CAESAREAN SCAR PREGNANCY- THE EXPERIENCE IN A MEDICAL COLLEGE IN GOVERNMENT SECTORDeepa Mathews¹, Sathi M. S²¹Associate Professor, Department of Obstetrics and Gynaecology, Government Medical College, Kottayam.²Associate Professor, Department of Obstetrics and Gynaecology, Government Medical College, Kottayam.**ABSTRACT****BACKGROUND**

The caesarean delivery (CD) rates are increasing worldwide. The CD rate in our hospital is around 32%. As CD rate increases the complications due to a caesarean delivery also increase. There is an increase in the serious and rare complication of caesarean delivery-that is caesarean scar pregnancy (CSP). This condition can present in a serious state if not detected early and can cause serious complications including hysterectomy which hampers a woman's future reproductive capacity. Hence, we decided to look into the details of CSP cases presenting in our hospital.

The aim of our study was to discuss the clinical presentation, diagnosis and management of caesarean scar pregnancy cases admitted to the Department of Obstetrics and Gynaecology, during a period of two years from January 01, 2014 to December 31, 2016.

MATERIALS AND METHODS

A cross sectional study was conducted and all cases of CSP during the study period were included. The data were collected using a proforma by interviewing the patients and reviewing the medical records.

RESULTS

There were 11 cases of CSP admitted during the study period. Mean gestational age at presentation was 8.96 ± 1.6 weeks. Most common symptom was painless bleeding which was present in 9 cases. 4 cases were referred due to excessive bleeding during curettage without suspecting CSP. 3 cases were diagnosed as CSP and referred. 7 patients received Methotrexate infusion intravenously one day before attempted evacuation or laparotomy. 1 patient received systemic Methotrexate alone. 5 patients received oral Mifepristone also one day prior to intervention. In 3 patients, re-evacuation was attempted and they had to undergo emergency laparotomy. In this study group, 8 patients had laparotomy, excision and repair and 2 patients had to undergo hysterectomy.

CONCLUSION

High index of suspicion is to be maintained when women with prior caesarean delivery present with bleeding per vaginam and imaging should be done stressing on this aspect. In cases where CSP is diagnosed an early management should be ensued. Planned excision and repair can be helpful in reducing the morbidity of patients in low resource settings and conserving the reproductive potential of such women.

KEYWORDS

Caesarean Scar Pregnancy, Excision and Repair, Methotrexate, Mifepristone.

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BACKGROUND

Caesarean Scar Pregnancy (CSP) also known as scar ectopic is the rarest form of all ectopic gestations. The recently reported incidence is ranging from 1/1800-1/2500 of all Caesarean deliveries.¹ When embryo implants in a scar on the uterus from previous procedures like caesarean or hysterotomy or myomectomy and grows into the myometrium, CSP results. This condition is associated with life threatening complications like uterine rupture, serious obstetric haemorrhage, etc. It can also reduce the future obstetric prospects of the woman.

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The clinical presentation may vary from vaginal bleeding with or without pain to signs and symptoms of scar rupture or shock. It may be diagnosed in asymptomatic women by a routine first trimester ultrasound examination as well.

Different treatment options have been tried in this condition. But no consensus on ideal management has been reached till now. Various options tried are uterine curettage with or without ultrasound guidance, laparoscopy or laparotomy and scar site repair after excision, hysteroscopic removal and laparoscopic repair, systemic or local Methotrexate injection, uterine artery embolisation (UAE), hysterectomy, D&E after Methotrexate and balloon tamponade. Often there is a combination of treatment modalities used in most of the studies in the literature.

Early detection of CSP by suspicion and transvaginal sonography may facilitate in conservative management by different methods which will avoid a deleterious effect on future obstetric prospects. When patients are referred as missed abortion and evacuation attempted they may end up in emergency laparotomy and related complications. When the scar ectopic ruptures it may need hysterectomy. Hence, we decided to conduct a study on this and look into the

clinical features and diagnosis along with management of these cases. The lessons learnt may help us in improving the management in future.

MATERIALS AND METHODS

This is a cross sectional study. All cases of CSP admitted in the Department of Obstetrics & Gynaecology, Government Medical College, Kottayam from January 01, 2014 to December 31, 2016 were included in the study. The data were collected from the patients and hospital records. Since there is no specific protocol described for management in CSP cases, the patients received different treatments depending on gestational age, presence of foetal cardiac activity and clinical features. The data were collected by a proforma.

RESULTS

There were 11 cases of CSP admitted during the study period. All the cases were referred to our hospital. Some cases were referred as there was significant bleeding at attempted evacuation suspecting missed abortion without considering the possibility of CSP. Some cases were sent due to persistent bleeding following evacuation of missed abortion or induced abortion. Three cases were diagnosed as scar pregnancy and referred. Details are presented as a table.

One patient who was referred as cervical pregnancy developed scar rupture next morning and underwent emergency laparotomy. She had scar rupture and ended up in hysterectomy. Of the 6 patients who underwent elective laparotomy, one had hysterectomy due to uncontrolled haemorrhage. She sustained a bladder injury also. One patient who had no foetal pole in ultrasound was successfully managed with intravenous Methotrexate alone (50 mg). Her β hCG values had fallen significantly and hence was conservatively managed. Bleeding stopped after 12 days and was discharged on day 18. Five patients who underwent surgical management who did not undergo tubal ligation were asked to avoid pregnancy for one year and are under followup. The mean duration of hospital stay was 13.9 ± 3.63 days and the range was 7 to 20 days.

The Results are presented in the following Tables-

	Mean	Range
Age	32.09 ± 4.37 years	26-39
Period of gestation at which presented	$8.96 \pm$ weeks	7 weeks-12 weeks 2 days
β hCG values	45573.48 ± 64170.25 25 th percentile=6764.3 50 th percentile=12167 75 th percentile=53276	796-155300 mIU/mL

Table 1. Clinical Information of 11 Patients with CSP

	No.	%
Previous 1 caesarean	8	72.72
Previous 2 caesarean	3	27.27
Cases with bleeding per vaginum at early gestation	9	81.81
No. of cases with severe bleeding following attempted evacuation	4	36.36
No. of cases diagnosed as CSP & referred	3	27.27

Table 2. Clinical Features of CSP Patients

Management Received	No.	%
No. of patients who received systemic Methotrexate	8	72.72
No. of patients who received oral Mifepristone	5	45.45
No. of patients in whom re-evacuation attempted	3	27.27
Emergency laparotomy + excision & repair	3	27.27
Elective laparotomy + excision & repair	5	45.45
Systemic Methotrexate alone	1	09.09
Emergency laparotomy + Hysterectomy	1	09.09
Elective laparotomy + Hysterectomy	1	09.09

Table 3. Management of 11 CSP Cases

DISCUSSION

The CD rate has been increasing worldwide. In the US, in 2007 it was 31.8%.¹ In our hospital, the CD rate had been 31.3% during the study period. The prevalence of CSP during this study period is 1 in 450 CD. A previous caesarean delivery increases the risk for a pathologically adherent placenta. CSP is a particularly rare and serious complication after CD. Here, the implantation of gestational sac is into the myometrium and the fibrous tissue of a previous Caesarean scar. Two types of CSP have been described in the literature. Type I CSP caused by implantation of amniotic sac on the scar and progression towards either uterine cavity or cervicoisthmic space. Type II CSP where sac implants deep into the scar with infiltrating growth into uterine myometrium and bulging from uterine serosal surface which may result in severe bleeding.²

The incidence of CSP has been estimated from 1/1800-1/2500 of all CDs performed.¹ The diagnosis is often difficult and a false negative diagnosis may result in major complications including hysterectomy. In our study, for one patient cervical pregnancy was suspected. In one patient, bicornuate uterus was suspected and in two patients, incomplete abortion was diagnosed initially before coming to our hospital. In those cases, with live foetus, diagnosis was more straightforward.

The diagnosis is based on a finding of a gestational sac at the site of previous Caesarean scar with an empty cavity and cervix. Timor-Tritsch et al described 7 criteria for diagnosing scar pregnancy in their retrospective analysis of 26 cases of CSP.¹

They are as follows-

1. Visualisation of an empty uterine cavity as well as an empty endocervical canal.
2. Detection of the placenta and/or a gestational sac embedded in the hysterotomy scar.
3. In early gestations (≤ 8 weeks), a triangular gestational sac that fills the niche of the scar at ≥ 8 postmenstrual weeks this shape may become rounded or even oval.
4. A thin (1- 3 mm) or absent myometrial layer between the gestational sac and the bladder.
5. A closed and empty cervical canal.
6. The presence of embryonic/foetal pole and/or yolk sac with or without heart activity.
7. Presence of a prominent and at times rich vascular pattern in the area of a CD scar in the presence of a positive pregnancy test.

In an attempt to clarify the appropriate diagnostic method and treatment of CSP, Rotas et al reviewed 59 articles (112 cases). In their analysis, 52% had only one previous CD. Mean gestational age was 7.5+/-2.5 weeks. Most frequent symptom was painless vaginal bleeding.³ In our study, group of 11 patients, 8 had only one prior CD (72.72%). Mean gestational age was 8.96 +/- 1.6 weeks (7w-12w2d). 9 cases out of 11 had vaginal bleeding in early pregnancy which was mainly painless. In other studies also, the cases with previous one Caesarean were more.^{1,3} Hence, it may not be wise to think that more number of previous CD increases a patient's CSP risk.

Different methods of treatment have been tried in CSP. Often it is a combination of different methods. Different options tried are dilatation & curettage (D&C), hysteroscopy, laparoscopy/laparotomy and excision, hysterectomy, systemic and or local methotrexate, uterine artery embolisation followed by D&C, excision via vaginal route.^{1,2,3,4,5,6}

Rota et al in their review found expectant management in six cases led to rupture requiring hysterectomy in three women; D&C was associated with severe morbidity. Excision & repair was successful in 11 out of 12 cases. Simultaneous administration of systemic and intragastric sac administration of Methotrexate resulted in successful treatment in five women. So they concluded that surgical treatment or combined systemic and local Methotrexate are both successful in management of CSP.³ Timor-Tritsch et al in their retrospective analysis found combined intra gestational sac & systemic Methotrexate had been successful in 19 cases.¹ They also stressed that, these patients had undergone intra gestational sac injection of Methotrexate under transvaginal guidance without anaesthesia.¹

Yan H et al in their retrospective analysis of 31 cases, studied the feasibility of uterine artery chemoembolisation and curettage. The chemoembolisation was intra-arterial Methotrexate instillation followed by embolisation with gelatin sponge particles and curettage 24-48 hours later. They found 100% success and hysterectomy could be avoided.⁴ They had given oral Mifepristone also for reducing the vascularity. Xin W et al in their prospective cohort study, assessed the efficacy of combined laparoscopy and hysteroscopy against that of UAE and D&C. They found that combined laparoscopy and hysteroscopy was safer.⁵

Hui Zhang et al described a transvaginal surgical excision of CSP after giving oral Mifepristone in some patients with high hCG values, in 25 cases of CSP-II.² Arun Nayak et al have reported a successful management of CSP by bilateral uterine artery embolisation followed by D&C.⁶

In our series, eight patients received systemic Methotrexate 50 mg one day prior to the planned intervention in an attempt to reduce bleeding. One patient received three doses of Methotrexate in an attempt to abolish the cardiac activity. But the foetus continued to grow in spite of that, even when hCG value was falling. Some patients had received oral Mifepristone also. The patients who underwent emergency laparotomy and excision in the course of attempted re-evacuation had more blood loss and blood transfusion. One case which had undergone elective laparotomy after Methotrexate ended up in hysterectomy and bladder injury. She received 4 units of blood. One case of

hysterectomy where uterus had ruptured also needed more blood transfusion. The cases which underwent elective excision did not require many transfusions. Only one patient in the study group was managed with systemic Methotrexate and conservative approach. Her serial β hCG examination shows a decreasing trend and is currently under followup.

In their study, Timor-Tritsch et al followed their patients with hCG values, gestational sac volume in transvaginal ultrasound and vascularity index. They found the mean duration for absolute resolution was 88.6 days. Most of the studies where CSP was treated by combination of chemotherapy & embolisation or chemotherapy alone showed subsequent monitoring over many months for absolute recovery.

Those cases which have undergone excision procedure may not require a prolonged monitoring. The data on subsequent pregnancies in women who have undergone UAE is limited. Not many studies have looked into the long term outcome on future pregnancy after different management options. Maymon R et al have described fertility outcome as encouraging but observed a 25% recurrence rate.

Many more studies are required to assess the future obstetric outcome in medically managed cases and in those treated by excision.

CONCLUSION

CSP is a rare but serious complication of caesarean delivery. When the prevalence of caesarean delivery is increasing, an awareness of this condition has to be there. Accurate, early diagnosis will help in optimal management of the condition preserving fertility of the woman. With the advent of good imaging modalities and various management options obviating the need for laparotomy and hysterectomy, the fertility prospects of women with CSP may not be bleak. However, more studies are needed to decide the optimal management with reference to the fertility outcome in such women.

In low resource settings, elective scar excision and repair may be a good option in preserving the fertility of these women. Medical management may need multiple followup visits for hCG monitoring and sonological surveillance adding to the economic burden in subjects in a developing country.

It is better to assess the implantation in all previous Caesarean cases, carefully in early first trimester itself and a detailed evaluation by an expert is essential if implantation is found to be in the lower uterine cavity. Due to the rarity of the condition, sufficient data is still unavailable. Hence, every case of CSP need to be reported to obtain more information about treatment and future fertility options.

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