonadotropin (β-hCG) titers (often exceeding 100,000 IU/ml), and ultrasound findings. These routine diagnostic measures collectively contribute to a thorough evaluation and accurate diagnosis of GTD [1].

The gold standard treatment for women under 40 with hydatidiform mole involves suction and curettage [5, 10, 17]. Some guidelines propose aspirational curettage without dilation and the use of a sharp curette to minimize endometrial traumatization and vessel contamination with chorionic villi. Post-surgical monitoring of β-hCG levels is recommended. A plateau or increase in β-hCG prompts differential diagnosis between post-operative retained products of conception (RPOC) and gestational trophoblastic neoplasia (GTN), the latter occurring in 1–2 % of partial hydatidiform moles and 15–20 % of complete hydatidiform moles, necessitating further clinical investigations and treatment [6].

Various β-hCG criteria have been utilized to diagnose postmolar gestational trophoblastic disease. The International Federation of Gynecologists and Obstetricians (FIGO, 2000) has standardized criteria for its diagnosis [7]:

– An HCG level plateau of four values ±10% recorded over a 3-week duration (days 1, 7, 14, and 21).

– An HCG level increase of more than 10% of three values recorded over a 2-week duration (days 1, 7, and 14).

– Persistence of detectable HCG for more than 6 months after molar evacuation.

Approximately 15 % of complete hydatidiform moles progress to a malignant transformation known as gestational trophoblastic neoplasia (GTN) [1, 2]. Treatment options for GTN include surgery, chemotherapy, and radiation therapy [14, 16]. Second curettage is considered an alternative to chemotherapy for non-metastatic and low-grade GTN in patients with intrauterine disease, but it may not obviate the need for chemotherapy in persistent cases and can result in intrauterine adhesions leading to infertility.

The purpose of the study was to describe the diagnostic and therapeutic management of a complete hydatidiform mole treated primarily by hysteroscopy-assisted evacuation under direct visualization, with particular attention to procedural safety, completeness of uterine evacuation, postoperative β-hCG monitoring, and differential diagnosis of suspected persistent gestational trophoblastic disease.

Materials and methods. This study was designed as a descriptive clinical case report based on the diagnostic, surgical and follow-up data of a patient treated at Scientific Research Institute of Obstetrics and Gynecology (Baku, Azerbaijan) 2023–2024. The study population consisted of one 22-year-old primigravida who presented at 8 weeks of amenorrhea with vaginal bleeding and clinical suspicion of molar pregnancy. The patient underwent standard clinical assessment, transvaginal ultrasonography, serum β-human chorionic gonadotropin measurement and chest radiography before surgical management.

The diagnostic work-up included transvaginal ultrasound examination, which was used to assess the presence or absence of an intrauterine gestational sac, the structure of the endometrial cavity and the presence of cystic changes suggestive of hydatidiform mole. Baseline serum β-hCG was measured prior to intervention and subsequently monitored during follow-up. Chest radiography was performed as part of the initial assessment to exclude obvious pulmonary involvement. After postoperative elevation of β-hCG, additional metastatic evaluation was carried out, including magnetic resonance imaging of the head and thorax.

The treatment protocol included hysteroscopy-assisted uterine evacuation under general anesthesia. Diagnostic hysteroscopy was first performed using a Betocchi 5 mm hysteroscope (Karl Storz). Intrauterine pressure was controlled using an Endomat system and maintained below the mean arterial pressure, approximately 80 mm Hg, in order to minimize the theoretical risk of intravasation or retrograde dissemination of trophoblastic tissue. Normal saline solution (NaCl 0.9 %) was used as the distension medium. After visual identification of the gestational sac and chorionic tissue, a small incision was made using 5 Fr scissors. The hysteroscope was introduced into the chorionic cavity, allowing direct visualization of vesicular changes and swollen chorionic villi. After localization of the attachment site, aspiration of the uterine contents was performed using a Karmen cannula No. 10. Residual chorionic villi were then removed with a bipolar 26 Fr resectoscope using a 90-degree loop without electrical activation.

The duration of the procedure, estimated blood loss, fluid deficit and intraoperative complications were recorded. Histopathological examination of evacuated material was performed to confirm the diagnosis. Postoperative surveillance included serial serum β-hCG measurements on days 1, 3, 7 and 21, followed by further monitoring when β-hCG elevation was observed. Ethical considerations included management in accordance with accepted clinical standards, protection of patient confidentiality and the use of anonymized clinical data. Written informed consent was obtained from the patient for the publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal upon request.

Results of the study. The patient was a 22-year-old primigravida who presented at 8 weeks of amenorrhea with vaginal bleeding. The initial diagnostic process was based on a combination of clinical symptoms, ultrasonographic findings and serum β-hCG measurement. Transvaginal ultrasound did not reveal a normal gestational sac. Instead, a

heterogeneous intrauterine structure with multiple cystic spaces was detected within the endometrial cavity. This sonographic pattern, in combination with vaginal bleeding and markedly elevated β-hCG, raised suspicion of molar pregnancy. The baseline serum β-hCG concentration was 115,535 IU/ml. Chest radiography showed no pathological findings, and there was no evidence of pulmonary involvement at the time of initial assessment.

The patient underwent hysteroscopy-assisted evacuation under general anesthesia. At the beginning of the procedure, diagnostic hysteroscopy was performed using a 5 mm Betocchi hysteroscope. This step allowed direct inspection of the uterine cavity and confirmation of abnormal intrauterine tissue. Intrauterine pressure was carefully controlled and maintained below the mean arterial pressure, approximately 80 mm Hg. This technical detail is important because one of the theoretical concerns related to hysteroscopy in molar pregnancy is the possible dissemination of trophoblastic tissue through the fallopian tubes or into the vascular space. Although definitive evidence regarding intravascular spread during hysteroscopy is limited, maintaining low intrauterine pressure appears to be a reasonable preventive measure.

During hysteroscopy, the gestational sac was visualized. A small incision was made in the chorionic tissue using 5 Fr scissors. After the hysteroscope was introduced into the chorionic cavity, large and small vesicles were observed, together with swelling of the chorionic villi and absence of an embryo. These findings were consistent with hydatidiform mole and were important for intraoperative diagnostic confirmation. After identifying the attachment site of the abnormal tissue, the hysteroscope was withdrawn and aspiration was performed using a Karmen cannula No. 10. This was followed by insertion of a bipolar 26 Fr resectoscope with a 90-degree loop. Residual chorionic villi were removed mechanically with the loop, without the use of electrical energy. This approach allowed precise removal of visible retained tissue while minimizing thermal injury to the endometrium.

The procedure lasted 30 minutes and was completed without intraoperative complications. Normal saline solution was used as the distension medium through a fluid management system. The recorded fluid deficit was 200 ml, and estimated blood loss was 40 cc. The low blood loss, absence of uterine perforation and rapid postoperative recovery support the feasibility of hysteroscopy-assisted evacuation in this case. Direct visualization of the uterine cavity made it possible to control the completeness of evacuation and may reduce the risk of retained products of conception compared with blind curettage. The patient was discharged three hours after the procedure, indicating an uncomplicated immediate postoperative course.

Postoperative monitoring demonstrated a marked decline in serum β-hCG. On days 1, 3, 7 and 21 after surgery, β-hCG levels decreased to 57,644 IU/ml, 10,016 IU/ml, 2,084 IU/ml and 1,031 IU/ml, respectively. Histopathological examination confirmed the diagnosis of complete hydatidiform mole. The early decrease in β-hCG was consistent with effective evacuation of molar tissue. However, on day 28 after surgery, β-hCG increased to 1,700 IU/ml and subsequently to 2,300 IU/ml three days later. This rise raised suspicion of persistent gestational trophoblastic disease or gestational trophoblastic neoplasia, especially because β-hCG is the main biochemical marker used in follow-up after molar pregnancy.

In response to the abnormal β-hCG dynamics, further diagnostic evaluation was performed. Ultrasound examination detected fluid within the endometrial cavity. Because persistent elevation or renewed increase in β-hCG after evacuation may indicate residual trophoblastic tissue or malignant transformation, metastatic assessment was carried out. Magnetic resonance imaging of the head and thorax did not reveal suspicious lesions. The patient then underwent dilatation and aspirational curettage under general anesthesia. Histopathological examination did not identify residual molar tissue. Instead, pronounced progesterone effect in the endometrium was observed, suggesting a new pregnancy rather than persistent trophoblastic disease.

This diagnostic stage is especially important because early pregnancy after molar evacuation can mimic gestational trophoblastic neoplasia by causing renewed elevation of β-hCG. In the present case, the initial suspicion of persistent disease was reasonable because β-hCG increased after an initial decline. However, the absence of metastatic findings, the histological absence of molar tissue and the subsequent decline of β-hCG supported an alternative explanation. Follow-up β-hCG levels decreased to 636 IU/ml and 252 IU/ml, and finally reached 2.85 IU/ml during the first month after the second procedure. Continued monitoring for six months showed consistently negative β-hCG levels, confirming resolution and excluding persistent trophoblastic disease.

The main clinical value of this case lies in demonstrating that hysteroscopy may be used not only as a diagnostic tool but also as part of the primary treatment strategy for selected cases of molar pregnancy. Traditional blind curettage is effective and widely used, but it carries risks such as incomplete evacuation, uterine perforation, hemorrhage and the need for repeated curettage. Repeated intrauterine instrumentation may increase the risk of intrauterine adhesions and secondary infertility, which is particularly relevant in young women who wish to preserve fertility. Hysteroscopy

provides direct visualization, helping the surgeon identify the location of molar tissue, assess completeness of removal and reduce unnecessary trauma to intact endometrium.

At the same time, the use of hysteroscopy in molar pregnancy remains a subject of discussion. Concerns include possible dissemination of chorionic tissue into the peritoneal cavity or vascular system due to increased intrauterine pressure. In the present case, this risk was addressed by maintaining intrauterine pressure below the mean arterial pressure and by using careful fluid management. No intraoperative or postoperative complications were observed. Nevertheless, this is a single clinical observation, and the results cannot be generalized without caution. Larger studies are needed to determine whether hysteroscopy-assisted evacuation can reduce the rate of retained products, repeat curettage and intrauterine adhesions compared with conventional suction curettage.

Another important lesson from this case is the need for strict post-molar follow-up and early contraceptive counseling. The postoperative increase in β-hCG initially suggested persistent trophoblastic disease, but further assessment indicated the possibility of a new pregnancy. This situation illustrates how early conception after molar evacuation can complicate interpretation of β-hCG dynamics and lead to diagnostic uncertainty. Therefore, patients should be clearly informed about the importance of reliable contraception during the surveillance period and the need for regular β-hCG monitoring until complete normalization and for the recommended follow-up duration.

Thus, this case supports the feasibility and safety of hysteroscopy-assisted management of complete hydatidiform mole in a carefully selected patient. The method provided direct visualization, complete evacuation of abnormal tissue, limited blood loss, absence of complications and preservation of the uterine cavity. The subsequent diagnostic process also emphasizes that β-hCG elevation after evacuation should be interpreted in the context of imaging, histopathology and reproductive history. Hysteroscopy may represent a valuable alternative or adjunct to blind curettage, particularly when fertility preservation and completeness of evacuation are major clinical priorities.

Despite the familiarity of GTN and its treatment, concerns persist regarding the complete evacuation of chorionic villi from the endometrial cavity. Blind curettage poses several complications, such as hemorrhage, perforation, and post-operative RPOC, which may necessitate a second curettage, potentially resulting in intrauterine synechia and secondary infertility. Hysteroscopy, with direct visualization of the uterine cavity, offers the advantage of ensuring complete evacuation of molar tissue with minimal damage to the endometrium.

Discussion. While numerous publications affirm the practicability and safety of hysteroscopy in cases involving the treatment of retained products of conception, there is a relative scarcity of literature on employing hysteroscopy as the primary treatment for hydatidiform mole (HM) [8, 10, 14]. DE Godt et al reported on 36 cases of hydatidiform mole primarily treated through hysteroscopy [3]. Gonzalez A., et al (2019) noted that the majority of hydatidiform moles are benign; however, a small proportion may progress to invasive mole or other forms of gestational trophoblastic neoplasia [4]. Partial hydatidiform moles are characterized by chorionic villi with focal stromal edema, irregular scalloped contours, trophoblastic stromal inclusions, and focal trophoblastic proliferation. Advances in surgical endoscopy, including improved intrauterine visualization and the availability of modern energy systems, have expanded the role of hysteroscopic surgery in the diagnosis and treatment of pregnancy-related intrauterine conditions [12, 13].

However, concerns persist regarding the potential dissemination of chorionic tissue into the peritoneal cavity and intravascular space. In defense of hysteroscopy, data supporting its safety in patients with endometrial cancer can be proposed. The role of endoscopy was discussed in endometrial cancer, noting that the seeding of cancer cells in the uterine cavity does not significantly impact the prognosis of patients who have undergone hysteroscopy, and it does not contribute to an increased spread of cancer [15].

These studies collectively suggest that retrograde seeding of indolent cancer cells does not adversely influence prognosis [5, 7, 9]. Efficient data regarding the intravascular spreading of chorionic tissue remains elusive. Nevertheless, maintaining intrauterine pressure below the mean arterial pressure appears to be a logical and reasonable approach to mitigate this potential complication.

Conclusion

Hysteroscopic management of complete molar pregnancy may be considered a safe and effective alternative to blind curettage in carefully selected patients. The use of controlled intrauterine pressure and fluid management contributed to procedural safety. Serial β-hCG monitoring confirmed an initial favorable postoperative response, while subsequent β-hCG elevation emphasized the importance of careful differential diagnosis between persistent gestational trophoblastic disease and early new pregnancy. The case also highlights the clinical value of histopathological verification and prolonged follow-up after uterine evacuation. Early counseling regarding contraception is essential, as conception soon after treatment may complicate interpretation of β-hCG dynamics. Overall, hysteroscopy can improve the precision of treatment while

preserving reproductive potential. Further prospective multicenter studies are needed to compare hysteroscopy-assisted evacuation with conventional suction curettage in terms of completeness of molar tissue removal, complication rates, reproductive outcomes, and risk of persistent gestational trophoblastic disease.

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Conflict of interest. The authors have no conflicts of interest to declare.

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Article received: 17.05.2025