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Original Research Article

Cesarean scar pregnancy: an upcoming challenge

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ABSTRACT

Background: Cesarean scar pregnancy (CSP) is a type of ectopic pregnancy implanted in the myometrium at the site of previous cesarean scar. Incidence of cesarean deliveries are increasing globally, leading to rise in incidence of cesarean scar pregnancy. Caesarean scar pregnancies are associated with some life-threatening complications such as scar rupture, haemorrhage, disseminated intravascular coagulation, requiring lifesaving hysterectomy. We present our experience with 11 patients with cesarean scar pregnancy, diagnosed using transvaginal colour doppler ultrasound during 3-year period and treated conservatively to preserve the uterus with successful outcome in all patients.

Methods: This was a retrospective study, conducted in the Department of Obstetrics and Gynecology of DMC&H, Ludhiana from January 2015 to December 2017. Out of total deliveries (4278), 3.9% (171/4278) were diagnosed as ectopic pregnancy. 6.43% (11/171) of them were diagnosed as cesarean scar ectopic pregnancy. After counseling, all patients underwent conservative management. Injection methotrexate 50mg was administered intramuscularly and beta- HCG was monitored after 4 days and then weekly till it was <1.

Results: 2 patients had an increase in beta HCG levels on day 7 and required second dose of methotraxate. 8 patients required blood transfusion due to excessive bleeding on admission. In 9 patients beta HCG levels reduced to <1 in 7 weeks post first methotraxate dose administration, and in remaining 3 it returned to <1 after 8 weeks . No patient required any surgical intervention.

Conclusions: Cesarean scar pregnancy, a type of ectopic pregnancy can be safely managed conservatively if diagnosed early.

Keywords: Cesarean scar, Challenge, Pregnancy

INTRODUCTION

Ectopic pregnancy (EP) is defined as the implantation of a fertilized ovum outside the endometrial cavity. It accounts for approximately 1.3−2% of all pregnancies.[1] Cesarean scar pregnancy (CSP) is a type of ectopic pregnancy implanted in the myometrium at the site of previous cesarean scar.[2] Incidence is cesarean deliveries are increasing globally, leading to rise in rates of cesarean scar pregnancy. Throughout the world 6.2 Million unnecessary CDs are being performed annually.[2,3] An average annual increase of 4.4% is seen in incidence of cesarean scar pregnancy.[4] The measurement of serum beta-human chorionic gonadotropin (β-hCG) and the use of ultrasound imaging have helped in early and more accurate diagnosis of CSP, thereby facilitating the successful preservation of the uterus without causing maternal complications.[5]

Caesarean scar pregnancies are associated with some life-threatening complications such as scar rupture, haemorrhage, disseminated intravascular coagulation, requiring lifesaving hysterectomy.[6]

Several types of conservative treatments have been used like- dilatation and curettage, excision of trophoblastic

tissue (laparotomy or laparoscopy), local and or systemic administration of methotrexate, bilateral hypogastric artery ligation or selective uterine artery embolization combined with curettage and/or methotrexate administration.[7] We present our experience with 11 patients with cesarean scar pregnancy, diagnosed using transvaginal colour doppler ultrasound during 3-year period and treated conservatively to preserve the uterus with successful outcome in all the patients.

METHODS

This was a retrospective study, conducted in the Department of Obstetrics and Gynecology of DMC and H, Ludhiana from January 2015 to December 2017, total deliveries at our institute were 4278. Out of them 3.9% (171/4278) were diagnosed as ectopic pregnancy. Cesarean scar ectopic pregnancy was diagnosed in 6.43% (11/171) of them.

All our patients had received some form of treatment from outside (MTP Pill or surgical MTP) and had presented to us with complaint of excessive bleeding per vaginum. All these cases were undiagnosed or misdiagnosed from outside. MTP pill had been taken by 9 out of 11. Dilatation and evacuation (D&E) after pill intake was done in 3 out of these 9. 2 out of 11 patients had undergone D&E before coming to our institute (Table 1).

Diagnosis was confirmed if all of the following sonographic criteria were met: 1) an empty uterine cavity, with a clearly demonstrated endometrium; 2) an empty cervical canal; and 3) a gestational sac, with or without fetal cardiac activity, was located in the anterior part of the uterine isthmus, embedded in and surrounded by the myometrium and the fibrous tissue of the scar, and separated from the endometrial cavity or fallopian tube.[8]

Serum beta HCG levels were sent after diagnosis using transvaginal Doppler ultrasound. After counseling, all patients underwent conservative management. First dose of methotrexate (50 mg) was administered after getting haemogram, renal function tests (RFT) and liver function tests (LFT). Follow up done using Beta HCG levels on day 4, day7 and then weekly till it was <1, and superseded by ultrasonography at weekly intervals for 4weeks then monthly for 3 months.

RESULTS

Gestational age at diagnosis ranged from 5 weeks + 4 days to 8weeks + 2 days (Table 1). Early presentation and diagnosis is important to assign medical treatment.

Table 1: Clinical profile of patients.

Gestation at diagnosis	Modality for diagnosis	Treatment done outside
7weeks 4 days	USG with doppler	MTP Pill+ evacuation
7weeks 0 days	USG with doppler	MTP Pill+ evacuation
8weeks 1 days	USG with doppler	Surgical MTP
5weeks 4 days	USG with doppler	MTP Pill
6weeks 0days	USG with doppler	MTP Pill
6weeks 5 days	USG with doppler	Surgical MTP
7weeks 3 days	USG with doppler	MTP Pill+ evacuation
7weeks 1 days	USG with doppler	MTP Pill
8weeks 2 days	USG with doppler	MTP Pill
7weeks 4 days	USG with doppler	MTP Pill
6weeks 5 days	USG with doppler	MTP Pill

Table 2: Transfusion requirement.

No. of blood transfusions required	Interval between treatment outside to admission in DMCH (days)
1	4
1	11
2	21
2	12
2	8
0	4
1	6
1	7
2	7
0	4
0	5

Table 3: Temporal fall in B- HCG.

Levels of Beta HCG									
Day 0	**Day 4**	**Day 7**	**Day 14**	**Day 21**	**Day 28**	**Day 35**	**Day 42**	**Day 49**	**Day 56**
1076	514	130	54	10	06	2	1	<1	<1
1384	633	215	76	13	05	1.5	1.2	<1	<1
1209	544	330	63	09	03	1.4	1	<1	<1
987	322	112	43	17	04	1	1.1	<1	<1
1108	284	146	23	12	05	1	1	<1	<1
1084	714	816	134	54	24	7	4.2	2.5	<1
1273	480	233	34	17	10	2	1.2	<1	<1
886	372	228	23	08	03	1.2	1.2	<1	<1
1410	218	786	164	60	27	11	3.6	1.2	<1
1205	404	117	11	04	02	1	<1	<1	<1
1138	334	106	23	07	03	1.5	<1	<1	<1

All patients presented to our institute at an average of 8 days after previous treatment. 8 patients required blood transfusion due to excessive bleeding on admission (Table 2).

On follow up, 2 patients had an increase in beta HCG levels on day 7 and required second dose of methotrexate. In 9 patients beta HCG levels reduced to <1 in 7 weeks post first methotrexate dose administration, and in remaining 3 it returned to <1 after 8 weeks (Table 3). No patient required any surgical intervention.

DISCUSSION

The first case of CSP was reported in 1978 by Larsen and Solomon.[9] Increased use of ultrasound in early gestation and the rising rate of cesarean section delivery have led to rapidly rising incidence of CSP.[10] Incidence in our study is found to be 1: 400 ectopic pregnancies which is very high as compared to incidence in other studies, where it ranges from 1 per 2226 to 1 per 1800 pregnancies.[11,12] The reason for this high incidence is because our hospital is a tertiary care and referral centre, where complicated cases are being referred from all nearby cities.

Ultraonography is a reliable first-line diagnostic tool. Color flow Doppler measurement can provide additional information for diagnosis. High-velocity, prominent, low-impedance blood flow can be detected surrounding an ectopic gestational sac, consistent with normal early pregnancy.[13]

Magnetic resonance imaging has been used as an adjunct to ultrasound scan. Assessment of the pelvic structures is better with MRI because of the improved differentiation of soft tissue, better spatial resolution, and the possibility of multiplanar imaging. However, a major limitation of MRI is its long acquisition time. Many authors do not routinely recommend MRI for diagnosing cesarean scar pregnancy, and transvaginal ultrasound is still the best diagnostic imaging tool that should be applied in the first step.[14]

Till today, there is still no universal treatment guideline available. With the rising incidence of CSP, accumulating data suggested a variety of medical and surgical treatment modalities.[15] Treatment should be individualized on the basis of the desire for future fertility, gestational age of the pregnancy and hemodynamic stability.

The most common type of medical therapy that is suitable for use in early pregnancy is methotraxate. It may be administered systemically or locally and single or multidose regime may be used. Systemic administration of methotrexate is a standard treatment for tubal ectopic pregnancy, so there should be no reason to doubt its efficacy on cesarean scar pregnancy. But, systemic methotrexate appears to be more effective in women with B-HCG level <5000 mU/mL according to the literature.[13,16] In our study all the patients had B- HCG levels <5000 mU/mI. In only 2 patients multidose (2 doses) were required. Success rate was 100% in our study. No patient required any surgical intervention.

CONCLUSION

Cesarean scar pregnancy is a type of ectopic pregnancy. A strong sense of suspicion is required to diagnose this type of pregnancy i.e when cervical canal and uterine cavity are empty and fetus is located in the vicinity of cesarean scar. Early diagnosis can prevent scar rupture and various other complications, thereby decreasing morbidity and mortality. Treatment is individualized but conservative management should be the first line management wherever possible.

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