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Case Series

Evaluation of outcome of medical and surgical management in cesarean scar pregnancy in a tertiary health care institute of Northen India

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ABSTRACT

A rare form of ectopic pregnancy known as caesarean scar pregnancy (CSP) is associated with high rates of morbidity and mortality. When a growing conceptus is pathologically implanted into the site of a prior caesarean section, CSP ensues. Transvaginal ultrasonography (TVS) and transabdominal ultrasound are the main diagnostic methods for CSP. It was a series of clinical cases diagnosed over a period of 1 year. The clinical characteristics included in the study were maternal age, gravidity, number of prior caesarean sections, number of abortions, interval between CSP and caesarean sections, gestational age, mean size of the residual gestational tissue before intervention, serum β-hCG levels before and after intervention. All cases were detected timely in the first trimester itself on USG evaluation. Amongst all cases, ß hCG levels at the time of admission varied between 266 mIU/ml-56,265 mIU/ml. 30% patients were treated with medical management only with inj. methotrexate and inj. folinic acid out of which 60% of cases had failed medical management and had to undergo further surgical procedure. 30% of cases with failed medical management were planned for hysteroscopic curettage, 20% underwent dilatation and curettage (D and C) while only 1 patient who was diagnosed with early placenta accreta required hysterectomy. CSP is a rare yet life threatening obstetric condition. Medical management should be used as the first line of treatment in patients with hemodynamic stability. Laparotomy and embolization are invasive procedures that should only be used in patients with failed medical management or patients with severe bleeding.

Keywords Cesarean scar, Ectopic pregnancy, Methotrexate, ß hCG

INTRODUCTION

A rare form of ectopic pregnancy known as CSP is associated with high rates of morbidity and mortality. CSP occurs when a developing conceptus is pathologically implanted into the location of a previous C-section.

Cesarean scar pregnancies, which occur 1 in 1,800 to 1 in 2,200 pregnancies, account for 6% of all ectopic pregnancies in women who have had a previous caesarean.[1]

The pathophysiology of CSP is not fully known. A plausible hypothesis is that the trauma resulting from the cesarean section creates microscopic pathways that the implanting blastocyst enters the damaged myometrium.[2] The two main diagnostic methods for diagnosing CSP are TVS and transabdominal ultrasonography (TAS).

Magnetic resonance imaging (MRI) may be utilized when there is uncertainty about the diagnosis. Scar ectopic pregnancies are classified into two categories. Type 1 begins in the myometrium and grows toward the uterine

cavity, while type 2 progresses exophytically into the uterine serosa. Because type 2 pregnancies may result in sudden uterine rupture, bleeding, and maternal mortality, so they have an ominous prognosis.

The following ultrasound criteria are applied for diagnosing cesarean scar ectopic pregnancy with a: Empty uterus with clearly visible endometrium, empty cervical canal, gestational sac implantation in the lower anterior uterine segment at the site of cesarean section incision scar and a thin or nonexistent myometrium between the bladder and the gestational sac. (Most cases have a myometrium thickness of less than five millimeters).

An additional risk factor, such as prior D and C, increases the likelihood of difficulties as the number of prior cesarean sections increases. Due to the possibility of potentially fatal complications, termination of pregnancy is usually advised.[3] It may result in life-threatening problems such as severe internal bleeding (hemorrhage), preterm delivery, uterine rupture, placenta accreta, and percreta, which may require a hysterectomy.

Many modalities have been discussed, either separately or in combination with other methods of management. Hysterectomy, D and C, hysteroscopic resection, open, laparoscopic, or transvaginal surgical excision, intra-gestational sac methotrexate treatment, and long-term systemic methotrexate injection are among the surgical possibilities. Small, non-viable cesarean scar pregnancy may be benefitted from expectant management.[4] There is no consensus on the best course of treatment, though.

The main objectives of study were to study various medical management and surgical interventions of cesarean scar pregnancy along with trends of β-hCG levels.

The primary aims of the research were to examine the different approaches to medical therapy and surgical procedures for cesarean scar pregnancy, as well as the trends of β-hCG levels.

CASE SERIES

Case 1

A 23-year-old female, gravida 4, para 2, living 2, abortion 1 with 10.5 weeks of gestation with history of previous 2 full term caesarean section presented with bleeding per vagina and pain in abdomen for 2 days. She had positive urine pregnancy test. Ultrasound revealed a heterogenous lesion 7×6×5 mm lesion in lower uterine segment bulging at previous scar site with absent cardiac activity. Serum quantitative beta human chorionic gonadotropin Beta-hCG value was 21000 mIU/L. These ultrasound findings raised the suspicion of cesarean scar ectopic pregnancy. The patient received 3 doses of systemic methotrexate. Post therapy, beta-hCG levels were found in rising trend hence patient underwent D and C. Beta-hCG was reduced to 0.1 mIU/l on day 21 and its value normalized over a span of 42 and became undetectable on subsequent follow-up. Patient was discharged healthy.

Case 2

A 25-year-old woman, gravida 2, para 1, living 1 presented at 8.1 weeks of gestation, dated according to her last menstrual cycle, with vaginal bleeding along with history of MTP kit intake. The patient had regular menses and a history of caesarean delivery 1.5 years prior with no other significant medical history, or history of sexually transmitted infections. The patient's transvaginal ultrasound was notable for a single gestational sac in lower endometrial cavity embedded in less than one half thickness of myometrium near scar site with mean sac diameter 25.9 mm with absent fetal cardiac activity. The patient's serum quantitative beta human chorionic gonadotropin (β-hCG) was 19989 UI/l. At presentation, her vitals were within normal limits and stable.

These ultrasound findings raised the suspicion of caesarean scar ectopic pregnancy. Following appropriate counselling, the patient confirmed her desire for future fertility and, understanding the risks and benefits, she agreed to medical treatment. An initial dose of intramuscular methotrexate at one milligram per kilogram (mg/kg) was administered. At one week follow-up, she received a five multi-dose regimen over a period of five days.

Five doses of folinic acid were added to the treatment. After a systemic treatment of multiple doses for one week, the patient was asymptomatic and the beta hCG serum levels were found decreasing. The patient was monitored weekly until normalization of beta hCG occurred, i.e. over 68 days. Patient was transfused one unit of PRBC and was discharged in healthy condition.

Case 3

A 37-year-old female, gravida 4, para 2, living 2, abortion 1 with previous 2 full term lower segment caesarean section (LSCS) presented at 11.6 weeks of gestation to emergency with bleeding per vagina and pain in abdomen for 2 days. The urine pregnancy test was positive. She gave history of D and C 5 years back. Ultrasound revealed a heterogenous area of altered echogenicity with vascularity within G- sac measuring 3.6×2.3 mm in lower uterine segment at previous scar site with fetal cardiac activity present. Beta-hCG value was 1035 mIU/ml.

Patient received single dose of tablet Mifepristone 200mg per oral which was followed by 5 doses of injection methotrexate 1 mg/kg body weight intramuscularly alternating with 5 doses of injection leucovorin 0.1 mg/kg. Beta hCG serum level after completion of chemotherapy were found to be 302 on day 15 and became undetectable after day 28 on subsequent follow-up. Patient was discharged in healthy condition.

Case 4

A 28-year-old female, gravida 3, para 2, living 2 with history of previous 2 full term LSCS at 8 weeks of gestation presented to emergency with bleeding per vaginum since 2 days with positive urine pregnancy test. On vaginal examination, uterus was approximately 8 weeks size. Beta-hCG value was 266 mIU/ml on admission. Trans-vaginal ultrasound showed a well-defined anechoic area 2.4×1.4×2 mm in lower uterine segment within myometrium, reaching upto serosa with mean sac diameter 20mm with absent fetal cardiac activity. Cesarean scar ectopic pregnancy was suspected based on these ultrasonography results. After receiving the proper counseling, the patient expressed her desire to become pregnant in the future and consented to expectant management after realizing the advantages and disadvantages.

During subsequent follow-up, beta-hCG values with found to be in rising trend. Decision for medical management was taken. 5 doses of inj. methotrexate 1mg/kg intramuscular was given as per body weight. Beta-hCG values after initiation of chemotherapy were <2 mIU/ml on 42 day, and negative after 66 days with normal pelvis sonography. Patient also received one-unit PRBC transfusion and was discharged in good health.

Case 5

A 29-year-old female, gravida 5, para 3, living 3, abortion 1 with gestational age of 7 weeks presented with bleeding per vagina and pain in abdomen for 5 days. The urine pregnancy test was positive. She gave history of 3 LSCS with last child birth 6 months back. Abdominal ultrasound revealed a heterogenous hypoechoic area 3.6×2.5 mm with single irregular g sac seen in scar of previous surgery with mean sac diameter 19 mm. No cardiac activity was seen. Beta-hCG value was 24529 mIU/ml. Patient underwent dilation and curettage due to profuse bleeding. Due to intractable bleeding, plan for hystroscopic currettage and insertion of intra uterine balloon tamponade was done to achieve hemostasis. Beta-hCG levels dropped down after 48 hours of procedure and became undetectable by day 24 on subsequent follow-up.

Case 6

A 28-year-old female, gravida 6, para 1, living 1, abortion 4 with history of previous 1 LSCS and 4 dilation and curettage, presented to OPD at 6.4 weeks of gestation with positive urine pregnancy test. At presentation, her vitals were within normal limits and stable. Ultrasound was advised to confirm intrauterine gestation which showed a lower uterine g-sac with mean sac diameter 12.6 mm with mild peripheral vascularity? scar ectopic with no fetal cardiac activity. Beta-hCG value was 56265 mIU/ml.

These ultrasonography results raised the possibility of an ectopic pregnancy with a cesarean scar. The patient acknowledged the benefits and drawbacks of medical management and indicated her wish to maintain her fertility. 4 doses of inj. methotrexate 1mg/kg intramuscular was given as per body weight. Beta-hCG values after chemotherapy were in decreasing trend and became negative after 46 days on subsequent follow up.

Case 7

A 38-year-old female, gravida 6, para 3, living 3, abortion 2 with 7 weeks of gestation with history of previous 3 full term caesarean section and 2 dilation and curettage following spontaneous abortions presented with bleeding per vagina and pain in abdomen for 3 days. Ultrasound revealed a single gestational sac corresponding to 7 weeks seen in lower uterine segment adherent to the anterior myometrium at the previous scar site highly s/o scar ectopic. Beta- hCG value was 20563 mIU/l.

Patient underwent medical management with 5 doses of systemic methotrexate. Repeat pelvic sonography after medical therapy showed retained products of conception for which hystroscopic curettage was planned. Intraoperatively due to profuse bleeding, decision for insertion of intrauterine balloon tamponade was done to achieve hemostasis. Beta-hCG levels reduced to 3000 mIU/L after 48 hours of surgery and became undetectable within 3 weeks on subsequent follow-up.

Case 8

A 40-year-old gravida 4, para 2, living 2, abortion 1 with 11.2 weeks of gestation presented to emergency with vaginal bleeding and abdominal pain for 5 days. The patient's surgical history was significant for two previous cesarean delivery, with last child birth 1.5 years prior. She was referred for ultrasound examination which showed a heterogenous mass 3.4×2.7 mm in lower uterine segment corresponding to 11 weeks diffusely thickened placenta 6.3mm in mass thickness? intraplacental hematoma with absent fetal cardiac activity. The patient's serum quantitative beta human chorionic gonadotropin (β-hCG) was 1172 UI/l.

Given the diagnosis of CSP, the patient was admitted; as the patient was stable, medical management was started. 1 dose of systemic methotrexate therapy was given following with there was spontaneous expulsion of products of conception followed by heavy bouts of bleeding. In this case, it was decided to perform a hysterectomy the massive bleeding possibly due to invasive placentation (placenta accreta).

The decision to conserve the uterus due to the patient's hemodynamic instability has a higher risk. Patient was intubated and was given ionotropic support along with transfusion of 4 PCs, 4 FFPs AND 4 PRBCs according to massive blood transfusion. After 5 days of ICU admission, patient succumbed to death.

Table 1: Clinical and biological characteristics of patients in the study.

Patients	Age (in years)	Obstetric formula	Interval between CSP and LSCS	Prev LSCS	H/o D and C	Gestational age at diagnosis	ß-hCG levels on admission	Presenting complaint
1	23	G4P2L2A1	2 years	2	0	10+5 weeks	21000	Pain abdomen+vaginal bleeding
2	25	G2P1L1	1.5 years	1	0	8+1 weeks	19989	H/O MTP f/b BPV on and off
3	37	G4P2L2A1	3.5 years	2	1	11+6 weeks	1035	Pain abdomen+vaginal bleeding
4	28	G3P2L2	2 years	2	0	8 weeks	266	UPT+ with BPV
5	29	G5P3L3A1	6 months	3	1	7 weeks	24529	Pain abdomen+vaginal bleeding
6	28	G6P1L1A4	1 year	1	4	6+4 weeks	56265	Assymptomatic, upt+
7	38	G6P3L3A2	9 months	3	2	7 weeks	20563	Pain abdomen+vaginal bleeding
8	40	G4P2L2A1	1.5 years	3	1	11+2 weeks	1172	Pain abdomen+vaginal bleeding
9	25	G3P1L1A1	1 year	1	1	6+6 weeks	2789	H/o MTP kit intake f/b D and C f/b repeated bouts of BPV on and off
10	39	G5P1L1A3	1.5 years	1	3	8+1 weeks	2974	Pain abdomen+vaginal bleeding

Table 2: USG findings.

Patients	USG findings
1	A heterogenous lesion 7×6×5 mm lesion in lower uterine segment bulging at previous scar site, cardiac activity absent
2	Single gestational sac in lower endometrial cavity embedded in less than one half thickness of myometrium near scar site with mean sac diameter 25.9 mm, fetal cardiac activity absent
3	Area of altered echogenicity with vascularity within g sac measuring 3.6×2.3 mm in Lus at previous scar site. fetal cardiac activity present.
4	Well defined anechoic area 2.4×1.4×2 mm in lus within myometrium, reaching upto serosa with mean sac diameter 20 mm, fetal cardiac activity absent
5	Heterogenous hypoechoic area 3.6×2.5 mm with single irregular g sac seen in scar of previous surgery, mean sac diameter 19 mm, cardiac activity absent.
6	Lower uterine g-sac with mean sac diameter 12.6 mm mild peripheral vascularity, scar ectopic, fetal cardiac activity ab
7	Single gestational sac corresponding to 7 weeks seen in lower uterine segment adherent to the anterior myometrium at the previous scar site highly s/o scar ectopic.
8	Heterogenous mass 3.4×2.7 mm in lower uterine segment corresponding to 11 weeks diffusely thickened placenta 6.3 mm in mass thickness, intra-placental hematoma with absent fetal cardiac activity
9	Heterogenous area in lus 3.7×3.2×3.9 cm measuring 16.8 mm corresponding to 6 weeks with extensive vascularity in periphery, scar ectopic.
10	Well-defined heteroechoic area 2.6×3.4 cm in lower uterine segment with g sac 21.6 mm with fetal cardiac activity present

Table 3: Management, complications, and surveillance of patients diagnosed with cesarean scar pregnancy.

Patients	Initial treatment	Complication	Management of complication	Hospitali-sation time	Post treatment ß hCG values {miu/ml]	ß hCG normali-sation time	Blood trans-fusion	ICU requirement	Ventilator requirement	Maternal outcome
1	Systemic methotrexate 3 doses	Rising trend of ß hCG	D and c	10 days	0.1	42 days	No	No	No	Discharged
2	5 doses of methotrexate +folinic acid	None	None	12 days	<3	68 days	1-unit prbc	No	No	Discharged
3	Mifepristone+ systemic methotrexate 5 doses+ folinic acid	Retained products of conception	Hysteroscopic curettage	18 days	3.02	28 days	No	No	No	Discharged
4	Expectant management	Rising trend of ß hCG	Systemic methotrexate 5 doses	16 days	<2	66 days	1-unit prbc	No	No	Discharged
5	D and C	Bleeding	Hysteroscopic currettage+ intrauterine balloon tamponade [hemostasis]	20 days	<1.2	24 days	No	No	No	Discharged
6	Systemic methotrexate 4 doses	None	None	14 days	<0.1	46 days	1-unit prbc	No	No	Discharged
7	Systemic methotrexate 5 doses	Retained products of conception and rising trend of ß hCG	Hysteroscopic currettage+ intrauterine balloon tamponade [hemostasis]	12 days	0.54	21 days	No	No	No	Discharged
8	Systemic methotrexate 1 dose f/b spontaneous expulsion of products of conception f/b heavy bouts of bleeding	Placenta accreta [invasive placentation]	Total abdominal hystrectomy	5 days	Na	Na	4 prbcs+4 ffps+4 pcs	Yes, intubated and inotropic support	Yes	Maternal mortality
9	Systemic methotrexate 4 doses	Rising trend of ß hCG+ bleeding per vaginum on and off	D and c	10 days	0.4	36 days	No	No	No	Discharged
10	Mifepristone+ systemic methotrexate	None	None	12 days	0.67	58 days	No	No	No	Discharged

Case 9

A 25-year-old woman, gravida 3, para 1, living 1, abortion 1 presented at 6.6 weeks of gestation, dated according to her last menstrual cycle, with history of MTP kit intake followed by D and C followed by bouts of vaginal bleeding on and off. The patient had regular menses and a history of caesarean delivery 1 year prior. The patient's transvaginal ultrasound was notable for a heterogenous area in lus 3.7×3.2×3.9 cm measuring 16.8mm corresponding to 6 weeks with extensive vascularity in periphery? scar ectopic. The patient's serum quantitative beta human chorionic gonadotropin (β-hCG) was 2789 UI/l. At presentation, her vitals were stable.

These ultrasound findings raised the suspicion of caesarean scar ectopic pregnancy. Four doses of systemic methotrexate were given to the patient. Due to the patient's elevated β-hCG levels on subsequent follow-up and intermittent vaginal bleeding, D and C performed. Patient was discharged healthy on day 5. On day 21, β-hCG was lowered to 0.4 mIU/l. Over next 36 days, its value normalized and it was no longer detectable at follow-up.

Case 10

A 39-year-old woman, gravida 5, para 1, living 1, abortion 3 presented at 8.1 weeks of gestation with complaint of pain abdomen and vaginal bleeding since one week. The patient had regular menses and a history of caesarean delivery 1.5 years prior with no other significant medical history, or history of sexually transmitted infections. There was also history of 3 D and C done following spontaneous abortions in the past. The patient's transvaginal ultrasound was notable for a well-defined heteroechoic area 2.6×3.4 cm in lower uterine segment with g sac 21.6 mm with fetal cardiac activity present. The patient's serum quantitative beta human chorionic gonadotropin (β-hCG) was 2974UI/l.

Patient received single dose of tablet mifepristone 200 mg per oral which was followed by 5 doses of injection methotrexate 1 mg/kg body weight. Beta hCG serum level after completion of chemotherapy were found to be 399 on day 15 and became undetectable after day 59 on subsequent follow-up. Patient was discharged in healthy condition.

DISCUSSION

Globally, the incidences of CSP are increasing following the rising number of caesarean births.[5,6] A recent study found that caesarean section rates in urban populations could exceed 60% in state maternity facilities and might even be higher in private institutions, even though official statistics on the condition are scarce in Romania.[7]

While the mean age group in our analysis was 31.2 years, it was reported to be 35 years in one of the largest case series from Israel.[8] It may present as late as 16 weeks or as early as five or six weeks. However, one patient in our study had a scar ectopic diagnosis made as late as week twelve of pregnancy. In our patient group, 90% of the patients had painless vaginal bleeding, which is the most common presenting complaint.

While Jurkovic et al discovered that 72% of their patients had multiple (≥2) cesarean procedures, Maymon et al reported that 50% of CSP patients had multiple CCSs.[8] Like earlier research, 60% of our participants had multiple cesarean sections. Patients who have prior multiple cesarean sections predispose to develop scar pregnancy. This may be due to the shortening of the viable scar-free uterine segment available for implantation. The conceptus develops in the proximity of the previous scar and usually encompasses the region of scarred myometrium within the developing wall.

Apart from the age and previous cesarean section, there is a well-established relationship between gravidity, parity, and previous abortion with cesarean scar pregnancy. Gravidity and prior induced abortions were found to be independent risk factors for developing cesarean scar pregnancy in a study by Zhou et al.[9] Since 90% of our patients were in the gravidity (≥3) category, our study also demonstrated an elevated risk of cesarean scar pregnancy with the gravidity.

We assessed the efficacy of oral mifepristone either by alone or in combination with systemic methotrexate in present study. When medical management of patients with cesarean scar pregnancy proved ineffective, D and C, hysteroscopic curettage, and intrauterine balloon tamponade were used as treatments. hysterectomy was planned for the patient who had intractable bleeding.

With a sensitivity of 86.4%, ultrasound, transvaginal and transabdominal ultrasound, and colour doppler were the first-line methods for detecting the diagnostic characteristics of cesarean scar pregnancy. Transvaginal ultrasound allowed for a highly accurate positive diagnosis of cesarean scar pregnancy and characterize the gestational sac presence, size, and location as well as the embryo's presence and cardiac activity. It also enabled us to determine the relationship between the gestational sac, the bladder wall, and the cesarean scar. Color Doppler functions (such as impedance, velocity, etc.) were also used to help in the diagnosis of scar pregnancy, although exact criteria have not yet been established.

The results of the current study indicated that hysteroscopic curettage and D and C is an effective treatment option for cesarean scar pregnancy, when used after trophoblast proliferation has been reduced. Using pressure tamponade, the bleeding that resulted following the removal of the products of conception was quickly stopped. It has also been demonstrated that use of mifepristone during live pregnancies can accelerate demise of embryo. Only one of our patients needed hysterectomy after being diagnosed with early placenta

accreta in the late stage of the first trimester. The transition from first trimester cesarean scar pregnancy to a morbidly adherent placenta in the third trimester is now being supported by emerging data.[10-15]

According to a recent comprehensive review, there are five primary therapeutic options for cesarean scar pregnancy: expectant management, medicinal therapy, surgical intervention, uterine artery embolization, and combination of various managements.[16,17] Each approach has a range of success rates that depend on the surgeon's skill level, the patient's compliance, the clinical presentation, and available resources. The care plan in this study was planned with the goal of preserving fertility, clinical symptoms, gestational age, pregnancy viability, technical means available, and patient preferences. Management alternatives such as ultrasound guided methotrexate injection into the sac and uterine artery embolization were not feasible in our study.

There is currently no protocol for the use of methotrexate in cesarean scar pregnancy. Disagreement exists over dosage, number of doses required, time intervals between doses, and the understanding of risk factors or indicators of a positive response. The positive response to methotrexate in our study was independent to the initial hCG levels, suggesting that systemic methotrexate may be used in cesarean scar pregnancy with higher hCG levels. A recent investigation, with hCG of 12,000 mIU/ml and absent cardiac activity, supports these conclusions by showing the efficacy of systemic methotrexate therapy in early cesarean scar pregnancy.[18]

Due to the short half-life of methotrexate, our patients received up to five doses of 1 mg/kg of the medication on alternate days. According to a study by Kutuk et al on the effectiveness of systemic multidose methotrexate treatment in cesarean scar pregnancy, authors report that between 5.3 and 6 dosage cycles of methotrexate were needed alternate days to normalize the hCG levels in cesarean scar pregnancy with and without cardiac activity, respectively. The study involved 13 patients with CSP and initial hCG levels ranging from 2565 to 36,111 mIU/ml were included in the study. According to Kalampokas et al for a CSP case with a viable embryo and hCG of 12,072 mIU/ml, just three dosing cycles of 75 mg of methotrexate were required to terminate the pregnancy.[19]

Our approach is comparable to that of these authors, who utilized mifepristone and methotrexate. Mifepristone has been widely used in the termination of pregnancies, especially in viable pregnancy.[20,21] According to data mifepristone may shorten the total number of methotrexate doses required and shorten the period before embryo death.[19,22] In the current study, we added 200 mg of oral mifepristone to the cesarean scar pregnancy management for this reason.

Individual reports about systemic methotrexate treatment for scar pregnancy that were unsuccessful do exist. The primary goal was to eliminate retained products of conception while attempting to stop and control major haemorrhage. Additionally, the treatment strategy of D and C with/without immediate hemostatic interventions aimed to preserve the uterus and fertility as well as the health and quality of life of the woman in patients suspected with retained products of conception and rising ß hCG levels after failed medical management.[22]

There are cases of unsuccessful use of systemic methotrexate treatment for scar pregnancy. Eliminating retained products of conception was the main objective, along with trying to halt and manage significant bleeding. In addition, in patients suspected of having retained products of conception and rising ß hCG levels following unsuccessful medical management, the treatment strategy of D and C with/without immediate hemostatic interventions aimed to preserve the uterus and fertility as well as the health and quality of life of the woman.[22]

Every CSP treatment approach includes a significant risk of severe bleeding. After receiving medical therapy, curettage has a high success rate and has no impact on intraoperative bleeding. The gestational age and gestational sac size are predictors of the risk of bleeding during the surgery.[23]

There is a substantial chance of serious bleeding with any CSP treatment plan. Curettage has a good success rate following medical therapy and has no effect on intraoperative bleeding. The likelihood of bleeding during surgery can be predicted by the gestational age and the size of the gestational sac.[23]

For example, Wang et al analysis of methotrexate with and without curettage demonstrates that both treatments could successfully treat the majority of CSP patients, although the combination therapy required less time and had a better outcome.[24]

For instance, a study by Wang et al comparing methotrexate with and without curettage shows that most CSP patients could be successfully treated with either medication, however the combination therapy worked better and took less time.[24]

The rationale against using curettage in the treatment of CSP is that it could result in significant bleeding, if not catastrophic bleeding.[25] However, by quick intervention, we were able to stop the bleeding and achieve an effective haemostasis in each case. Additionally, except for one case, the decrease in Hb levels was management by blood product replacement. However, in this study, in one case the copious spontaneous bleeding came from an accreta which required salvage hysterectomy to stop the bleeding.

Curettage should not be used to treat CSP because it may cause severe bleeding, possibly even catastrophic bleeding.[25] But in every case, we were able to effectively accomplish haemostasis and halt the bleeding with prompt

intervention. Additionally, blood product replacement was used to regulate the drop in Hb levels, except for one patient. In one instance in this study, however, the extensive spontaneous bleeding was caused by an accreta, and stopping the bleeding necessitated a salvage hysterectomy.

Other issues, like prolonged surveillance periods and irregular vaginal bleeding, might not be acceptable to both doctors and patients, and some individuals need additional therapy. The 8.33% of CSP patients who were originally treated with D and C later needed hysterectomy, according to Sadeghi et al.[26] Whether an intervention is clinically necessary based on a gradual drop in hCG levels or ultrasound indications of residual tissue is debatable. According to Jurkovic et al only 6% of the CSP patients who attended a follow-up visit had the clinical symptoms that indicated a repeat surgical intervention was necessary.[27]

Certain problems, such as extended periods of observation and irregular vaginal bleeding, may not be acceptable to patients or physicians, and some people may require further treatment. According to Sadeghi et al 8.33%of CSP patients who received D and C as their initial course of treatment eventually required a hysterectomy.[26] It is arguable whether a progressive decline in hCG levels or ultrasonography evidence of leftover tissue warrants a therapeutic intervention. Just 6% of CSP patients who attended a follow-up visit exhibited clinical symptoms that suggested a second surgical intervention was required, according to Jurkovic et al.[27]

Expectant management, systemic or local MTX, repeat curettage, hysteroscopy, laparoscopy, laparotomy and hysterectomy are further care options for persistent CSP after D and C treatment failure. After D and C or medical therapy has failed, hysteroscopic removal of CSP may be performed as a successful rescue.[28,29] By looking at the gestational tissue at the implantation site, it provides an accurate diagnosis. In order to directly coagulate the blood vessels and separate the gestational tissue from the uterine wall, operative hysteroscopy also provides effective therapy. Hysteroscopy is a significant alternative method for CSP with reduced blood loss, shorter operating time, and rapid normalization of the ß-hCG level, according to Deans et al and Chao et al.[28,30]

Additional care options for persistent CSP following D and C treatment failure include expectant management, systemic or local MTX, repeat curettage, hysteroscopy, laparoscopy, laparotomy, and hysterectomy. Hysteroscopic excision of CSP can be an effective rescue procedure when D and C or medicinal therapy has failed.[28,29] It offers a precise diagnosis by examining the gestational tissue at the site of implantation.

Operative hysteroscopy also offers successful therapy by directly coagulating the blood vessels and separating the gestational tissue from the uterine wall. Deans et al and Chao et al have reported that hysteroscopy is a noteworthy substitute technique for CSP that results in less blood loss, a shorter operating duration, and a quick normalization of the ß-hCG level.[28,30]

Despite the knowledge we and others have gained in managing CSP, there is not yet enough data to translate into a trustworthy risk assessment system to direct management. Even though a standardized clinical protocol for management has not yet been created, this case series shares our expertise in helping to create the case for managing this challenging clinical presentation. Additional research is necessary to improve our comprehension of the pathophysiology of CSP and to help create clinical pathways for this presentation.

Even with all the knowledge that we and others have gathered on managing CSP, there is still insufficient information to create a reliable risk assessment system that can guide management. Although a standardized clinical protocol for the care of this difficult clinical presentation has not yet been developed, this case series discusses our experience in constructing the case for its management.

To further understand the pathophysiology of CSP and to assist in developing clinical approaches for this presentation, more study is required.

CONCLUSION

Cesarean scar pregnancy is a rare and potentially fatal obstetric condition. Early identification is possible with the use of doppler and TVS. Our recommendation is to initiate treatment as first line with medical management, for individuals with hemodynamic stability. Laparotomy and embolization should only be performed on individuals who have had their medical care fail or with severely bleeding. It is not appropriate to treat this uncommon type of ectopic pregnancy exclusively based on ß-HCG levels. Treatment options for this difficult kind of ectopic pregnancy include well defined diagnostic criteria, systematic care, a follow-up procedure.

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