# Panhysterectomy Resulting From a Residual Cesarean Scar Pregnancy After Dilatation and Curettage：A Case Report

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**Abstract:** With the increasing of caesarean section rates, the incidence of cesarean scar pregnancy also increased. Therefore, the early diagnosis and treatment of cesarean scar pregnancy are important that can prevent the incidence of serious complications. A 26-year-old female patient who had panhysterectomy in our hospital was included. Two months after induced abortion, the patient had abdominal cramps and irregular vaginal bleeding. Gynecological examination showed the uterus was larger than fist, cystic and soft. Auxiliary examination: color Doppler ultrasound showed cervical canal was not homogeneous, and the size of the mass was about 8 cm×8 cm×7 cm; serum level of the human chorionic gonadotrophin was 244.4 IU/L. MRI showed that the mass was about 8.3 cm×8.0 cm, combining with bleeding in the cervix below the corpus uteri and hydatidiform mole was excluded. A week later, we reexamined the ultrasound, tumor below the uterus was 92 mm×82 mm×86 mm, and the serum level of the human chorionic gonadotrophin was 93.23 IU/L. After operation, the patient was diagnosed as cesarean scar pregnancy, and the postoperative serum level of human chorionic gonadotrophin was 2.88 IU/L. Pathological examination showed the decidual cells, denatured villus and trophoblastic cells growing in the myometrium were appeared. Ultrasound plays and important role in the diagnosis and observation of cesarean scar pregnancy. If the results of ultrasound examination were uncertain, MRI is preferred for the further examination. MRI can help to choice the method for the treatment of cesarean scar pregnancy. The cesarean scar pregnancy usually manifests as the existence of shallow gap in the myometrium, and appearance of villus and trophoblastic cells in the gap.
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## Background

Cesarean sear pregnancy (CSP), a very rare type of ectopic pregnancy and complication of cesarean section, is defined as the embedding of the gestational sac, villus or embryo in the scar of a previous cesarean section [1-2]. In 1978, Larsen et al reported the CSP for the first time [3]. Difficult early diagnosis and the high misdiagnosis incidence often cause serious complications such as severe hemorrhaging, hemorrhagic shock and uterine rupture that could necessitate a hysterectomy. So, accurate diagnosis early and appropriate treatment is very important.

We, herein report a case of a 26-year-old female with un-control vaginal bleeding. She was treated by panhysterectomy resulting from a residual CSP after dilatation and curettage. The purpose of reporting this case is to describe this rare disease and the misdiagnosis analyse and to summarize the vary treatment.

## Materials and Methods

A 26-year-old woman, gravida 7, para 1, with a previous history of cesarean section, was admitted to our hospital complaining of irregular vaginal bleeding for 25 days after induced abortion two months ago. Some villus-like tissues which did not undergo pathology examination could be seen during the curettage. Although she had accesses to contraception, irregular vaginal bleeding was still occurred. Physical examination demonstrated stable vital signs while bimanual examination revealed an enlarged uterus with no adnexal masses. The ultrasonography revealed an 8 cm×8 cm×7 cm inhomogeneous large piece in the cervical canal. The serum level of the ß-subunit of human chorionic gonadotrophin (ß-hCG) was 244.4 IU/L. We made an initial diagnosis of residual cervical pregnancy or trophoblastic tumor. After received MTX 80 mg, the amount of vaginal bleeding was decreased, and ß-hCG was decreased to 157.3 IU/L. MRI (Figure 1B and C) demonstrated a mass about 8.3 cm×8.0 cm, combining with bleeding in the cervix below the corpus uteri, and hydatidiform mole cannot be excluded. A week later, we reexamined the ultrasound. It was increased to 92×82×86 $mm^3$ (Figure 1A). ß-hCG was decreased to 93.23IU/L.We considered the main diagnosis should be corpus uteri CSP or trophoblastic tumor. It was very difficult for differential diagnosis. As the mass in the cervix was mainly necrosis and setting blood clot, character was unsure and the volume was becoming bigger in so short time, she subsequently underwent exploratory laparotomy.

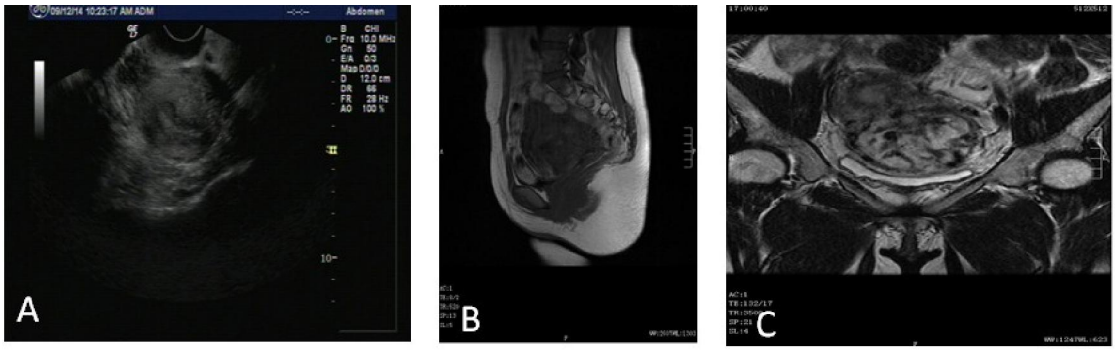


**Figure 1.** A color ultrasonography showed a 92 mm×82mm ×86 mm with irregular shape and unclear periphery
**Figure 1 B and C.** MRI: The size of uterine body increased obviously. A giant mass about 8.3 cm×8.0 cm appears in the cervical area which has uniform mixing with low T1WI signal and hypointensity mixing with low T2WI signal

During operation, we found a 9 cm×8 cm×8 cm cystic neoplasm bulging from the lower segment of uterine body and peritoneal adhesion, which was actually chronic blood clot of the uterine cavity. We suspected that vaginal bleeding was resulted from the residual tissue of CSP. After injecting pituitrin in the uterine body, blocking bilateral uterine artery and ovarian ligament, evacuating the hematoma, suturing uterine muscle and observing for 5-10 minutes, we encountered active bleeding, which was controlled with panhysterectomy finally. Postoperative uterine specimen was about 12 cm x 8 cm x 4 cm. Cervix uteri, cervical canal and uterine intima was smooth. There was a red-brown and tough mass about 10 cm x 6 cm x 5 cm within uterine cavity. The pathological manifestations (Figure 2) were compatible with a CSP. Decidual cells, denatured villus and trophoblastic cells growing in the myometrium were appeared. Serum HCG was decreased to 2.88 IU/L on the sixth day (Figure 3).

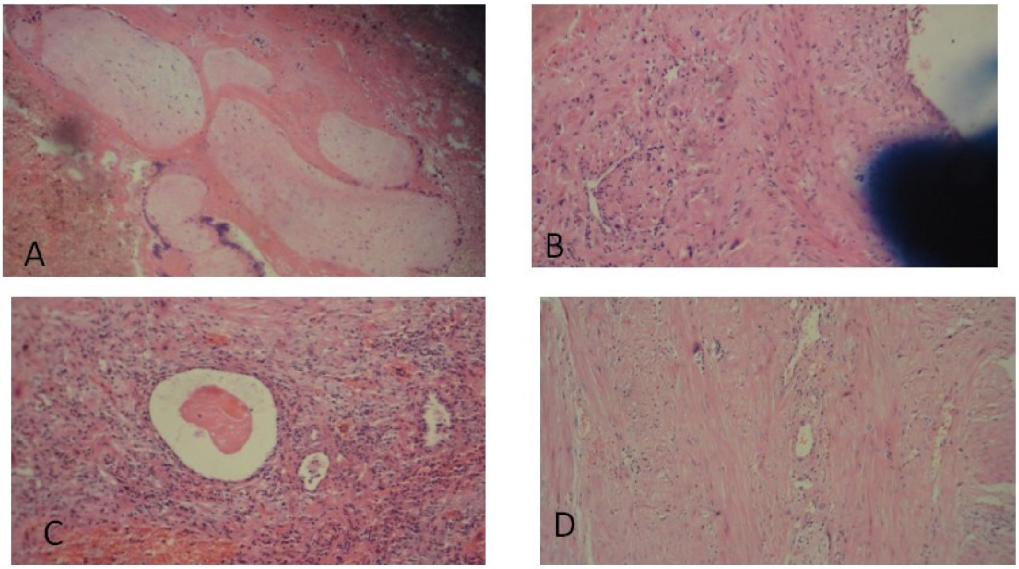


**Figure 2A** It revealed some blood clots within the uterine cavity, where a small amount of denatured villus tissue and lamellar decidual-like cells were detected
**Figure 2B, C and D** Cells with big hyperchromatic nuclear scattered in uterine shallow muscle layer

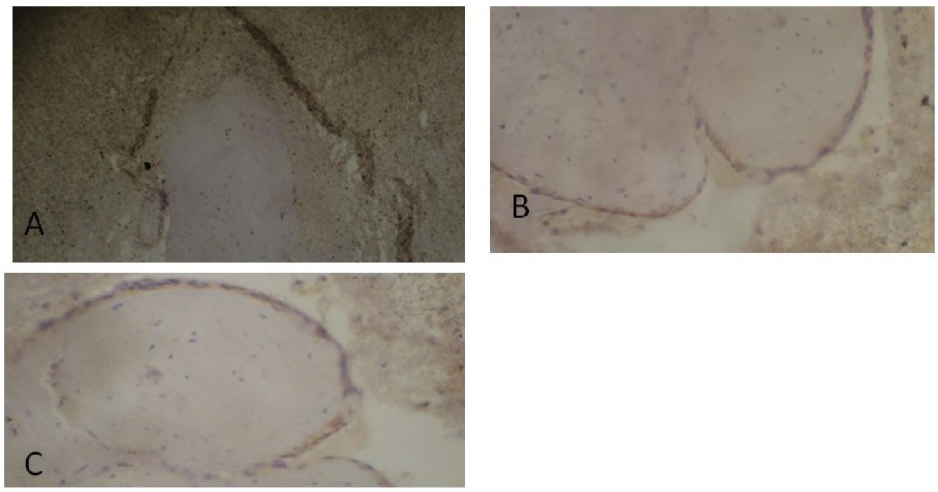


**Figure 3** Tumor correlation factor HCG was detected only in few cells

**Discussion**

Fylstra [4] had ever reviewed the literature from 1996 to 2002 that CSP was only reported 19 patients. But with the increasing of cesearean section rates, the rate of CSP tends to increase. The proportion between CSP and normal pregnancy was increased to 1:2000 [5].

The etiology of CSP is still unclear now. It may correlate with several factors that are described as follows. (1) Local intima defect caused by uterine incision suture malposition, abnormal healing and infection after cesarean section; (2) Endometritis and repeated induced abortion may cause intima injure and decidual dysplasia. Then the fertilized egg implanted into it with bad blood supply, and part of the villi stretch to cesarean section scar or cervical part [6]. In this report, our patient had the medical history of 6 times dilatation and curettage and one time cesarean section. Pathogenesis inducement was obvious. Postoperative pathological hematoxylin-eosin and immunohistochemistry staining revealed relaxed conjunction of smooth muscle cells at the site of uterus scar, incomplete tissue and villlus invading the uterine shallow muscle layer .These findings may be due to poor healing of incision after cesarean section.

The clinical manifestations of CSP patients have no particularity. There are about 36.8% patients have no symptoms. They are often incidentally diagnosed when they go to see a doctor [5]. About 50% patients follow with indolent vaginal bleeding or intraoperative and postoperative bleeding after artificial abortion and drug abortion.

Ultrasound examination is the principal diagnosis means of CSP upon its noninvasive, economic and repeatable character. The sensitivity was about 86.4% [5]. Vaginal ultrasound can clearly observed the relations between gestational sac and cesarean section scar; and the abdominal ultrasound can accurately measure the thickness from gestational sac or mass to uterine serous membrane layer [7]. They are very helpful in the choice of diagnosis and treatment measures. The sonographic criteria for diagnosis [2, 8] are: (1) empty uterus and empty cervical canal; (2) development of the sac in the anterior wall of the isthmic portion; (3) a discontinuity on the anterior wall of the uterus demonstrated on a sagittal plane of the uterus running through the amniotic sac; (4) absent or diminished healthy myometrium between the bladder and the sac; (5) high velocity with low impedance peri-trophoblastic vascular flow clearly surrounding the sac is proposed in Doppler examination.

MRI, with the character of multiple planar imaging and high resolution, is also an effective and noninvasive testing. Through the multi-dimensional imaging we can clearly distinguish endometrial cavity, the relationship between cesarean section scar and gestational sac, the specific performance of ectopic pregnancy and the internal structure of blood clot [9]. But misdiagnosed CSP is often lack of the typical ultrasonic sign after uterine curettage. Hysteroscopy is the feasible and valid examination for the suspicious CSP through looking directly at the neck of uterus and uterine cavity. But it is not a regular method for the excessive bleeding and property unknown traumatic.

Our patient, with the symptom of irregular vaginal bleeding after induced abortion within 2 months, was considered residual cervical pregnancy firstly. It is questioned subsequently because of her high level of HCG and property unknown pleural nodules beside right apex murmur from preoperative pulmonary CT. As hydatidiform mole tissues invading deep muscle layer cannot be always obtained from dilatation and curettage [10], even though the hydatidiform mote-like tissues or nourish cells have

not been acquired, we can not exclude invasive mole and choriocarcinoma. Because of their close relationship with vascular, we can often find a wide range of tumor vasculars infiltration into the muscle and low impedance blood flow spectrum from ultrasound examination [11]. In addition, ß-hCG often increases significantly and it is easy for early metastasis. MRI can be helpful for the differential diagnosis. Ectopic pregnancy usually has envelope and clear boundary. But when the envelope is incomplete and rich in blood supply and it dose not display a blastula, it is very easy to be misdiagnosed as gestational trophoblastic disease (GTD). A large number of blood clots in Uterine Cervix were actually caused by the continuous bleeding of the residual tissue of CSP. The blastula has been destroyed, so MRI is still difficult for the diagnosis. But a week later of methotrexate (MTX) chemotherapy, vaginal bleeding and ß-hCG had no obvious improvement and volume of the mass in cervical region increased gradually. She underwent laparotomy exploration for preventing hemorrhea, rupture of uterus and further clarifies the diagnosis.

Lacking of enough understanding and strong evidence-based medical basis, there is no unity and definite treatment at present. A personalized plan should be made mainly depends on such as the order of severity of the symptoms, gestational weeks, myometrial defect, ß-hCG level, and so on. Generally speaking, the treatment of CSP includes drug, surgical and the combination. Blind dilatation and curettage and expectant management is not recommended. With the application of minimally invasive technique, CSP patients can also acquire the best treatment [12]. The drug used at present is mainly MTX. It includes systemic medication, the local injection, and sometimes combination [13]. But the medical treatment requires a prolonged follow-up (the hCG level takes up to 4 months to return to normal) [14]. The surgical treatment includes radical and conservative surgery. Radical surgery is often taken when meeting un-control bleeding or rupture of uterus. Conservative surgery includes: uteroscope/laparoscopic after uterine artery embolization (UAE) or dilatation and curettage under ultrasonic monitoring or laparoscopic resection, and uterine neoplasty etc. Dilatation and curettage after uterine artery embolism or methotrexate are better treatments of choice to terminate CSP [15]. Since the patient was stable and did not want to have a surgical procedure and there was no UAE facilities, Anis Fadhlaoui *et al* [16] reported a successful conservative treatment of a CSP with systemically administered MTX and subsequent dilatation and curettage. And the patient was followed-up until a total negativation of ß-hCG levels, at day 34. So, dilatation and curettage under ultrasonic monitoring can be adopted when the patient whose condition is stable and ultrasonic displays a small gestational sac planting shallowly and no significant blood flow signal and agreed with the surgery. But UAE and open surgery is suggested to be prepared in advance. It maybe needs laparotomy or hysterectomy when meeting some urgent condition.

Considering the possible etiology of CSP, we should decrease cesarean section rate by strictly grasping the indications of cesarean section firstly. Secondly, patients should make contraceptive measures and reduce the times of dilatation and curettage. In addition, studies [17] have found that the expression imbalance of MMPs-9/TIMP1 caused by all kinds of factors may be the biochemical reasons of scar poor healing inducing CSP. We can try to use TIMP1 to inhibit fibroblasts, collagen fiber cells and proliferation and migration of the new blood vessels so that reducing cesarean section scar poor healing and providing a new approach for clinical treatment. But there are many problems remains to be further study such as the fine regulation and control mechanism of MMPs/TIMPs, whether decreased TIMP1 is the binding with MMPs-9 decreasingly or absolute shortage, interaction among the various types of MMPs expressed by local uterus.

**Conclusions**

CSP was increased gradually. CSP should be considered when some things appeared as follows: (1) pregnancy after cesarean section；(2) vaginal irregular bleeding after menelipsis; (3) intraoperative and postoperative massive hemorrhage after cesarean section; (4) gynecologial examination reveals normal cervical form and length, but isthmus of uterus expands. Individual treatment is the best therapeutic option. We should pay more attention to residual tissue of CSP after dilatation and curettage.

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