Case Report

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Atypical presentation of hyperthyroidism complicated complete hydatidiform mole in a 24-year-old female: a case report

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Introduction and importance: Molar pregnancy is the most common type of gestational trophoblastic disease. It manifests as vaginal bleeding, accompanied by high levels of β-human chorionic gonadotropin (β-HCG). This case aims to highlight the importance of considering gestational trophoblastic disease as a potential diagnosis and its serious complications.

Case presentation: A 24-year-old female presented with vomiting, nausea, and no complaint of vaginal bleeding. Laboratory tests indicated hyperthyroidism as a complication requiring challenging preoperative prophylactic management. Initially, the patient underwent suction and curettage, but a total hysterectomy had to be performed later. The histological study concluded with the diagnosis of a complete hydatidiform mole. Post-surgery follow-up evaluations revealed high blood pressure values, and the patient was appointed for further cardiology assessment.

Discussion and conclusion: Although uncommon, complications of a molar pregnancy include anaemia, severe cardiac distress, and hyperthyroidism. Trophoblastic Hyperthyroidism is a result of extremely high levels of β-HCG levels due to molecular cross-reactivity. History, clinical examination, and ultrasound, in addition to measuring β-HCG levels, could all help in diagnosing a molar pregnancy, but the definitive diagnosis is based on histopathology and a karyotype study. Management procedures include dilation, suction and curettage, and hysterectomy. The treatment depends on the patient's age, desire for future pregnancies, and risk of developing gestational trophoblastic neoplasia. A follow-up with serial β-HCG measurement is recommended to monitor possible complications. Attaining and maintaining euthyroidism is a life-saving procedure before molar pregnancy surgery. Methimazole, Propranolol, Lugol's iodine, and hydrocortisone can all be used in the prophylactic management of the thyroid storm.

Keywords: case report, complete hydatidiform mole, hyperthyroidism, molar pregnancy, β-HCG

Background

Molar pregnancy, including complete and partial mole, is the most frequent type of Gestational trophoblastic disease (GTD) which is a spectrum of pregnancy-associated lesions characterized by trophoblastic proliferation[1,2]. The incidence of GTD varies across countries worldwide, with Asia exhibiting the highest rates[2]. Several factors can be involved in this variety, including heterogeneity and dietary causes[1]. The age extremes for reproduction have an increased risk, mainly for 45-year-old women[3]. The most common symptoms of the complete mole (CM) are vaginal bleeding and remarkable elevation of ß human chorionic gonadotropin (ß-HCG) in spite of the fact that GTD is mostly asymptomatic[1,4]. A diagnosis is more likely to be made in the first trimester of pregnancy with ultrasound imaging. Hence, complications of molar pregnancy, such as hyperthyroidism, are usually less frequent[5]. In most cases, hydatidiform molars retreat spontaneously after suction curettage[1]. The definitive treatment is surgery[3]. This case has been reported in line with the SCARE criteria[6]. Herein, we discuss the medical optimization of

HIGHLIGHTS

- Maintaining euthyroidism prior to molar pregnancy surgery is suggested for life-saving purposes.
- It is essential to monitor thyroid hormone levels before mole removal to avoid the risk of thyroid storms.
- Despite the fact that hyperthyroidism is an uncommon yet significant clinical condition in gestational trophoblastic disease, it can cause severe mortality as well as morbidity.
- Early marriage may be associated with the early onset of gestational trophoblastic disease in this location.

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a rare case of hyperthyroidism induced by markedly increased ß-HCG in a complete molar pregnancy.

Case presentations

A 24-year-old, gravida 3, para 3, breastfeeding female presented with a complaint of nausea and vomiting without any vaginal bleeding. The surgical history includes three caesarean sections, the last being a year prior to her presentation. The patient has no drug or allergy history. Family history includes hypertension in the patient's father. On examination, the blood pressure and heart rate were normal. Laboratory tests showed a very high serum β-HCG of 984240.8 mIU/l. Thyroid-stimulating hormone (TSH) was low at 0.013 UI/ml and free thyroxine (free T4) was elevated at 2.9 ng/dl. β-HCG continued to elevate and reached 1 083 832 mIU/l 4 days later. The high β-HCG level indicates a GTD, which can be complicated with hyperthyroidism, so the differential diagnosis for the patient included choriocarcinoma and a hydatidiform mole. To determine the final diagnosis and treatment plan, the patient was scanned by transabdominal pelvic ultrasound (Figs. 1 and, 2) and by computerized tomography (CT) scan of the brain, chest, abdomen, and pelvis with contrast given both intravenously and by mouth. The ultrasound showed an intrauterine mass occupying most of the uterus, with many small cystic structures. The mass takes up perfusion with high velocity and low impedance flow. No foetal parts were seen. The CT scan showed an enlarged uterus and a (12 × 9) cm cystic mass of heterogeneous density and an oval shape, most consistent with a hydatidiform mole. No metastases were detected. The patient was started on propranolol, methimazole, Lugol's iodine, and hydrocortisone for prophylaxis against thyroid storm. Then, the patient underwent suction and curettage to remove the molar tissue, but it was complicated by a heavy haemorrhage, and the surgeon decided to perform a total hysterectomy with a Pfannenstiel incision. During the operation, the patient received 2 units of blood and 3 units of plasma, then was transferred to the intensive care unit post-operation to monitor the vaginal bleed, surgical drainage, and urinary output. She was put on antibiotics and painkillers, and blood tests were ordered to manage her condition accordingly. The patient was also monitored to detect any signs that may suggest pulmonary embolism. The pathology report described a complete hydatidiform mole (Fig. 3). Two weeks after the surgery, the patient's follow-up showed a normal free T4 level of 1.08 ng/dl and a slightly reduced TSH level of 0.11 UI/ml. The blood pressure was elevated at 160/100 mmHg on several measurements, therefore, the patient was put on a combination of Hydrochlorothiazide and Valsartan, and she was appointed for further cardiology evaluation. On follow-up, the patient is on hypertension drugs, and the β-HCG level is 0. Following the procedure, she exhibited a positive response, expressed satisfaction with the outcome of the surgery, and demonstrated a smooth recovery, with no notable complications

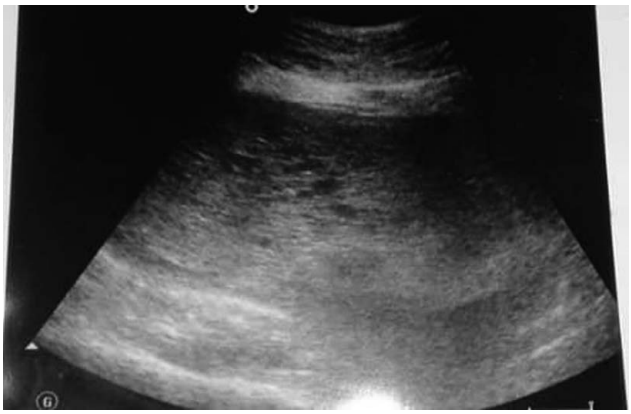

Figure 1. Ultrasound images of the uterus show an intrauterine mass occupying most of the uterus with many small cystic structures in it. The mass takes up perfusion. We also notice the high velocity and low impedance of the flow. There are no foetal parts visible in the uterus.

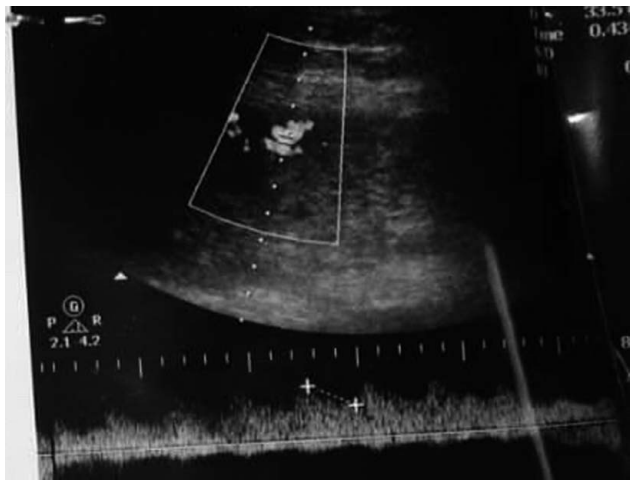

Figure 2. Ultrasound images of the uterus showing a placenta increta.

Figure 3. Macroscopic view of a surgically removed uterine.

or adverse effects. The patient's overall acceptance and contentment with the hysterectomy were evident during follow-up consultations.

Discussion and conclusions

Hydatidiform moles are chorion diseases. They are best classified as benign neoplasia with the potential for malignancy[7]. A complete hydatidiform mole (CHM) arises from the fertilization of an ovum by either a single sperm (80% of cases) or two sperms (20% of cases). In this process, the maternal chromosomes undergo loss either before or immediately after conception, resulting in a diploid karyotype with exclusively paternal nuclear DNA. On the other hand, partial hydatidiform mole (PHM) occurs due to the fertilization of a normal ovum by two sperms, typically resulting in a triploid karyotype. In PHM, there may be the presence of foetal parts or foetal red blood cells[1,5]. The complications of molar pregnancy are not frequent due to early diagnosis but may include anaemia, hyperthyroidism, and severe cardiac distress[5,8]. The prevalence of GTD varies greatly throughout the world. It was found to be most prevalent in Asia, Africa, and the Middle East. Latin America has far lower rates than North America, Europe, Asia, and Australia. Incidence rates in Asia, for example, are 1 to 10 per 1000 pregnancies, while in Europe, the disease is less common with an incidence rate of 0.5 to 3.0 per 1000 pregnancies. It was found that GTD is more common in primigravida women, with a reduced incidence of GTD in the second, third, and subsequent pregnancies[1,9]. In our case, the patient had Gravida 3. According to the findings, the proportion of patients with CHM to those with partial hydatidiform moles PHM ranged from 48 to 52%, with PHM being greater than CHM[10]. Extreme maternal age is a major risk factor for complete mole (CM). Maternal ages of less than 20 and older than 40 years have been linked to 10-fold and 11-fold increased relative risks of CM, respectively. The age group with the greatest incidence rate was (21–14)[3,11–13]. As a result, we discovered that the most prevalent occurrence of HM is in younger patients. Another key risk factor for CM is a history of past molar pregnancy, with repeat molar pregnancies happening 0.6–2.6% of the time. Oral contraceptive usage, maternal type A or AB blood types, maternal smoking, and maternal alcohol misuse are all potential risk factors. Molar pregnancy usually appears in the first trimester and can be accompanied by a variety of symptoms, including vaginal bleeding (~80%), uterine enlargement (100%), abdominal pain (42%), nausea, and vomiting (25%), as well as markedly elevated serum β-HCG levels, anaemia, hyperemesis gravidarum, theca lutein cysts, preeclampsia, and respiratory distress. β-HCG is a glycoprotein hormone structurally similar to the thyroid-stimulating hormone, and for this reason, many patients will present with clinical hyperthyroidism[10,14,15], but in our case, the patient presented with a complaint of nausea and vomiting without any vaginal bleeding. Her surgical history includes three caesarean sections, the last being a year prior to her presentation. CM is potentially complicated by anaemia that is caused by chronic occult per vaginal bleeding. Additionally, during surgery to remove the molar pregnancy, there can be substantial blood loss, further contributing to the development of anaemia[8]. Another possible complication is acute cardiopulmonary distress, which has been documented as a post-evacuation complication in ~27% of molar pregnancy cases, with a higher incidence observed in patients exhibiting a uterine size of 16 weeks or larger. This distress typically manifests within a 12-h timeframe following the evacuation procedure. Clinical manifestations of this condition include cough, tachycardia, tachypnea, hypoxaemia, diffuse rales, and bilateral pulmonary infiltrates, as evidenced by chest radiography. Trophoblastic embolization has been established as the predominant aetiological factor in over half of these cases[8]. Our patient was not anaemic and did not suffer cardiopulmonary distress after the surgery. A process of history taking and physical examination can be used to diagnose a hydatidiform mole at a gestational age of fewer than 20 weeks. Patients with hydatidiform moles commonly complain of reddish-black coloured blood discharge or uterine growth beyond the gestational age, depending on the degree of proliferation and tissue changes. Ultrasound is commonly used to diagnose complete molar pregnancies based on the presence of a "snowflake" pattern, especially when certain placental characteristics, such as cystic changes and overt masses, are present. Although the gold standard is based on the gross morphology of the specimen, histopathologic features, and karyotype as a complement. In around half of the patients with CM, β- HCG levels are excessively high, reaching higher than 100 000 mIU/l. Extremely high β- HCG levels, generally greater than 500 000 mIU/l[4,16]. For trophoblastic disorders, the glycoprotein hormone β-HCG is a particular tumour marker. The structural similarity between β-HCG, and TSH might produce cross-reactivity with their respective receptors. The cross-reactivity of β-HCG with the TSH receptor has been demonstrated to be caused by similarity in the β-HCG and TSH molecules, as well as in their receptors. Anti-thyroid medicines should be given to the patient prior to surgery, and if there is not enough time to make her pharmacologically euthyroid, iodine and β-blockers should be given. I.V. metoprolol and dexamethasone were utilized. The molar tissue can be evacuated to manage hyperthyroidism, but before immediate dilatation and curettage are necessary for the final care of the hydatidiform mole, this source of hyperthyroidism in pregnancy should be considered and treated well[8,11]. In our patient, laboratory tests showed a very high serum β-HCG of 984 240.8 mIU/l. TSH was low at 0.013 UI/ml and free thyroxine (free T4) was elevated at 2.9 ng/dl. β-HCG continued to elevate and reached 1 083 832 mIU/l 4 days later, and the patient was scanned by a transabdominal pelvic ultrasound (Figs. 1 and 2). and by a CT scan of the brain, chest, abdomen, and pelvis with contrast given both intravenously and by mouth. The ultrasound showed an intrauterine mass occupying most of the uterus, with many small cystic structures. The mass takes up perfusion with high velocity and low impedance flow. No foetal parts were seen (Fig. 1). The CT scan showed an enlarged uterus and a 12×9 cm cystic mass of heterogeneous density and an oval shape, most consistent with a hydatidiform mole. No metastases were detected. Suction dilation and curettage (D&E), preferably guided by ultrasound imaging, is the preferred technique of evacuation for women who desire to maintain fertility, regardless of their uterine size[12,13]. Ultrasound helps ensure the removal of all trophoblastic tissue and prevents uterus perforation[12]. Suction D&E is usually performed under general anaesthesia; however, regional anaesthesia may also be used for specific patients[3]. Medication-induced uterine evacuation is a substitute method that is not recommended because of displeasing outcomes, comprising: a higher risk of post-molar malignancy, increased haemorrhage

risk, higher maternal morbidity rates, and generally higher failure rates[12]. In women who have completed their reproductive role or those who do not desire to maintain childbearing, and in women over 40-year-old who encounter an increased risk for GTN, hysterectomy represents the alternative procedure[3]. In addition to providing permanent sterilization, hysterectomy lowers the necessity for postoperative adjuvant chemotherapy, since it eradicates the risk of persistent disease locally invading the myometrium[13]. The possibility of developing post-molar GTN is significantly reduced to ~3–5% with hysterectomy in comparison with a 15-20% risk possibility after suction D&E[3]. The adnexa is usually spared in disregard of theca lutein cysts' presence[12]. Our patient was started on propranolol, methimazole, Lugol's iodine, and hydrocortisone for prophylaxis against thyroid storm. Then, the patient underwent suction and curettage to remove the molar tissue, but it was complicated by a heavy haemorrhage, and the surgeon decided to perform a total hysterectomy with a Pfannenstiel incision (Fig. 3). The pathology report described a complete hydatidiform mole. A recent meta-analysis conducted by Albright and colleagues has provided valuable insights into the incidence of post-molar GTN. The analysis revealed that the overall incidence of GTN is ~20% for complete moles (CM) and 4% for partial moles (PM). For patients who achieve hCG normalization within 56 days after evacuation, the risk of developing GTN is extremely low, at 0.03% for CM and 0.02% for PM. Even for those who take longer to achieve hCG normalization (≥ 56 days), the rates remain low at 0.3% for CM and 0.03% for PM. These findings provide reassurance and support the recommendation that follow-up should continue for 3 months after CM and 1 month after PM, while ensuring patient safety[5]. Two weeks after the surgery, our patient's follow-up tests showed a normal free T4 level of 1.08 ng/dl and a slightly reduced TSH level of 0.11 UI/ml. Further follow-up also included monitoring of β-HCG levels in her blood for three months, and it got down to zero, making the occurrence of gestational trophoblastic neoplasia very unlikely. In conclusion, hyperthyroidism is an uncommon yet significant clinical condition in GTD, and despite the fact that it is highly curable, it can cause significant morbidity and mortality. This necessitates paying more attention to the patient's thyroid hormone levels prior to mole removal, to avoid the consequences of thyroid storms, which can be life-threatening. The normal level of thyroid hormone should be attained right before the mole is removed. Patients' poor socioeconomic position plays an important influence on the disease's aetiology and progression. Early marriage may be linked to the early occurrence of GTD in this region.

Ethical approval

Not applicable, ethical approval is not required for case reports.

Consent

Written informed consent was obtained from the parents of the patient for publishing 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 on request.

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Author contribution

All authors read and approved the final manuscript. M.M.: design of the study, data collection, data interpretation and analysis, drafting, critical revision, and the approval of the final manuscript. R.A.M.: data collection, data interpretation, and analysis, critical revision, drafting, and the approval of the final manuscript. N.A.: data interpretation and analysis, critical revision, drafting, and the approval of the final manuscript. G.H.: data collection, data interpretation, and analysis, drafting, critical revision, and the approval of the final manuscript. R.A.T.: data collection, drafting, critical revision, and the approval of the final manuscript. I.K.: drafting, critical revision, and the approval of the final manuscript. S.J.: drafting, critical revision, and the approval of the final manuscript. S.A.: The Supervisor, patient care, drafting, critical revision, and the approval of the final manuscript.

Conflicts of interest disclosure

None.

Research registration unique identifying number (UIN)

Not applicable for this study.

Guarantor

Samar AlKhrait is the Guarantor for this study.

Data availability statement

Not applicable. All data (of the patient) generated\analyzed during this study are included in this published article and its supplementary information files.

Provenance and peer review

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