Successful Management of a Scary Case of Cesarean Scar Pregnancy with Combined Treatment using Methotrexate, Uterine Artery Embolization and Suction Evacuation

ABSTRACT

Cesarean scar pregnancy (CSP) is the rarest type of ectopic pregnancy implanted in the myometrium at the site of the previous cesarean section scar. It may lead catastrophic complications like uterine rupture and uncontrollable hemorrhage. Early diagnosis can offer treatment options of avoiding uterine rupture and hemorrhage, thus, preserving the uterus and future fertility.

The conservative treatment can be by local and/or systemic administration of methotrexate, dilatation and curettage, excision of trophoblastic tissues (laparoscopy/laparotomy), bilateral internal artery ligation with trophoblastic evacuation and uterine artery embolization combined with curettage and/or methotrexate. We did successful treatment of a viable CSP by systemic injections of methotrexate followed by selective uterine artery embolization in combination with dilatation and curettage.

Keywords: Cesarean hysterectomy, Cesarean scar pregnancy, Maternal morbidity, Placenta accreta, Uterine artery embolization, Uterine rupture.

How to cite this article: Mehta P, Vishwanath U, Joseph S, Anitha M. Successful Management of a Scary Case of Cesarean Scar Pregnancy with Combined Treatment using Methotrexate, Uterine Artery Embolization and Suction Evacuation. J South Asian Feder Obst Gynae 2015;7(3):143-147.

CASE REPORT

A 36-year-old female gravida 3 para 1 abortion 1 at 11 weeks of gestation diagnosed with cesarean scar pregnancy (CSP) was referred to tertiary care institute for further management. She had a previous cesarean section with serosal bladder injury, which was repaired in layers in 2009. She had open myomectomy in 2006 for fundal intramural fibroid. She had spontaneous miscarriage in 2005 for which check curettage had been done. She was a known diabetic on insulin for 5 years.

Physical examination demonstrated stable vital signs while bimanual examination revealed an enlarged uterus with no adnexal masses or tenderness.

Transvaginal ultrasound revealed well-defined 40 mm gestational sac with a fetus of crown rump length of 8 mm and fetal cardiac activity seen in the lower anterior wall of uterus close to the previous cesarean scar (Figs 1 and 2). These findings were compatible with a CSP. A magnetic resonance imaging revealed a well-defined gestational sac 4 × 3.2 cm anterolateral to cervical canal and uterine cavity on the right side (Figs 3 and 4). Gestational sac was devoid of myometrial covering on its anterolateral aspect. The patient was counseled about the management options and opted for medical management by injection methotrexate in view of previous surgeries.

On admission, it was planned to give her multiple doses of methotrexate alternating with folinic acid. The serum level of beta subunit of human chorionic gonadotropin (hCG) was 52966 mIU/l on admission and decreased to 16637 mIU/l after three alternate day doses of methotrexate and folinic acid each.

In view of persistent fetal cardiac activity and elevated beta-hCG levels in spite of multiple dose methotrexate it was decided to proceed with surgical management. Selective uterine artery embolization (UAE) was done in cath lab (Fig. 5) by the team of intervention radiologists (Figs 6 to 9).

Post UAE fetus was identified on ultrasound in anterior myometrium well above the internal os, uterine cavity was empty. Suction evacuation was done under ultrasound guidance (Figs 10 and 11) and products of conception (Fig. 12) were removed anterior myometrium was found to be intact at the end of the procedure.

The patient was discharged on 8th postoperative day with beta-hCG level of 56 mIU/l.

She was followed up regularly and beta-hCG levels were <2 mIU/l after 4 weeks. Transvaginal scan done after 4 weeks was normal with no evidence of retained products.
Fig. 1: Transvaginal scan showing gestational sac and fetus (thin arrow) in LSCS scar (arrowhead) and bladder (thick arrow) with only 1 to 3 mm of myometrium interposing between anterior uterine wall and bladder

Fig. 2: Fetus in anterior wall of isthmus with defects in the myometrium (arrow)

Fig. 3: T1- and T2-weighted MRI sequences show the gestational sac embedded in the anterior lower uterus (arrow)

Fig. 4: Magnetic resonance showing well-defined gestational sac 4 × 3.2 cm anterolateral to cervical canal and uterine cavity on the right side (arrow)

Fig. 5: Neurocath lab at Sri Ramachandra Medical College, Chennai

Fig. 6: Right uterine artery pre-embolization
DISCUSSION

Cesarean scar pregnancy is one of the rarest forms of ectopic pregnancy. Little is known about its incidence and natural history. With increasing incidence of cesarean section worldwide, more and more cases are diagnosed and reported.

The rise in cesarean sections has brought to light complications like placenta accreta CSP. This condition is defined as a gestation completely surrounded by myometrium and fibrous tissues of the cesarean section scar and separated from the endometrial cavity and endocervical canal.
The first case was reported in 1978 as a postabortal hemorrhage due to what the authors called as uterine sacculus. The natural history of this condition remains unclear, it may result in a pregnancy that loses vascularity and miscarry or get vascular connections and grow leading to uterine disruption and life-threatening hemorrhage.

In CSP, the gestation sac is completely surrounded by myometrium and the fibrous tissue of the scar, quite separate from the endometrial cavity. The most probable mechanism that can explain scar implantation is that there is invasion of the myometrium through a microtubular tract between the cesarean section scar and the endometrial canal. Such a tract can also develop from the trauma of other uterine surgery, e.g. curettage, myomectomy, metroplasty, hysteroscopy and even manual removal of placenta. Damage to the decidua basalis during uterine surgery can persist in the endometrium in the form of tiny dehiscent tracts or minute wedge defects. Early diagnosis is vital to avoid serious complications.

A light, painless vaginal bleeding is usually the early presenting symptom in 39%. Approximately 16% of women complain of accompanying mild to moderate pain and 9% complain of only abdominal pain. It can be an incidental finding in an asymptomatic woman (37%). Severe acute pain with profuse bleeding implies an impending rupture.

The sonographic criteria for diagnosis are as follows:
- Empty uterus and empty cervical canal.
- Development of sac in anterior wall of isthmic portion.
- Absent or diminished healthy myometrium between bladder and the sac.
- A discontinuity on the anterior wall of the uterus demonstrated on a sagittal plane of the uterus running through the amniotic sac.
- High velocity low impedance peritrophoblastic vascular flow on Doppler.
- In addition, there should be no adnexal mass or free fluid in the pouch of Douglas, unless the CSP has ruptured.

Magnetic resonance imaging (MRI) has been used as an adjunct to ultrasound scan. Both sagittal and transverse T1- and T2-weighted MRI sequences can clearly show the gestational sac embedded in the anterior lower uterus.

Magnetic resonance imaging is superior in the assessment of the pelvic structures because of improved differentiation of soft tissue, spatial resolution and the possibility of multiplanar imaging.

Doppler

Additional diagnostic information can be obtained by color flow Doppler to show distinct circular peritrophoblastic perfusion surrounding the gestation sac that can help delineate the CSP sac with location of the placenta in relation to the scar and proximity to the bladder.

Transvaginal three-dimensional (3-D) power Doppler ultrasound has been used to enhance the diagnostic accuracy of CSP. Combination of the multiplanar views and surface-rendered images helps identify subtle anatomical details of a well-developed trophoblastic shell around the gestational sac. The thin myometrium between the gestational sac and the bladder wall can be recognized. Furthermore, peritrophoblastic flow surrounding the CSP may be illustrated by 3-D power Doppler. The gestational sac is neither distorted nor collapsed, which are common observations on 3-D ultrasound imaging of a miscarriage. Ballooning of the endocervical canal, usually associated with a cervical pregnancy, is also absent.

Because of the rarity of the condition, majority of CSPs are case reports or small case series reported in the literature, with no consensus on the preferred mode of treatment.

Management plan should be individually tailored. Available data suggest that termination of pregnancy is the treatment of choice in the first trimester soon after the diagnosis.

Gestational age and viability, evidence of myometrial deficiency and clinical symptoms at presentation have been considered by various authors to determine the management.

There are no reliable scientific data on the risk of recurrence of the condition in future pregnancy, role of the interval between the previous cesarean delivery and occurrence of CSP, and effect of cesarean wound closure technique on CSP.

Serial transvaginal color flow Doppler is useful for monitoring the response to medical treatment and appears to correlate well with \( \beta \)-hCG levels. Close follow-up with serial \( \beta \)-hCG monitoring is, therefore, essential. Daily monitoring during the hospital stay and weekly thereafter until a level of <5 mIU/ml has been recommended.

The scanty venous flow within the fibrous scar tissue makes the resorption of the residual trophoblastic tissue difficult. A second mechanism might be related to the proliferation of collagen fibers or fibrous tissue in the isthmic portion of the uterus in response to myometrial injury induced by placental villi invasion.

Blind uterine curettage as a primary treatment for CSP is, therefore, insufficient and should be discouraged.

Uterine artery embolization performed prior to D&C is a feasible method and it may reduce hemorrhage complications and risk of hysterectomy in patients with CSP.
Uterine artery embolization can be used successfully to avoid life-threatening hemorrhage in CSP. Absorbable properties of gelatin sponge particles reduce the risk of adverse effect on fertility. Follow-up should include ultrasound scan evidence of resorption of any residual pregnancy tissue.

CONCLUSION

Cesarean scar pregnancy can be safely treated by systemic administration of methotrexate, selective UAE and subsequent dilatation and curettage. There are very few case reports available for the optimum treatment. The gestational age, β-hCG levels, presence of fetal cardiac activity, need for future fertility, resources available dictate the management.

Every woman with a previous cesarean section presenting to the early pregnancy unit should have a routine check of the cesarean section scar appearance.

The combination of medical therapy and minimal intervention techniques can preserve fertility.

FUTURE RESEARCH

Research is needed to explore any correlation or association between cesarean section surgical technique and CSP and also impact of time interval between previous cesarean section and CSP.

REFERENCES