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CESAREAN SCAR PREGNANCY AND COMBINED UTERUS-PRESERVING MANAGEMENT: A CASE REPORT

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Cesarean scar pregnancy (CSP) is a rare form of ectopic pregnancy associated with potentially serious complications. In this condition, the gestational sac implants directly within the myometrium and fibrous tissue at the site of a previous cesarean incision. Similar implantation may occur in uterine scars following metroplasty or other transmural uterine procedures. Over recent decades, the reported incidence of this condition has increased worldwide alongside the increasing proportion of cesarean deliveries, the wider use of assisted reproductive technologies (ART), and improvements in the quality and availability of high-resolution transvaginal ultrasonography [1-3, 6].

The main risks associated with CSP include massive, potentially life-threatening uterine hemorrhage, perforation of the uterine wall in the lower segment, uterine rupture with intraperitoneal bleeding, and hemorrhagic shock. Therefore, early confirmation of the diagnosis and selection of an appropriate uterus-preserving

treatment strategy are important for protecting the woman's life and reproductive health [1, 4, 5].

The main etiological factor in the development of CSP is a structural myometrial defect in the anterior wall of the lower uterine segment. Particular significance is attributed to a scar niche (isthmocele) or a deficient scar, characterized by marked thinning of the muscular layer and its replacement by fibrous tissue containing microscopic channels. The main risk factors include a previous cesarean section, particularly repeated procedures and a short interval between surgery and subsequent conception of less than 18-24 months; previous uterine surgery, including myomectomy involving entry into the uterine cavity, metroplasty, hysteroscopic resection, and uterine perforation during instrumental procedures; repeated intrauterine interventions, including curettage, induced abortion, vacuum aspiration, manual exploration of the uterine cavity after delivery, and prolonged use of an intrauterine device; assisted reproductive technologies, including in vitro fertilization (IVF) and embryo transfer, which may facilitate retrograde migration of the embryo toward the isthmic scar; and chronic pelvic inflammatory conditions, particularly chronic endometritis, which may affect endometrial receptivity and tissue architecture.

The aim of this report is to describe a clinical case of early cesarean scar pregnancy and its management using a combined uterus-preserving approach.

Case Report

The study was conducted as a clinical case report. A 30-year-old woman was admitted electively to the gynecology department following referral from an antenatal clinic with the diagnosis of "Ongoing ectopic pregnancy at 5 weeks of gestation. Cesarean scar pregnancy." On admission, she complained of mild vaginal spotting over the preceding 3 days and intermittent, mild aching pain in the lower abdomen, predominantly in the suprapubic region. Her family history was unremarkable, and she had no significant general medical conditions. Menarche occurred at 12 years of age. Her menstrual cycles were regular, occurring every 28 days and lasting 5 days, with moderate, painless bleeding. She had been sexually active since the age of 19 years. Her first pregnancy had ended in cesarean delivery 4 years earlier because of cephalopelvic disproportion. Her second pregnancy had been terminated by vacuum aspiration at 7-8 weeks of gestation without postoperative complications. Her gynecological history included chronic endometritis, for which she had received repeated courses of anti-inflammatory and antibiotic treatment.

On admission, the patient's general condition was satisfactory. She was alert. Her skin and visible mucous membranes were pale pink, with normal moisture. There were no signs of hemodynamic compromise: her pulse was regular at 74 beats/min, with adequate volume, and her blood pressure was 115/75 mmHg. The abdomen was soft, nondistended, symmetrical, and moved with respiration. Superficial palpation revealed mild suprapubic tenderness. There were no signs of peritoneal irritation, and rebound tenderness was absent in all abdominal regions. Urination was normal and painless. Bowel movements were regular, with formed stools.

Speculum examination showed a moderately bluish discoloration of the vaginal and cervical mucosa, consistent with pregnancy. The cervix was conical, with no

visible epithelial defects or erosions. The external cervical os was pinpoint and closed. A small amount of dark blood was observed coming from the cervical canal. On bimanual examination, the cervix was firm and directed anteriorly, with no cervical motion tenderness. The uterus was enlarged to approximately the size expected at 5 weeks of gestation, had a firm, elastic consistency, and showed slightly restricted mobility due to adhesions. Both adnexal regions were unremarkable and nontender, with no palpable masses. The vaginal fornices were deep and nontender.

A comprehensive assessment was performed to confirm the diagnosis and evaluate trophoblastic activity. Baseline laboratory findings, including the complete blood count, coagulation profile, and biochemical tests, were within normal limits: hemoglobin was 124 g/L, the erythrocyte count was 4.1×10^{12}/L, and the platelet count was 235×10^{9}/L. The serum concentration of the β-subunit of human chorionic gonadotropin (β-hCG) was 4,562.0 mIU/mL. Pelvic ultrasonography was performed using a transvaginal probe with a filled urinary bladder (BL). The following sonographic findings were identified:

1. The uterine cavity (UT) was empty. The endometrium was homogeneous and 10 mm thick, with no gestational sac within the cavity.
2. The cervical canal was empty, the internal os was closed, and no gestational sac was visualized within the canal.
3. A clearly defined, low-lying gestational sac measuring 14 mm was visualized in the anterior wall of the lower uterine segment, directly at the site of the previous cesarean scar. The pregnancy was assessed as being at approximately 5 weeks of gestation.
4. The myometrium between the gestational sac and the posterior bladder wall was markedly thinned, measuring 2.1 mm.
5. Color Doppler imaging demonstrated prominent circumferential peritrophoblastic blood flow with a low resistance index.

Based on the clinical, laboratory, and sonographic findings, the final diagnosis was established as “Ongoing ectopic pregnancy at 5 weeks of gestation implanted in the cesarean scar.”

Given the risk of uterine perforation and massive hemorrhage during direct instrumental evacuation, the multidisciplinary team decided to undertake combined uterus-preserving treatment. At the first stage, systemic treatment with methotrexate was administered to arrest pregnancy progression and reduce chorionic vascularity. Methotrexate was given intramuscularly in two doses of 50 mg, 24 hours apart. During treatment, the patient reported no adverse effects, and her condition remained stable. At the second stage, after regression of the ectopic pregnancy had been observed, as indicated by a 15% decline in β-hCG from the baseline concentration and disappearance of peritrophoblastic blood flow on color Doppler imaging, uterine vacuum aspiration was performed under continuous ultrasound guidance. The procedure was uncomplicated, with minimal blood loss of approximately 20 mL. Decidual tissue and chorionic villi were identified in the aspirate and subsequently confirmed by histopathological examination.

Postoperatively, the patient received prophylactic anti-inflammatory and antibiotic treatment. Follow-up ultrasonography before discharge confirmed complete evacuation of the gestational tissue: the walls of the uterine cavity were apposed, the scar line was intact, and no gestational sac was visualized. The β-hCG concentration decreased to minimal levels. The patient was discharged home in satisfactory condition with detailed recommendations.

This clinical case illustrates successful use of a combined medical and surgical approach to the management of CSP in early pregnancy. In this patient, systemic methotrexate administration followed by ultrasound-guided vacuum aspiration was associated with minimal blood loss and preservation of the uterus, avoiding the need for hysterectomy.

Conclusions

Based on the presented clinical case, the following practical recommendations were formulated:

1. Early ultrasound diagnosis. Women with a history of cesarean section or transmural uterine surgery should undergo transvaginal ultrasonography in early pregnancy, preferably by 6-7 weeks of gestation, to establish the location of the gestational sac.

2. Awareness of scar ectopic pregnancy. In patients at risk who present with a low-lying gestational sac or symptoms suggestive of miscarriage, CSP should be excluded before any blind intrauterine procedure, such as curettage or uterine sounding.

3. A uterus-preserving approach. In hemodynamically stable patients without active heavy bleeding, combined treatment options, such as methotrexate followed by ultrasound-guided vacuum aspiration or uterine artery embolization combined with scar excision, may be considered with the aim of preserving the uterus and reproductive potential. In the presented case, combined medical and surgical treatment achieved evacuation of the pregnancy with minimal blood loss and preservation of the uterus.

4. Emergency surgical treatment. Uterine rupture, hemodynamic instability, or massive hemorrhage requires urgent surgical intervention. Total or subtotal hysterectomy may be necessary when the severity of the condition precludes uterus-preserving treatment.

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