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Case Report

Unilateral hydronephrosis caused by invasive mole: a case report

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Abstract: Invasive mole belongs to gestational trophoblastic neoplasm, which is a highly curable group of pregnancy-related tumors. However, approximately 20% of gestational trophoblastic tumors will be resistant to or relapsed after initial chemotherapy. These resistant and relapsed lesions will require salvage chemotherapy with or without surgery. It is still unclear which regimens are the most effective and least toxic. Here, we report a case of unilateral hydronephrosis presenting 1 week after a history of curettage because of a hydatidiform mole. With the combination treatments of chemotherapy and surgery, the patient was cured.

Keywords: Gestational trophoblastic neoplasm, hydronephrosis, chemotherapy, surgery

Introduction

Gestational trophoblastic disease describes a number of gynecological tumors that originate in the trophoblast layer, including hydatidiform mole (complete or partial), invasive moles, choriocarcinoma and placental site trophoblastic tumour. Invasive moles are responsible for most cases of localized gestational trophoblastic neoplasia (GTN). Gestational trophoblastic neoplasm grows rapidly and metastasizes to the lung, liver, and less frequently, the brain. It has been reported rarely that metastases to the kidney and develops a serial of nephritic syndrome. We presently describe a case of unilateral hydronephrosis caused by invasive mole, which was abrupt onset and resistant to initial chemotherapy.

Case description

A 27 years old multipara reported to the hospital with sustained blunt pain on the right side of low back for a week. The patient had a regular history of menstrual cycle, the menarche age of 16, 7/25 day, and no dysmenorrhea. The patient had an abortion 50 days ago, and reported irregular vaginal bleeding after abortion for a month. The patient had the abortion at menopause in 51 days, without pathological examination of the surgical specimens. 14 days after operation, the patient began vagina bleeding, dark red, sometimes none. After 43 days, the patient reported waking up due to sustained blunt pain on the right side of the low, no associated with abdominal distention and associated with nausea and vomiting, no fever, no cough, no diarrhea, no urinary frequency, no urgency, and no urine pain. The next day, she was taken a dilatation and curettage, and the pathologic examination proved hydatidiform mole with trophoblastic cells hyperplasia moderately. The operation ended the vaginal bleeding, but no reliving the pain of right back.

After her visiting our hospital, during physical examination beside anaemia appearance, there was right costovertebral angle tenderness as well as tenderness in the right abdomen. A simple pelvic ultrasound indicated a large mass approximately 8 cm in diameter in the right horn of uterus. In order to investigate the possibility of the source and connection of the mass, Magnetic resonance imaging (MRI) was performed with a contrast agent. Abdominal and pelvic MRI showed high-attenuation lesion inside the myometrium in right side of uterus (**Figure 1A**). Intravenous pyelography (IVP) was

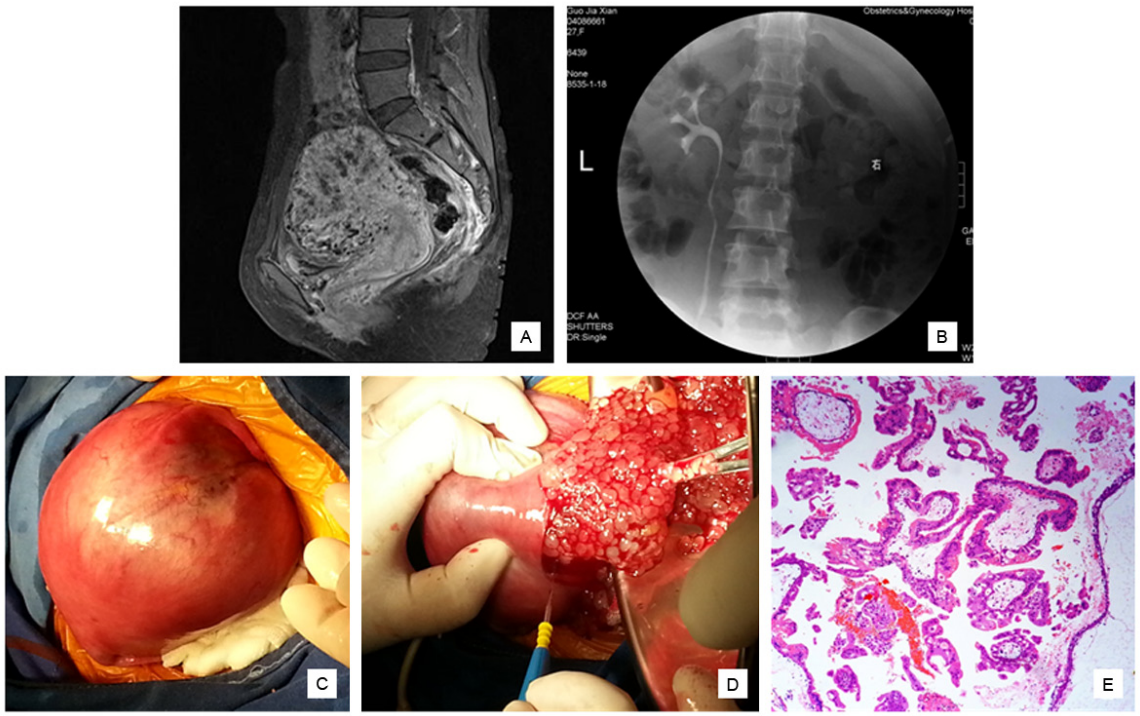

Figure 1. A. Abdominal and pelvic MRI showed high-attenuation lesion inside the myometrium in right side of uterus. B. Intravenous pyelography (IVP) was taken and showed that ureterohydronephrosis of the right renal and ureter. C. General pathology of the case showed the uterine and lesion. uterus size was about 12 * 9 * 8 cm^3, irregular shape, soft; the gray necrotic lesion was involved with right sidewall of uterus, right side of lower ureteral,and right sidewall of bladder. D. Intraoperative incision of the mass in the back sidewall of uterine, the mass was consist of mounts of 0.2 to 3.5 cm in diameter bullate organization, size 8 * 8 * 3 cm^3. E. Immunohistochemical detection showed trophoblastic cells moderately proliferation, (200 ×).

taken and showed that ureterohydronephrosis of the right renal and ureter, probably caused by the obstruction in the lower segment or oppression (**Figure 1B**). Auxiliary examination of blood human chorionic gonadotropin (HCG) was over 200000 mIU/ml; and hemoglobin was 76 g/L in routine blood test.

We considered that it might be a invasive hydatidiform mole associated right kidney and ureter invasion and metastasis and caused ureterohydronephrosis. The patient's flank pain eased after a day in the implantation of right ureteral stent. Ultrasonic examination was performed 5 days after the first visit showed improvement of the hydronephrosis.

At the same time, the patient was experienced 3 courses chemotherapy of EMA-CO project. However, the effect of chemotherapy poor, as follow-up blood HCG was hysteresis, wandering on 200000 mIU/ml high level, and enlargement of mass in the right side of uterus wall showed by pelvic ultrasound. It indicted that the patient was resistant to initial chemotherapy. Salvage surgery was needed to perform. During laparotomy, we found that the uterine size was about 12 * 9 * 8 cm^3, irregular shape, soft; the gray necrotic lesion was involved with right sidewall of uterus, right side of lower ureteral, and right sidewall of bladder. Intraoperative incision of the mass in the back sidewall of uterine, we found the mass was consist of mounts of 0.2 to 3.5 cm in diameter bullate organization, size 8 * 8 * 3 cm^3, which postoperative pathologic examination confirmed invasive mole, infiltrating the uterus deep muscular (nearly 3mm from perimetrium) (**Figure 1C**, **1D**). After hysterectomy and removal of the lesion, the patient has not experienced further symptoms associated with ureterohydronephrosis. Blood HCG test performed 5days later, and it was dropped to 4508 mIu/ml. EMA-CO project was continued for 6 cycles till blood HCG falling to normal level. Follow-up to date, no discomfort, normal blood HCG, the right side of the ureteral stents placed for long-term follow-up.

Discussion

Gestational trophoblastic neoplasia, 60% was secondary to hydatidiform mole, 30% to abortion, and 10% secondary to full term pregnancy or ectopic pregnancy. According to the epidemiological retrospective survey, invasive mole was diagnosed as secondary to hydatidiform mole emptying within half a year; and choriocarcinoma was mostly more than a year. Clinical manifestations of GTN involve full-term vaginal bleeding after childbirth, ectopic pregnancy and (or) corresponding signs and symptoms of metastatic organs [1]. CT, MRI, biopsy, blood HCG test, cystoscope, and laparoscopic examination are typically used as evaluation means and methods. Histological diagnosis is the gold standard, but sometimes we can only based on clinical diagnosis without histological evidence [2].

The present case had a fairly typical pathological process. Although the patient missed pathologic examination for the first time, but the second D & G showed hydatidiform mole, and mounts of bulbs tissues in the myometrium lesions, just like the description by Annie [3], as shown in **Figure 1D** Immunohistochemical detection showed trophoblastic cells moderately proliferation as shown in **Figure 1E**. Therefore, the diagnosis of invasive hydatidiform mole was established.

Rapid Progression was one of the significant characteristics of the case. The patient suffered from ureterohydronephrosis of the right renal and ureter just 43 days after the abortion. However, gestational trophoblastic tumors involving the kidney are rare case reports, its pathophysiological mechanism is still not clear. In 1992, Anala C etc. [4] reported a case of invasive hydatidiform mole caused uterine rupture, metastasis to the adjunct tissue of the right ureter, leading to tissue necrosis, fibrosis, the right ureterohydronephrosis forming, which was similar to the present case. However, the patient described by Anala C eventually died. In 2006, Ozdal B etc. [5] also reported a case of hydronephrosis caused by invasive hydatidiform mole. Though the uterine serosa layer was intact, and had no obvious fracture trace in this case, the pathological examination showed that uterine invasive completeness bullate mole, infiltrating the uterus deep muscularis (most from the serosal surface 3 mm), which indicated tiny traces of uterine rupture resulting in invasion the right ureter organization might be the main pathway of tumor metastasis.

Gestational trophoblastic tumor is typically sensitive to chemotherapy, and the cure rate about 80% to 90%. International Federation of Gynecologists and Obstetricians (FIGO) found prognostic scoring system in which gestational trophoblastic tumors are divided into low-risk and high-risk groups [6]. Patients in low-risk group, generally are carried with single-agent chemotherapy such as Methotrexate (MTX) or actinomycin D treatment, while the high-risk group with multi-drug chemotherapy regimens, and EMA-CO is commonly used chemotherapy regimens [7]. Newlands etc. [8] hold a retrospective study. During 485 cases of low-risk patients with single-agent chemotherapy (methotrexate or dactinomycin), 83 cases developed resistance to methotrexate or dactinomycin and one case was still not cured by EMA-CO program. Currently, chemotherapy resistance GTN are diagnosed as follow: during two consecutive chemotherapy blood HCG level decline insignificant or keep the platform-level or even rise, or imaging studies suggest the lesion does not shrink or even increase or appear new lesions [9]. However, conquering drug resistance of gestational trophoblastic tumor still be a long way to go through. Bianconi etc. [10] hold a retrospective study. 45% of 29 cases of low risk group developed resistance of EMA-CO program, while 75% of 20 cases of high risk group developed resistance of EMA-CO program. 23 cases of the 28 EMA-CO-based chemoresistance cases were sensitive to the further treatment of EMA-EP, or PEB, or VIP, or IC programs. But there were 5 cases were resistant to any chemotherapy programs. Although chemotherapy is the main treatment of GTN, surgical removal of the primary tumor and metastases also plays a very important role for patients with drug-resistant GTN. Fang etc. [11] analyzed clinical data of GTN patients with chemoresistance. The study showed that complete remission rate was 72.4% by combination treatment of surgery and chemotherapy, which was significantly higher than any single treatment. Surgical treatment is effective remedy for chemotherapy as it reduces tumor burden and shortens the course of chemotherapy.

Combination treatments of surgery and chemotherapy were adopted to the case. According to

FIGO prognostic score, the patient was GTN stage I and 6 points, belong to low risk group. However, considering the rapid progression and possibility of metastasis lesion causing the oppression ureter and hydronephrosis, the patient accepted EMA-CO program directly. After 3 courses of EMA-CO program, the blood level of HCG became stagnate, or fluctuated around 200000 mIU/ml high, and ultrasound examination showed the tumor in the right wall of uterine increasing quickly. All that indicated that the case became drug-resistant gestational trophoblastic tumor. Then the patient underwent hysterectomy and lesions cytoreductive surgery. The blood HCG decreased rapidly after surgery, and had been already in the normal range after 3 courses of EMA-CO-based chemotherapy postoperation.

However, combination treatments of chemotherapy and surgery still cannot improve the prognosis of the intractable chemoresistance cases of GTN, of which the mechanism and treatment still need further exploration and practice. During the analysis of clinical data from patients with combination treatments in chemoresistance cases, Geng etc. [12] found that surgical treatment could improve the prognosis in the case with confined pelvic metastases or the lung metastases, but no statistically significant difference in remission rate on the lesions outside the pelvis migration in addition to lung metastasis exception of the lung. In addition, Feng etc. [13] analyzed and concluded the factors affecting the effects of combination treatment might be related to patients' age, pregnancy characteristics, preoperative blood HCG levels and the organs involved, etc. Factors such as over 35 years of age, other pathological type of last pregnancy except hydatidiform mole, lesions outside the genital tract and lung metastasis, high level of blood HCG preoperative, usually indicate poor surgical treatment effect. These patients should be careful to select salvage surgery.

In summary, GTN as a curable tumor, even if resistance, and its general principle of treatment is to cure and not just to prolong survival time. To patients at high risk and chemoresistance, we should emphasize the extent of disease and the previous treatments, to develop individualized treatment programs. In addition, we should also emphasize the important of surgical treatment, take a comprehensive assessment of the patient's condition, apply chemotherapy actively, fight for surgical resection resistant lesions, in order to achieve the ultimate goal of sustained remission. Continuous monitoring blood HCG levels [14] and imaging examination [15], both of which are available methods to determine GTN therapeutic effect and recurrence.

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Disclosure of conflict of interest

None.

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