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Raising the bar for patient safety: High index of suspicion of a cesarean scar pregnancy: An interesting case series

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Abstract
The incidence of cesarean scar pregnancy is increasing and its management has proven to be challenging for Gynecologists. Scar ectopic is a form of pregnancy due to abnormal implantation of the embryo at the previous scar site following surgeries of the uterus like cesarean section, hysterotomy, myomectomy and metroplasty. Complications of scar ectopic pregnancy are uterine rupture, profuse hemorrhage and maternal death. Here we present, five cases of cesarean scar pregnancy treated at our tertiary care center over a period of 2 years. Various clinical presentations have been analyzed. Common to the cases wasa history of previous one lower segment cesarean section and presentation with vaginal bleeding. The First and the second patient presented at 8 weeks period of gestation and had taken medication for termination of pregnancy in view of the initial scan showing nonviable pregnancy. On follow up, an ultrasounds can diagnosis of cesarean scar ectopic was made and they were given a trial of medical management with methotrexate. As the medical management failed, they underwent a laparotomy and a laparoscopic surgery for excision of scar ectopic with repair respectively.
Third patient presented at 12weeks+4days period of gestation and was referred with the suspicion of gestational trophoblastic disease. Initial ultrasound scan showed nonviable fetus and was medically managed for termination of pregnancy. Follow up scan showed features of gestational trophoblastic disease. MRI was done to confirm the diagnosis of a scar ectopic. Laparotomy was done, to excise the scar ectopic with repair.
Fourth patient presented at 13weeks+4days period of gestation with ultrasound scan suggestive of scar ectopic and was medically managed followed by laparotomy.
Fifth patient presented at 9 weeks period of gestation with vaginal bleeding. Her ultrasound scan showed features suggestive of cesarean scar pregnancy. She underwent laparotomy for excision of scar ectopic with repair.
All post laparotomy biopsies were sent for histopathology and confirmed with features consistent with products of conception at the scar site. They were followed up with serial serum Beta HCG values, which showed a decreasing trend initially until they reached negative levels.
Conclusion: The diagnosis of a scar ectopic is challenging and a delay in the management could lead to maternal morbidity and mortality. Failure in medical termination of pregnancy should raise an alarm of a suspected ectopic pregnancy. The management of scar ectopic by excision could be carried out effectively through laparoscopy or laparotomy in experienced hands. Also, whenever patient comes with gestational trophoblastic disease and if the serum Beta HCG values are not falling, one should always suspect the possibility of cesarean scar pregnancy.

Keywords: Cesarean scar pregnancy, beta HCG, LSCS (lower segment cesarean section), laparotomy

Introduction
The incidence of cesarean scar ectopic pregnancy is increasing and its management has proven to be challenging for Gynecologists. Scar ectopic is a form of pregnancy due to abnormal implantation of the embryo at the previous scar site following surgeries of the uterus like cesarean section, hysterectomy, myomectomy and metroplasty. It is usually diagnosed at the gestational age of 5-12 weeks. Ultrasound plays an important role in early diagnosis and leads to prompt management and improves the outcome. MRI helps in confirming the diagnosis of scar ectopic preoperatively.
Two different types of scar ectopic pregnancies are identified [1].

1. Type 1 is caused by implantation in the prior scar with progression towards the cervico-isthmic space on the uterine cavity [1].

2. Type 2 is caused by deep implantation into scar defect with infiltrating growth into the uterine myometrium and to uterine serosal surfaceswhich may result into uterine rupture and massive hemorrhage in the first trimester - which is more dangerous [1].

Materials and Method: Patients who presented with vaginal bleeding and diagnosed with scar ectopic atour tertiary care center were chosen.

Objectives: To understand the different clinical presentations and approach to management of Cesarean scar pregnancy

Table 1: History

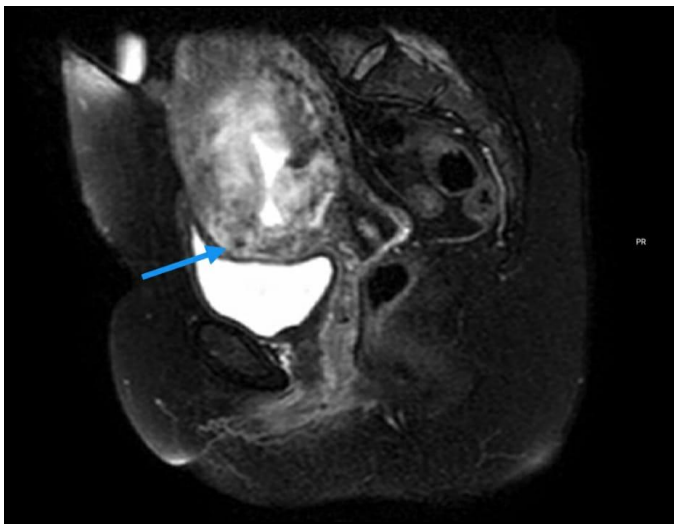
	Case 1	Case 2	Case 3	Case4	Case 5
Age	25years	38years	38 years	34 years	29 years
Parity	G2P1L1	G2P1L1	G3P1L1A1	G5P1L1A3	G3P2L2
Period or gestation	8 wks	8wks+4days	12wks +4 days	13 wks+4 days	9 weeks
LMP	16.09.2018	17.11.2018	1.11.2019	1/2/2020	2/7/2020
Cycles	Regular	Regular	Irregular	Irregular	Regular
Abdominal pain	+	+	_	+	+
Bleeding pv	++	+	-	+	+
Last child birth	5 years	4 years	8 years	9 years	3 years
H/o taking MTP	+	+	+	-	-
Past medical /surgical h/o	Previous 1LSCS Appendectomy	Previous 1 LSCS	Previous 1 LSCS hypothyroidism	Previous 1 LSCS	Previous 1 LSCS

Table 2: Examination

	Case 1	Case 2	Case3	Case4	Case 5
BP	120/80mmHg	110/80mmHg	110/80mmHg	110/70mmHg	120/80mmHg
Pulse	72/min	80/min	80/min	78/min	82/min
Temp	98.6 ºF	98.6 ºF	98.6 ºF	98.6 ºF	98.6 ºF
P/A	Tenderness +	Soft	Soft	Soft	Soft
P/S	Bleeding +	-	-	-	+
P/V	Os closed	Os closed	Os closed	Os closed	Os closed

Table 3: Investigation

	Case1	Case2	Case3	Case4	Case 5
Beta HCG	2065	1682	3426	1224	5531
Hb	11.7g/dl	12.1g/dl	11g/dl	11.7g/dl	11.7g/dl
Blood group	B +ve	O -ve	O +ve	A +ve	A +ve
RFT	WNL	WNL	WNL	WNL	WNL
LFT	WNL	WNL	WNL	WNL	WNL



Pic 1: This MRI image shows an intrauterine gestational sac distending the endometrial cavity. The sac produces an outward bulge in the lower uterine segment at the site of cesarean section scar.

Results

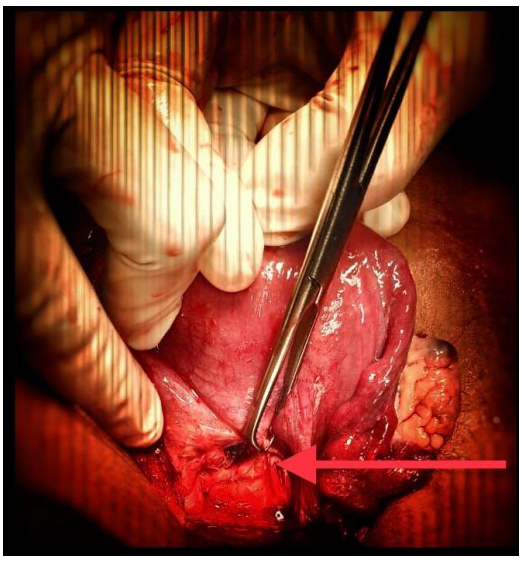
Case 1 – 25 year old Gravida 2 para 1Living 1 at 8weeks period of gestation with history of previous one cesarean presented with vaginal bleeding since one week. She was diagnosed with scar ectopic pregnancy and had received medication for medical termination of pregnancy, which failed. Ultrasound was repeated which showed a gestational sac in the anterior myometrium at the junction of corpus of uterus and cervix suggestive of scar ectopic. She was given a trial of medical management with Injection methotrexate. As the value of serum Beta HCG were not falling, a diagnostic laparoscopy was done which confirmed the scar ectopic. Due to reduced visual access atthe scar site, a laparotomy with excision of scar ectopic and scar site repair was done. Post operatively, the serum Beta HCG monitoring was done which showed decreasing trend and finally reached to negative levels. Histopathology report confirmed the features of products of conception at the scar site.

Case 2- 38 year old Gravida 2Para 1Living 1 at 8 weeks +4 days period of gestation with history of previous one cesarean presented with vaginal bleeding. She had taken self-medication for medical termination of pregnancy following which she had excessive vaginal bleeding. Ultrasound was done which showed suspected scar ectopic. MRI was done, which confirmed the diagnosis of pregnancy in the anterior and left lateral wall of lower uterine body. She underwent a diagnostic laparoscopy and laparoscopic excision of scar ectopic and suturing of the scar site. She received Injection anti D 300mcg in view of O negative blood group and indirect coombs test being negative. Serum Beta HCG monitoring was done which showed decreasing trend and finally reached to negative levels. Histopathology report confirmed the features of products of conception at the scar site.

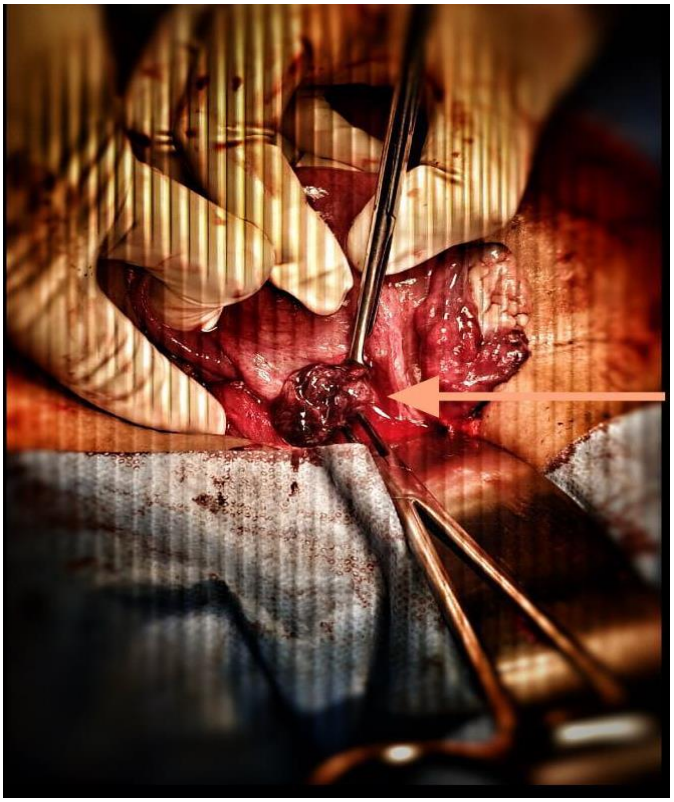
Case 3- 38 year old Gravida 3Para 1Living 1Abortion1 at 12 weeks +4 days period of gestation was referred from periphery with ultrasound scan showing altered endometrial differentiation with high vascularity suggestive of gestational trophoblastic disease. She had given history conception of pregnancy spontaneously and had an episode of vaginal bleeding. Ultrasound scan was done which showed viable fetus and following which she received progesterone injections weekly. She went for follow up of scan after 1 month which showed absent cardiac activity and she was given Tab Misoprostol 800 mcg for medical termination of pregnancy. Following ultrasound scan was done after 2 weeks to confirm the complete abortion, but the scan showed features suspicious of gestational trophoblastic disease. Serum beta HCG was done which was 7816 mIU/mL. MRI scan showed heterogeneous enhancing mass lesion in the uterine cavity infiltrating anterior myometrium with no clear fat planes with bladder wall suggestive of scar ectopic. She underwent a laparotomy. Prophylactic bilateral uterine artery ligation followed by excision of scar ectopic with repair and a bilateral tubal ligation was done. Post operatively serum Beta HCG monitoring was done and showed decreasing trend. Histopathology report confirmed the features of products of conception at the scar site.

Case 4 – 34 year old Gravida 5Para 1Living 1Abortion3 at 13 weeks +4 days period of gestation came with complaints of spotting per vagina for 10 days and pain abdomen for 3 days. She had a scan done which showed suspected scar ectopic. Serum Beta HCG was done which was 1224 mIU/mL. She had received one dose of Injection Methotrexate and was referred from periphery hospital for further management. MRI was done, which confirmed the diagnosis of scar ectopic and right ovarian cyst. She underwent laparotomy with scar excision with repair, bilateral salpingectomy and right ovarian cystectomy. Serum Beta HCG was monitored on outpatient basis until it reached negative levels. Histopathology report confirmed the features of products of conception at the scar site.

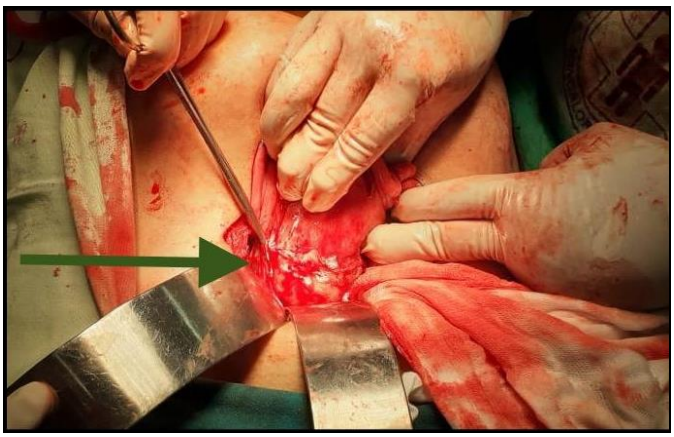
Case 5- 29 year old Gravida 3 Para 2 Living 2 at 9 weeks period of gestation with previous one normal delivery followed by cesarean section came with complaints of vaginal bleeding and pain abdomen. Scan was done, which was suggestive of cesarean scar ectopic. She underwent laparotomy for excision of scar with repair. Histopathology report confirmed the features of products of conception at the scar site. Beta HCG was monitored, which showed decreasing trend.



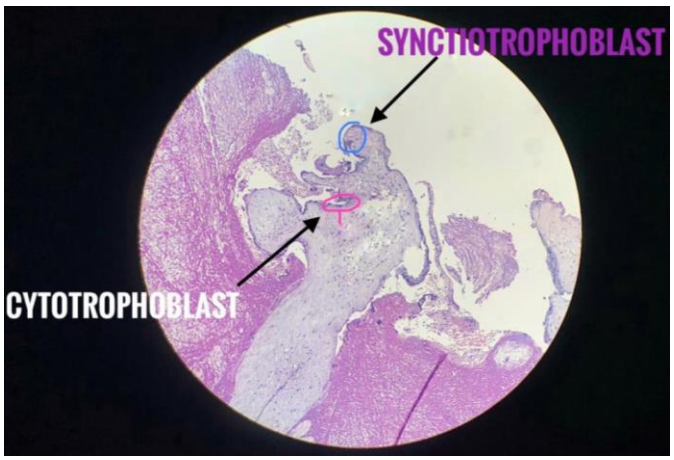
Pic 2: This image shows the previous scar site



Pic 3: This image shows the products of conception protruding after the incision was put over the scar site.



Pic 4: The image shows repair of scar site.



Pic 5: HPE image - Fragments of tissue showing chorionic villi composed of inner layer of cytotrophoblasts and outer layer of syncytiotrophoblast surrounded by areas of hemorrhage and fibrin deposition.

Discussion

The pathogenesis of cesarean scar pregnancy has been likened to that of placenta accreta and carries a similar risk for serious hemorrhage. Women with cesarean scar pregnancy usually present early and pain and bleeding are common. 40% of women are asymptomatic and the diagnosis is made during routine sonographic examination.

Sonographic ally differentiating between cervico-isthmic intrauterine pregnancy and cesarean scar pregnancy can be difficult. Although transvaginal ultrasound is the first imaging tool, MRI is useful when sonography is equivocal or inconclusive before intervention.

The optimal treatment for a cesarean scar pregnancy is unclear and therapy should be tailored to the patient's clinical presentation. Desire for future fertility, size and gestational age of pregnancy and hemodynamic stability should be considered when determining on treatment plan.

Management options include systemic or locally injected methotrexate either alone or combined with conservative surgery. Surgeries include visually guided suction curettage or transvaginal aspiration, hysteroscopic removal or isthmic excision. These are completed solely or more typically with adjunctive methotrexate. Often uterine artery embolization is used preoperatively to minimize hemorrhage risk.

Local excision with repair is the safest approach as uterine rupture and maternal death from exsanguination can occur during attempted medical therapy. Also, even if complete resolution of cesarean scar pregnancy occurs, the patient remains at risk of serious complications (e.g. uterine rupture, placenta accreta, severe hemorrhage) in subsequent pregnancies.

In subsequent pregnancies, recurrent scar implantation may occur. There are reports of successful term pregnancy, uterine rupture and placenta accrete [4, 5, 6, 7]. Patient should be counselled about the probable weakened nature of the cesarean scar and should undergo repeat cesarean delivery between 34 and 35+6 weeks of gestation [8].

Conclusion

The incidence of cesarean scar pregnancy is increasing and seems to be a trend for the future. Primary reason for this is the current increasing number of cesarean sections. The preventive strategies to reduce the number of cesarean scar pregnancy could be: -

1. Judicious and prudent decision taken for elective and emergency cesarean section.
2. Layered and complete closure of primary cesarean scar during the time of surgery.

The diagnosis of a scar ectopic is challenging and a delay in the management could lead to maternal morbidity and mortality. Failure in medical termination of pregnancy should raise an alarm of a suspected ectopic pregnancy. Although transvaginal ultrasound is the first imaging tool, MRI is useful when sonography is equivocal or inconclusive before intervention. The management of scar ectopic by excision could be carried out effectively through laparoscopy or laparotomy in experienced hands. Also, whenever patient comes with gestational trophoblastic disease and if the values of serum Beta HCG are not falling, one should always suspect the possibility of caesarean scar ectopic

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