Complete molar pregnancy with transformation to choriocarcinoma of the liver: A case report

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A B S T R A C T

Objective: Highlight a complete molar pregnancy with possible complications and pertinent clinical information to aid doctors in recognizing the disease quickly to provide treatment to limit adverse outcomes.

Context: Complete molar pregnancy is rare and compromises 1:500–1:2000 pregnancies [1–4]. As technology has improved, the presentation of complete molar pregnancy has changed [1,5–6].

Summary: A 19-year old African American female presented to the emergency room (ER) three times within 14 days for abdominal pain. A pregnancy test was positive and on the third visit quantitative β-human chorionic gonadotropin (HCG) was elevated without signs of an intrauterine pregnancy (IUP). Dilation and curettage (D&C) was done with small perforation of the uterus. Pathology report indicated a complete molar pregnancy. The patient failed to follow-up and returned to ER 22 days later where an abdominal mass was found prompting surgery. Hematomas and abdominal adhesions were removed and again pathology showed a complete molar pregnancy. Follow-up HCG levels failed to decrease appropriately so the patient was referred to oncology where metastatic choriocarcinoma of the liver was diagnosed. Chemotherapy was initiated and HCG monitored. Patient was readmitted for infections and complications, but did eventually have her HCG return to zero.

1. Introduction

This case report highlights a complete molar pregnancy with some possible complications and its pertinent clinical information to aid obstetrics and gynecology (OB/GYN) doctors in appropriately recognizing the disease early in order to quickly provide treatment to prevent adverse outcomes. Current literature on a complete molar pregnancy is reviewed with the case. A molar pregnancy is one in which an extra set of paternal chromosomes fertilize an egg with no genetic material or also called an empty egg [1–3]. Two variations of molar pregnancy are known; complete (diploid) and partial (triploid) [1–2,4]. This case study describes a complete molar pregnancy, how it may present, the diagnosis, the treatment, and why it is important for the early identification of this condition.

1.1. Incidence and Epidemiology

Complete molar pregnancies are thought to occur in 1:500–1:2000 pregnancies [1–4]. The majority of them, 90%, are from a single male sperm with a diploid genome (46XX) [3,7]. Once the empty egg is activated by the sperm, no zygote forms. Instead, colonic villi turn into grape like vesicles [3,6]. The exact cause is not known, but the incidence appears to have a bimodal age distribution for those in their teens and those between 40 and 50 years old [1,3]. African American females have a higher chance of having a complete molar pregnancy and mortality from it [8]. Previous molar pregnancy increases incidence 20–40× as does intermarriage [2–3]. A diagnosis of complete mole gives 15–28% chance of developing persistent disease and need for chemotherapy, but this decreases to 1.1% if HCG reaches 50 IU/L any time after evacuation of the pregnancy [4,9].

1.2. Signs and Symptoms and Diagnosis

Technology such as the ultrasound (US) and turnaround time on lab tests have changed how one presents with a complete molar pregnancy [5]. Whereas enlarged uterus, anemia, preeclampsia, hyperthyroidism,
and hyperemesis used to be the most common way to present, now it seems to be vaginal bleeding in as many as 84% of cases [3,6]. In the 1960s–70s, 97% of patients would experience vaginal bleeding, 54% anemia, 51% enlarged uterus, 27% pre-ecclampsia, 26% hyperemesis, with virtually all patients experiencing some symptoms [1,5–6]. In 1996–2006, 81% of patients experienced vaginal bleeding, 13.9% anemia, 33.9% enlarged uterus, 2.2% pre-ecclampsia, 30% hyperemesis, with 19.1% being completely asymptomatic [1,5–6]. An US can be ordered if a pregnant women has any signs or symptoms that may cause concern when the gestation is less than 6 weeks of gestation as it is the really the best test for diagnosing and following a complete mole [10]. If an HCG increases to 6 weeks following D&C [3]. In order to ensure this, it is recommend that HCG be followed every one to two weeks until it reaches zero and then every one to two months for six to twelve months for a total of six months after it has gone to zero [3,10–12]. Several studies have questioned the necessity to have the HCG followed so strictly and if it is even necessary for HCG to reach zero [4,9]. If the HCG decreases to zero then no treatment is necessary and the patient is considered cured, but one should avoid pregnancy for a year [4,10]. If a patient does become pregnant before a year after having the HCG return to zero from a molar pregnancy, it can continue with close follow-up [12]. If the HCG does not decrease to zero, then chemotherapy is warranted [8]. Chemotherapy regimens and protocols vary depending on physician preference, but some of the common drugs used either alone or together include methotrexate, dactinomycin, etoposide, vincristine, and cyclophosphamide [1]. Treatment success rate is generally high and the condition is easier to eliminate if found early [10,13].

2. Methods

A literature search was performed using Clinical Key, Purdue University Online Library, PubMed, and UpToDate. A total of 13 articles were obtained from 1994 to 2013. Terms used for the search included “complete molar pregnancy,” “choriocarcinoma,” and its corresponding clinical features, as well as the presentation of the patient in the case study. The most relevant articles were selected upon reading full article. She was told to follow up with her obstetrician/gynecologist (OB/GYN) doctor because of a likely abnormal pregnancy. She followed up with her OB/GYN doctor the next day and again an US showed no intrauterine pregnancy (IUP). A dilation and curettage (D&C) was scheduled for the next day, 12/27/13, and a HCG of 115,795 IU/L was found prior to the procedure. A D&C was performed using suction with no major complications, but there was a small perforation of the posterior uterus. Pathology showed a complete hydatidiform mole. The patient failed to show for a 2-week follow-up and returned to ER 1/18/14 with abdominal pain. An abdominal mass was found on US that prompted emergency surgery. Several hematomas and abdominal adhesions were found and a drain was placed. Following surgery, a chest x-ray was found to be negative. When the pathology returned several days later it showed the hematoma mimicked the D&C pathology, a complete mole. Post-op HCG values (Table 1) originally started to decrease, and then started to increase again so the patient was referred to oncology for further assessment and the possibility of metastatic choriocarcinoma.

When the patient arrived to her first appointment with the oncologist four days later, she had a computed tomography (CT) of the abdomen and pelvis and was given a prescription for contraceptive pills. The CT scan showed liver metastasis and confirmed the patient did have metastatic choriocarcinoma. On follow-up for her CT scan results she appeared sick so was admitted to the hospital. She had severe right upper quadrant pain with nausea and vomiting, but denied any other symptoms. On admission to the hospital (laparoscopy post-op day 12), she had hemoglobin 8.6 g/dL, hematocrit 0.263 proportion of 1.0, platelets 323 × 10^9/L, basic metabolic panel (BMP) was unremarkable except for glucose of 7.83 mmol/L, white blood cell count (WBC) 12.4 × 10^9/L, and HCG of 40,610 (see Table 5 for normal values). She had a negative abdominal X-ray, and magnetic resonance imaging (MRI) showed liver metastasis. Due to concern for pelvic abscesses and sepsis, blood cultures were taken (negative) and the patient was started on antibiotics (clindamycin and piperacillin-tazobactam), as well as oxytocin, and IV fluids normal saline 0.9%. On the second hospital day, the patient reported feeling weak and lightheaded. The patient was found to be orthostatic and labs showed hemoglobin 4.3 g/dL, hematocrit 0.129 proportion of 1.0, and platelets 84 × 10^9/L. The patient was rushed to the ICU to be stabilized and transfused. She had another CT scan which revealed fluid in the pelvis that was thought to be due to a bleed. She underwent emergency surgery where it was discovered she was hemorrhaging from her liver at segment VIII and diaphragm. The segment was debulked, and the patient was coagulated with packing, continued on the antibiotics and had several transfusions (six units of packed red blood cells, two units of fresh frozen plasma, and two units of platelets). On the third hospital day, she was started on multiagent chemotherapy (MAC) consisting of methotrexate, dactinomycin, and cyclophosphamide for five days.

She successfully completed 1 cycle of MAC as an inpatient with no infections so antibiotics were stopped and a port was placed so that she could have MAC as an outpatient. She was discharged eight days after being admitted to the hospital with a hemoglobin 9.2 g/dL, platelets 141 × 10^9/L, and liver function tests ranging from 200 to 300. She was injected with Depo-Provera, to prevent pregnancy as she had not yet started her oral contraceptive pills. She was discharged with hydrocodone bitartrate/acetaminophen, ibuprofen, docusate, and ferrous sulfate as well as instructions when to seek immediate medical attention, and a follow-up appointment.

Nine days later on 2/3/14, the patient presented to the ER with a fever > 38.8 °C, a runny nose, lower back pain, and right inguinal pain. She denied any other symptoms and stated her family was sick with a similar illness and that she had not received the flu shot for the year. She was admitted and had labs drawn (Table 2), chest X-ray (negative), urine analysis (showed a trace of blood), blood cultures (negative), and started on piperacillin/tazobactam, potassium, as well as fligrastim for her low white blood cell count. She stayed in the hospital for fifteen days where she was followed with labs to monitor infection and HCG

3. Presentation of Case

A 19-year old African American female, with past medical history of only genital herpes, presented to the emergency room (ER) multiple times within six weeks for abdominal pain. During the first visit on 12/12/13, she had 8/10 abdominal pain and a distended abdomen. A pregnancy test was found to be positive, but the patient declined an ultrasound (US) and no β-human chorionic gonadotropin (HCG) level was obtained. She was diagnosed with constipation and pregnancy with an unknown last menstrual period date. On the second ER visit ten days later, she was found to have a HCG level of 60,638 IU/L. The patient was discharged again without an US. Three days later, on 12/25/13, she again returned to the ER for the pain and allowed for an US which did not show any IUP even though her HCG level was 100,606 IU/L.
blood cell count and was then found to have a fever. Location is considered a main culprit to making and keeping potassium replaced and to be given Oxycodone and Magic mouthwash were given for her pain and a follow-up appointment was scheduled in a week. Five days later, on 3/8/14, at the outpatient.

On follow-up the patient had stomatitis of the mouth and felt weak. Oxycodone and Magic mouthwash were given for her pain and a follow-up appointment was scheduled in a week. Five days later, on 3/8/14, at the scheduled appointment, the patient presented for MAC round three due to neutropenia. She was discharged after four days and told to follow future chemotherapy treatments as expected (large uterus, hyperthyroidism, etc.). If at any time there are any signs that cause concern, especially in early pregnancy before a normal viable pregnancy has been confirmed, an US and HCG level should be performed. It is vital that once a complete molar pregnancy is confirmed that it is removed and the patient is monitored to ensure no subsequent complications. Any ensuing problems must be appointments [10]. Because of the noncompliance rate, the Depo-Provera shot is recommended for post-molar contraception in this population [6]. Even though the incidence of choriocarcinoma has decreased since the 1970s, it is still a possible outcome of complete molar pregnancy so it is important to continue to inform the patient of this possibility [8]. The patient in this case study did not follow-up after her D&C, which confirms what past research has shown based on her race and socioeconomic status [1, 8, 13]. It is possible that if caught earlier this patient would not have had metastasis to her liver or that it would not have spread as much leading to a shorter duration of chemotherapy although a molar pregnancy can metastasize both before and after evacuation [1].

Further research is needed to determine if a uterine perforation during D&C causes an increased incidence of metastatic choriocarcinoma since studies in this area are lacking. In addition, research into how to get a higher rate of compliance in patients with low socioeconomic status is needed.

5. Conclusion

Complete molar pregnancy is quite rare, but due to the adverse outcomes that can occur, it is vital that it be found as early as possible. Doctors must realize that the patient may not present with the symptoms typically expected (large uterus, hyperthyroidism, etc.). If at any time there are any signs that cause concern, especially in early pregnancy before a normal viable pregnancy has been confirmed, an US and HCG level should be performed. It is vital that once a complete molar pregnancy is confirmed that it is removed and the patient is monitored to ensure no subsequent complications. Any ensuing problems must be

| HCG | 2764 on 2/17/14 |
|-----|-----------------|
| ANC | 2.7 × 10^9 on 2/19/14 |

| Table 3 |

| Table 4 |

| HCG levels in IU/L. |
|---------------------|
| 12/12/13 60,638 |
| 12/25/13 100,606 |
| 12/27/13 (prior to D&C) 115,795 |
| 1/19/13 (day 1 post op laparoscopy) 47,365 |
| 1/20/13 32,085 |
| 1/21/13 22,660 |
| 1/23/13 24,491 |
| 1/26/13 38,250 |
| 1/30/14 40,610 |
| 2/07/14 40,610 |
| 2/17/14 9 (Post op liver surgery and start of MAC) 2764 |
| 2/23/14 1817 |
| 3/3/14 1702 |
| 3/8/14 182 |

| Admission labs on 2/3/14. |

| Temperature 38.6 °C |
| Heart rate 130 beats per minute |
| Blood pressure 140/80 mm Hg |
| Oxygen saturation 98% on room air |

| Table 5 |

| Lab name | Normal value/range |
|----------|-------------------|
| White blood cell (WBC) | 3.7–10.6 × 10^9/L |
| Hemoglobin (Hb) | 110–140.9 g/L |
| Hematocrit (Hct) | 0.36–0.46 proportion of 1.0 |
| Absolute neutrophil count (ANC) | >2000 × 10^9/L |
| Platelet (PLT) | 141–359 × 10^9/L |
| Alanine aminotransferase (ALT) | 0–32 IU/L |
| Aspartate aminotransferase (AST) | 0–40 IU/L |
| Bilirubin total | 0–0.012 g/L |
| Alkaline phosphatase (Alk Phos) | 25–150 IU/L |
| Sodium (Na) | 134–144 mmol/L |
| Potassium (K) | 3.5–5.2 mmol/L |
| Chloride (Cl) | 97–108 mmol/L |
| Calcium (Ca) | 0.087–0.102 g/L |
| Blood urea nitrogen (BUN) | 0.06–0.20 g/L |
| Creatinine (Cr) | 0.0057–0.01 g/L |
| Glucose | 3.9–6.1 mmol/L |
| γ-Human chorionic gonadotropin (HCG) | 0 non-pregnant IU/L |

| Table 2 |

| Labs | Vitals |
|------|-------|
| WBC | 1.6 × 10^9 |
| ANC | 288 × 10^9 |
| Hb | 10.1 |
| Hct | 0.295 |
| PLT | 98 |
| β-HCG | 3.3 |
| Temperature 38.6 °C | Heart rate 130 beats per minute |
| Blood pressure 140/80 mm Hg | Oxygen saturation 98% on room air |

| Table 4 |

| Admission labs on 2/3/14. |

| WBC | 2.4 |
| Hb | 9.5 |
| Hct | 0.274 |
| PLT | 81 |
| ANC | 288 |
| Na | 134 |
| K | 2.7 |
| Cl | 101 |
| BUN | 0.09 |
| Cr | 0.006 |
| Ca | 0.09 |
| ALT | 46 |
| AST | 15 |
| Total Bili | 0.018 |
| Alk Phos | 171 |

| Table 3 |

| Labs during 2/3–2/28/14 hospital admission. |
|------|-------|
| HCG | 2764 on 2/17/14 |
| ANC | 2.7 × 10^9 on 2/19/14 |

4. Discussion

The patient in this case study represents the common age, race, and socioeconomic status in which complete mole occurs and subsequent choriocarcinoma develops [1, 8, 13]. Approximately 70% of minority women fail to comply with post-molar surveillance despite being counseled on possible mortality [10]. Living >20 miles from the doctor’s location is considered a main culprit to making and keeping levels (Table 3). Her fever disappeared on day seven of her admission so her antibiotic was discontinued. During her stay, she had nausea, vomiting, diarrhea, and intermittent atrial fibrillation due to her refusing potassium supplements. She also underwent her second round of chemotherapy with MAC and was then discharged with plans to continue future chemotherapy treatments as an outpatient.

Further research is needed to determine if a uterine perforation during D&C causes an increased incidence of metastatic choriocarcinoma since studies in this area are lacking.
promptly treated. Further research in complete molar pregnancies is still needed.

Disclosure Statement

The authors of this paper have no conflicts of interest to report.

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