

Multidisciplinary perioperative management in dilatation and evacuation for a giant hydatidiform mole: A case report

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ABSTRACT

Gestational trophoblastic disease (GTD) is an abnormal pregnancy caused by the placenta, which can potentially metastasise. Suction evacuation is recommended for diagnosis and treatment, and dilatation and evacuation (D&E) is usually performed under intravenous anaesthesia due to the short operation time and minimal blood loss. We refer to the guidelines produced by the Japan Society of Obstetrics and Gynaecology (JSOG), and acknowledge that practices vary globally. However, to the best of our knowledge, there is no evidence on perioperative management and arrangements in D&E required for managing giant hydatidiform moles, such as preventing massive haemorrhage, respiratory dysfunction with a pathogenesis like ovarian hyperstimulation syndrome (OHSS), or intensive care needs. This case report describes perioperative considerations for managing a giant hydatidiform mole using D&E in a uterus enlarged to the third-trimester pregnancy size. A 28-year-old multiparous woman was clinically diagnosed with a hydatidiform mole after a spontaneous miscarriage due to abnormal genital bleeding, systemic oedema, and abdominal distention. Ultrasound and computed tomography showed a ballooning uterus with a third-trimester pregnancy size, a robust intrauterine mass, and ascites. Serum hCG levels were extremely high (>3,000,000 mIU/mL), confirming the clinical diagnosis of a hydatidiform mole. Emergency D&E was safely performed under multidisciplinary perioperative management, with careful preparation and support. This is a rare experience-based case report and valuable documentation detailing multidisciplinary perioperative management under general anaesthesia. To the best of our knowledge, this is the first report describing the considerations, details, and innovations required in the perioperative management of giant hydatidiform moles using D&E.

1. Introduction

Hydatidiform moles are a precancerous condition associated with abnormal trophoblastic cell proliferation [1,2]. While hydatidiform moles are rare, they are highly metastatic tumours requiring prompt resection, metastasis evaluation, and treatment after diagnosis. Since the procedures for removing intrauterine components, including dilatation and evacuation (D&E) and/or dilatation and curettage (D&C), can be completed rapidly, these procedures are performed under intravenous anaesthesia in patients requiring fertility preservation [2,3]. However, the management of patients with large intrauterine masses is often based on individual experience, and guidelines for optimal perioperative

management remain unclear.

In D&E procedures, clinicians should be prepared for complications arising from hydatidiform moles, including severe bleeding from an overstretched uterus, hypovolemic shock, respiratory issues, thrombogenesis, and worsening overall health from mole-related ovarian hyperstimulation syndrome (OHSS) [4,5]. Although the impact of complications associated with giant moles during perioperative management of D&E is poorly documented, these high-risk cases should be managed by multidisciplinary teams and not by obstetricians solely. Consulting an anaesthesiologist and intensivist before the procedure is crucial for holistic patient management.

Here, we describe the details of multidisciplinary perioperative

Abbreviations: CT, computed tomography; D&C, dilatation and curettage; D&E, dilatation and evacuation; ICU, intensive care unit; MRI, magnetic resonance imaging; OHSS, ovarian hyperstimulation syndrome.

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preparations and the management of emergency D&E for giant hydatidiform moles after spontaneous miscarriage.

2. Case Presentation

A 28-year-old woman (G3 P2 SA1) experienced a spontaneous miscarriage at 10 weeks of gestation; however, no menstruation was observed for several months following the miscarriage. The patient suffered abnormal genital bleeding, weight gain, systemic oedema, abdominal distention, and dyspnoea. She gradually developed nausea and was admitted to a local outpatient clinic.

Based on the giant intrauterine mass detected on ultrasound imaging and the positive urine hCG test result, the patient was transferred to hospital for suspicion of hydatidiform mole after miscarriage.

The patient's clinical features on transfer showed hypertension (BP = 150/90 mmHg), dyspnoea (SpO₂: 94% in room air), systemic oedema, rapid weight gain (increasing by 5 kg/2 weeks), and abdominal distention due to a ballooning uterus measuring a vertical fundal height of 31 cm, equivalent to the size of the third-trimester pregnant uterus. Ultrasound imaging revealed a large intrauterine mass (> 20 cm), with "snowstorm-like" hypervascularity (Fig. 1). The serum hCG level was markedly elevated, at 3,021,512 mIU/mL.

Computed tomography (CT) showed a ballooning uterus of the same size as that observed in the third trimester of gestation (Fig. 2A and B). Based on these features, obstetricians strongly suspected a giant hydatidiform mole following a spontaneous miscarriage and initiated prompt treatment.

Considering the patient's request to preserve fertility, removal of the intrauterine components and a definitive diagnosis by D&E were planned immediately.

Due to the large intrauterine mass and OHSS-like pathogenesis, multidisciplinary D&E management was necessary. To address massive blood loss, haemorrhagic shock, respiratory dysfunction, disseminated intravascular coagulation (DIC), and thrombophilia during and after D&E, multidisciplinary preparations were considered. After counselling about treatment options, the patient agreed to undergo D&E.

D&E was performed with the patient in the lithotomy position under general anaesthesia, managed by an anaesthesiologist. A large intrauterine mass was evacuated by suction using an aspirator inside the intrauterine cavity under real-time transabdominal ultrasound guidance. After detecting a massive haemorrhage during D&E, a continuous blood transfusion was performed. The aspirated intrauterine tumour and

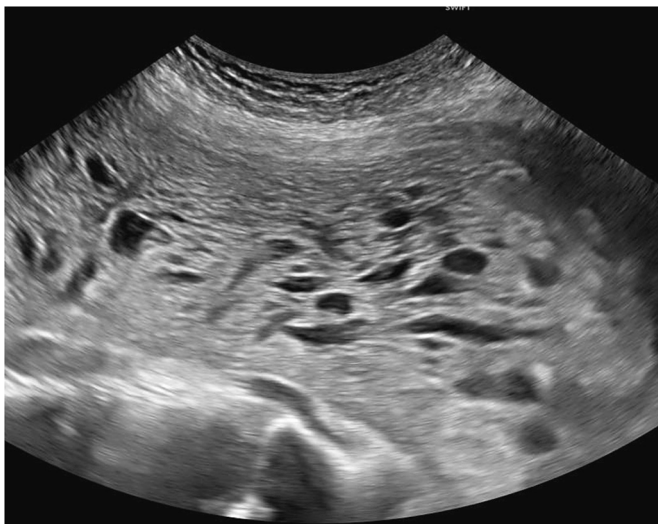


Fig. 1. Abdominal ultrasound imaging (sagittal section) showed a giant intrauterine mass with the findings of "snowstorm-like" hypervascularity, which was characterised as a hydatidiform mole.

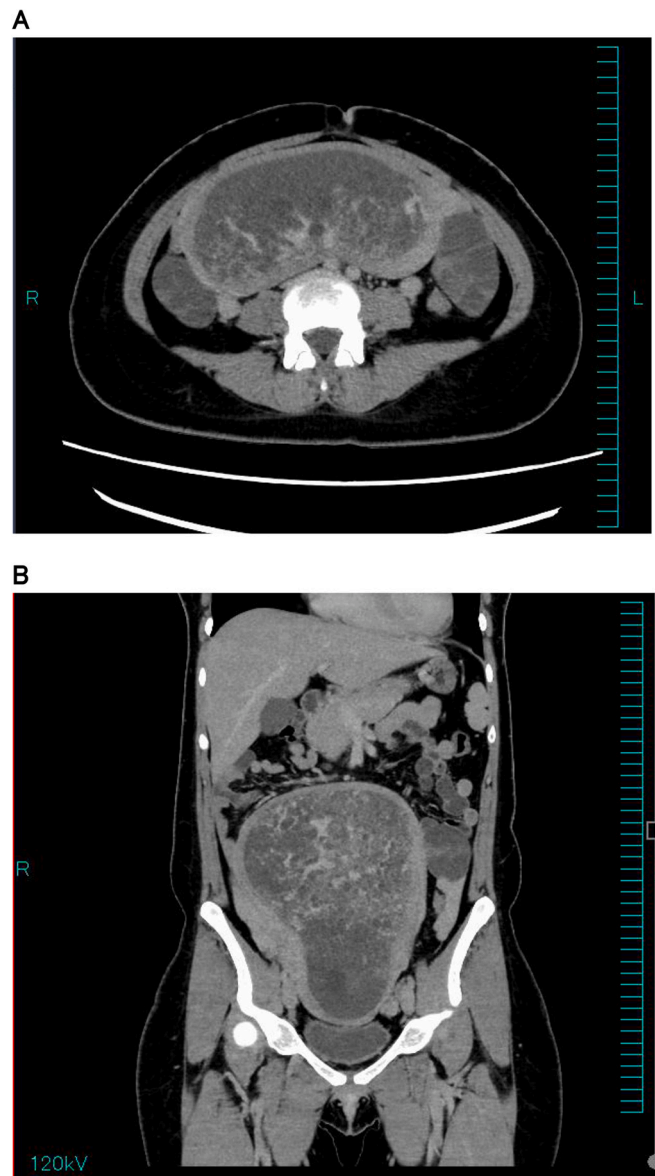


Fig. 2. Contrast-enhanced CT images before D&E showing the details and location of the giant intrauterine hydatidiform mole. The scale of the ruler on the right of the image is 1 cm. The transverse section (A) and coronal section (B) show a third-trimester-size ballooning uterus and robust intrauterine mass. Abbreviations: CT, computed tomography; D&E, dilatation and evacuation.

total blood loss were 900 g and 2200 g, respectively. The morphologic tumour had a "grape-like" microcyst appearance. The ballooned abdomen flattened rapidly after D&E.

The procedure was completed without severe complications such as uterine perforation, systemic deterioration, or DIC with uncontrollable bleeding. Uterotonic agents (oxytocin and prostaglandins) were administered postoperatively to prevent atonic bleeding from an overstretched myometrium.

Postoperative management, including management of respiratory distress, oxygen saturation, thoracoabdominal effusion, and perioperative volume management, was performed carefully. To prevent thrombogenesis and renal dysfunction resulting from a hypovolemic status due to extravascular leakage resulting from OHSS-like pathogenesis, such as vascular endothelial disorders, the in-out balance was closely monitored on the third postoperative day.

Because OHSS-like pathogenesis and changes in coagulability associated with massive bleeding can promote thrombogenesis, obstetricians

recommended using elastic stockings during admission and post-operative heparin administration. Early mobilisation supported by rehabilitation experts helped prevent thrombogenesis and severe complications postoperatively. Histopathological diagnosis confirmed a hydatidiform mole, consistent with the appearance observed during aspiration. The patient was discharged on the third postoperative day without serious complications. Continuous outpatient serum hCG monitoring showed no signs of recurrence.

After several weeks of monitoring, a total of eight courses of methotrexate were administered because the pattern of hCG decline was abnormal. Finally, serum hCG levels dropped below measurement sensitivity six months after the D&E. No hCG re-elevation was observed at 1-year follow-up.

3. Discussion

D&E is the standard procedure for removing intrauterine hydatidiform moles in patients requiring fertility preservation. Nonetheless, due to potential complications such as severe haemorrhage or general health deterioration, these high-risk cases mandate a multidisciplinary approach. Such an approach involves not just obstetricians, but also specialists skilled in managing complex emergencies, including anaesthesiologists for patient sedation and airway management, and surgeons for potential haemorrhage control.

While current case reports show the details of total abdominal hysterectomy [6–8] and D&E for giant hydatidiform moles [9,10], to the best of our knowledge, there has been no description of the details of perioperative preparation for the D&E procedure, choice of anaesthesia, and postoperative management for the removal of giant hydatidiform moles. Considering these factors, in the present case obstetricians made sufficient and careful arrangements for the possible risks and planned and implemented anaesthetic and intraoperative management under anaesthetist and intensivist supervision. This multidisciplinary approach helped D&E to be safely performed under general anaesthesia.

The key perioperative risks associated with the resection of giant hydatidiform moles using D&E appear to be as follows: 1) delayed confirmation of staging and metastases may affect the surgical procedure; 2) massive bleeding derived from the tumour and uterine atony can occur; 3) respiratory issues due to OHSS-like pathogenesis and/or compressed lung by giant mole [11,12]; and 4) postoperative thrombogenesis [1,4,13–15]. This appears to be the first case report describing perioperative considerations for safe D&E procedures in the management of giant hydatidiform moles.

3.1. Confirming Staging of Disease and Checking Metastatic Sites

Concurrent with preparation for prompt D&E management, confirming the disease stage, including metastasis, using CT and MRI is necessary for further treatment of moles after surgery [1,2]. Furthermore, metastatic sites derived from moles can be haemorrhagic and pose challenges in managing general anaesthesia during D&E and administration of antithrombotic agents postoperatively. In this case, preoperative contrast-enhanced CT and MRI showed no metastatic sites or tumours except for a massive intrauterine tumour.

3.2. Preparation for Massive Bleeding during the Procedure

CT and ultrasound findings, along with physical examination, suggested that the uterus had enlarged to the size of a third-trimester pregnant uterus, with an estimated intrauterine component capacity of approximately 4 L.

Since extremely large intrauterine masses could cause atonic bleeding due to an overstretched myometrium, obstetricians must prepare for atonic and massive bleeding during D&E [4]. Accordingly, the following preoperative preparations were made: 1) securing double intravenous routes for robust blood transfusion, 2) obtaining

haemostatic agents, 3) acquiring uterotonic agents such as oxytocin, prostaglandins, and ergot alkaloids, 4) reserving a place on an ICU, and 5) ensuring an ample blood supply for transfusion.

While the total blood loss was 3 L, the above preparations helped prevent hypovolemic shock and atonic bleeding, thereby ensuring a successful procedure. Moreover, prompt blood transfusion helped prevent DIC and stabilise the patient's general condition during the intra- and postoperative periods.

3.3. Intraoperative Management and Choice of Anaesthesia

To the best of our knowledge, perioperative complications associated with the removal of giant hydatidiform moles have not been extensively discussed.

Considering the following issues, D&E was planned to be performed under general anaesthesia and respiratory support with intubation under the supervision of an anaesthesiologist: a) haemodynamic and respiratory instability associated with massive bleeding and respiratory dysfunction due to OHSS-like pathogenesis; (b) risk of uterine rupture due to overstretched myometrium by a giant hydatidiform mole; (c) reduced lung capacity and respiratory dysfunction due to enlarged uterus concomitant with systemic oedema associated with OHSS-like pathogenesis; and d) possible transfer to intensive care perioperatively because of these issues.

Accordingly, obstetricians planned for D&E to be performed in an operating theatre under general anaesthesia managed by an anaesthesiologist and intensivist to help continue the procedure even if massive bleeding occurred and/or intensive care was required. Due to the multidisciplinary approach, D&E under general anaesthesia was safely completed without complications, including DIC, respiratory issues, haemorrhagic shock, or intensive care.

3.4. Thromboprophylaxis

Thromboprophylaxis and early mobilisation, supported by rehabilitation experts, helped prevent thrombogenesis. To the best of our knowledge, this is the first report describing the details of the complicated perioperative management of D&E for giant hydatidiform moles.

4. Conclusion

This case highlights the details and requirements for multidisciplinary perioperative management of D&E for giant hydatidiform moles. Our report will help preserve the fertility of patients with large hydatidiform moles. Our observations suggest that D&E for giant hydatidiform moles requires meticulous medical and personnel resource arrangements in the higher tertiary medical centre.

Contributors

Yoshitomo Tanaka contributed to patient care, conception of the case report, acquisition and interpretation of data, literature review, and drafting of the manuscript.

Kiichiro Furuya contributed to patient care, conception of the case report, acquisition and interpretation of data, literature review, and drafting of the manuscript.

Masanori Sumi contributed to drafting the manuscript, undertaking the literature review and critically revising the article for important intellectual content.

Saya Yamashita contributed to patient care, conception of the case report, and data acquisition and interpretation.

Yangsil Chang contributed to drafting the manuscript, undertaking the literature review and critically revising the article for important intellectual content.

Kayoko Shikado contributed to drafting the manuscript, undertaking the literature review and critically revising the article for important

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Hiroaki Tsubouchi contributed to drafting the manuscript, undertaking the literature review and critically revising the article for important intellectual content.

Kazuhide Ogita contributed to drafting the manuscript, undertaking the literature review and critically revising the article for important intellectual content.

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Patient consent

Consent was obtained from the patient to publish the clinical data, imaging findings, and details of this case.

Provenance and peer review

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Conflict of interest statement

The authors declare that they have no conflict of interest regarding the publication of this case report.

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