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CASE REPORT **OPEN ACCESS**

Caeserean Scar Ectopic Pregnancy –Series of 10 Cases

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A B S T R A C T

Caeserean scar ectopic pregnancy (CSEP) is the rarest form of ectopic pregnancy with incidence of 1 in 2000 pregnancies. It requires high degree of suspicion and if not diagnosed and managed early, can result in maternal morbidity and mortality. Due to rise in rate of caesarean sections worldwide, therehas resulted anincrease in rate of caesarean scar ectopic pregnancies. Widespread availability of ultrasound services has helped in early diagnosis and timely management. Here we present 10 cases of Caesarean scar ectopic pregnancies that we have managed over period of 5 years (2018- 2023) in our tertiary care hospital. All cases were diagnosed by either transvaginal scan or transabdominal scan done at our hospital or done outside and then referred to us for management. There are different management options for caesarean scar ectopic pregnancy ranging from conservative to surgical treatment. Medical therapy is by using Inj Methotrexate 1mg /kg body weight intramuscular. Surgical treatment includes ultrasound guided suction evacuation, laparotomy, or laparoscopic excision of scar ectopic. Since the entity is rare, presentations vary, there is no fixed protocol of management of this condition. Patient may be benefited by surgery or sometimes medical management or there may be a combination of medical and surgical management. Traditionally laparotomy was done for removal of scar ectopic, however with advent of good ultrasound machines, wecould manage most cases using ultrasound guided suction evacuation alone. Very few cases required medical management and laparotomyhad to be done in two cases.

Keywords: Caeserean scar ectopic pregnancy (CSEP).

BACKGROUND

Ectopic pregnancy is defined as any pregnancy that implants in a location other than the uterine endometrium. While most ectopic pregnancies occur in the fallopian tube, pregnancies can also implant in the abdomen, cervix, ovary, and cornua of the uterus [1, 2]. A Cesarean scar ectopic pregnancy (CSEP) is a pregnancy implanted in the myometrium of a previous caesarean delivery scar. Cesarean scar ectopic pregnancy (CSEP) is rare and occurs in approximately one in every 2000 pregnancies of patients who have had a previous caesarean section.

Pathophysiology

There is a damage to decidua basalis leading to a microtubular defect between the endometrium and the scar in the myometrium. There is implantation of the pregnancy in the defect with invasion of trophoblast into the myometrial fibrous scar. There are 2 types on scar ectopic pregnancies, the endogenous type, and the exogenous type. In the exogenous type, the pregnancy is implanted in the scar and grows outwards towards the bladder and the peritoneum. It carries high risk of rupture and hemoperitoneum, if goes undiagnosed. In the endogenous one, the pregnancy implanted

at the scar site grow inwards towards the uterine cavity. It may continue to grow intrauterine but results in placenta previa or placenta accreta later. In either of the cases, the pregnancy is very risky and unless diagnosed and treated appropriately may lead to complications like intraperitonealhemorrhage, uterine rupture, multiple blood transfusions maternal morbidity and sometimes mortality.

With the tremendous increase in the rate of caesarean sections, there is a rise in number of caesarean scar ectopic pregnancies. Also, with easy availability of good ultrasound, detection rate of CSEP has increased. High risk of clinical suspicion, early diagnosis by ultrasound and timely appropriate management helps to conserve uterus and reduces maternal morbidityand mortality.

Here we would like to present series of 10 cases of caesarean scar ectopic pregnancy, few diagnosed by us and rest referred to us for management since we are a tertiary health care setup. Each of the patients had a different clinical presentation hence management was individualized to cater each of them. With early diagnosis and timely management, we could successfully manage all patients with good outcome.

Case Report 1

35 yr old female G7P1L1A4 having bicornuate uterus was referred to our hospital for failure of Medical MTP. Patient had a 12-year-old female baby delivered by elective section for breech. Had 4 spontaneous abortions prior to LSCS and had undergone check curettage each time. This time she took Medical MTP (T Mifepristone 200mg and 4 tablets of Misoprostol 200mg) at 6weeks pregnancy. She had spottingpervaginum for 15 days but did not abort and hence referred to us for further management. Transvaginal scan was done which showed live scar ectopic pregnancy of 8 weeks 3days with bulge of sac towards uterine cavity. B-hcg was 30,172 mIu /ml. Patient was counselled regarding diagnosis and various modalities of treatment available and their outcome. After proper consent ultrasound guided suction evacuation was done under saddle block. All products of conception could be removed. There was profuse bleeding intraoperatively which subsided once evacuation was over. InjTranexamic acid 1 gm was given and haemostatic pressure pack was kept at the anterior fornix for some time which was removed before shifting the patient. Next day postoperative B-hcg was 2299mIu/ml. Inj Methotrexate 50mg intramuscularsingle dose was given postoperatively. B HCG on Day 15 was 550mIU/ml. After 2 months B HCG was less than 2mIU/ ml. Patient had normal menses after 2 months.

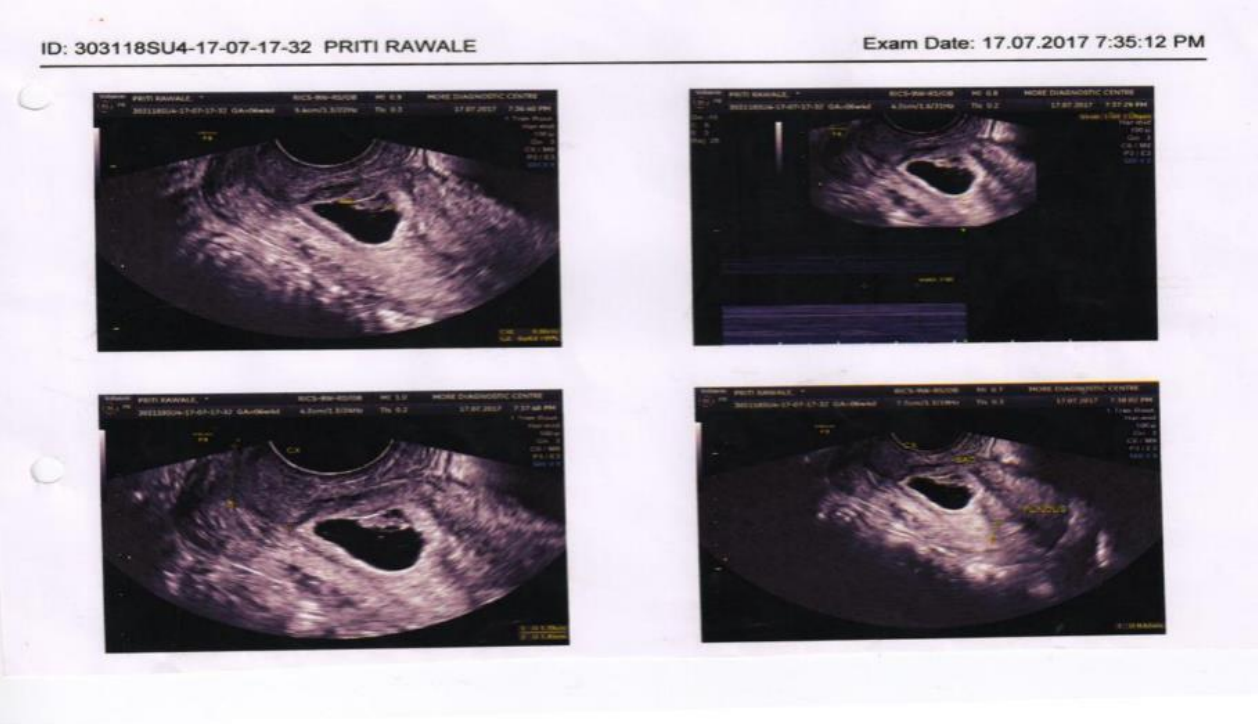
Case 1: TVS image 5 wks 3 days scar ectopic

Case 1: TVS image 8 weeks 5 days live scar ectopic

Case Report 2

26-year-old female G3P2L1D1 had come to casualty with 7 weeks amenorrhoea with spotting per vaginum. She was diagnosed case of bicornuate uterus. Her first baby was stillborn delivered after LSCS done for prolonged labour. Her second baby was 7-year-old male child born after elective LSCS but had autism. Provisional diagnosis was threatened abortion.

Transvaginal scan was done which showed live scar ectopic pregnancy of 6 weeks 5 days growing towards uterine cavity. B- Hcg was 99,052 mIu/ml. Patient was counselled regarding diagnosis and different modalities of management and their outcome. After proper consent, patient underwent ultrasound guided suction evacuation. There was moderate blood loss during procedure. Post operative day 2, B-hcg was 15,250mIU/ml. Transvaginal scan done on day 3 showed mixed echogenic mass 4cms by 2.5 cms at scar site with moderate vascularity but scar site was intact. In view of above mass and raised b-Hcg levels 3 doses of Inj Methotrexate were given intramuscular at weekly intervals with monitoring of B-Hcg level. B-Hcg reduced from 11784 mIu/ml to 5351mIU/ml andwas 133mIU /ml after 3rd dose of Inj Methotrexate. On transvaginal scan size of mass reduced to 1.7 cms by 1.3 cms with almost no vascularity. After 6 weeks B-Hcg was 8.7mIU/ml. Patients had normal menses after 3 months.

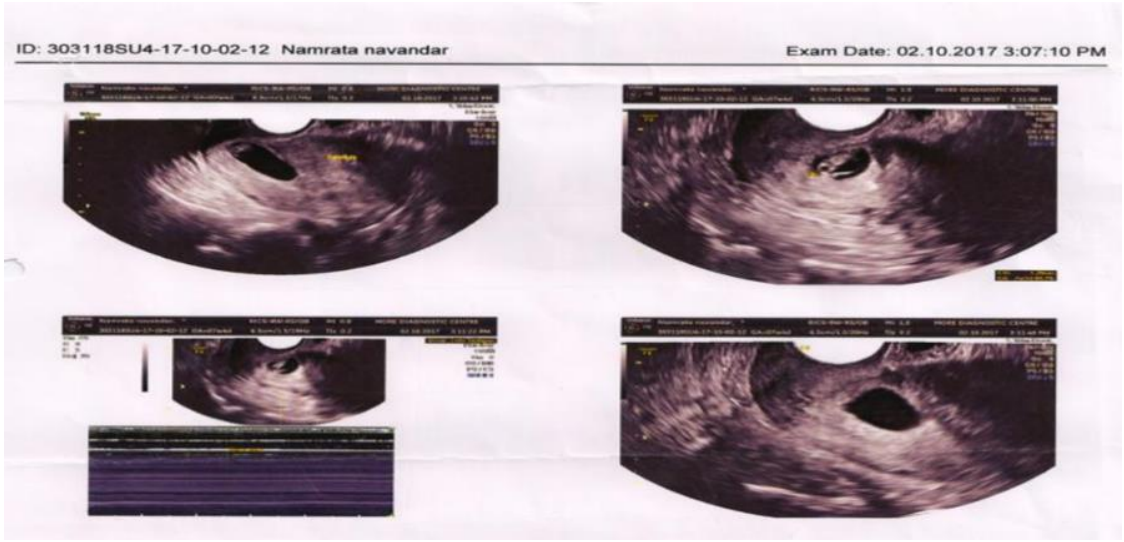


Case 2: TVS images of live scar ectopic 6 weeks 5 days

Case Report 3

32-year-old female G6P2L2Ect1A2 had visited her OBGY specialist for 7 weeks amenorrhoea and lower abdominal pain. She had 10-year-old female baby full term normal vaginal delivery. Appendicectomy done at 6 months after delivery. Second pregnancy was a right sided rupture ectopic, for which patient underwent laparotomy and right salpingectomy was done. After 2 years she underwent laparoscopic adhesiolysis and removal of tubo-ovarian mass. Third pregnancy was aborted by Medical MTP. Her fourth pregnancy was a 4-year-old male child delivered by elective LSCS for breech. In fifth pregnancy she had complete spontaneous abortion at 7 weeks. Patient had undergone dilatation and curettage for AUB -E 8 months back. Histopathology of endometrium showed normal secretory pattern.

Transvaginal scan showed live scar ectopic pregnancy of 7 weeks 3 days. B-Hcg was 19252 mIu/ml with gestational sac growing towards endometrial cavity. Patient was explained diagnosis and all modalities of management. After proper consent patient underwent ultrasound guided suction evacuation under spinal anaesthesia. There was minimal blood loss and no damage to scar site. Concurrently left side tubal ligation was done by mini-laparotomy. Postoperative day 2 B-Hcg was 648mIU/ml which reduced to 47mIU/ml after 1 month and then to normal. Patient had normal menses after 2 months.



Case 3: TVS images Live scar ectopic 7 weeks 5 days

Case Report 4

25-year-old female G2P1L1 came to casualty with 6 weeks amenorrhoea and pain in lower abdomen with spotting per vaginum. She had 1 year old male baby delivered by emergency LSCS. Patient wanted termination of pregnancy by Medical MTP. Transvaginal scan done showed 7weeks live scar ectopic pregnancy with endotrophic sac. B-Hcg was 15500mIU/ml. Patient was lactating mother hence Inj Methotrexate was contraindicated. Patient was counselled regarding diagnosis and appropriate management options were given. After due consent, we performed ultrasound guided suction evacuation under saddle block. All products were removed completely and there was no damage to scar site. Postop Day 2 B-Hcg reduced to 352 mIu/ml. B-Hcg after 1 month was 6 mIu/ml. Patient had normal menses after 2 months.

Case 4: TVS image live scar ectopic 7 weeks

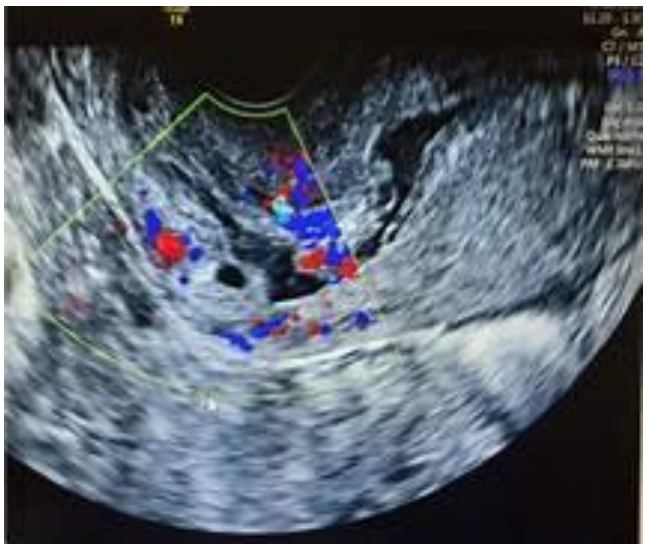
Case Report 5

28-year-old female G2P1L1 with 6 weeks pregnancy was referred from private OBGY doctor to our hospital for management of scar ectopic. Patient had a 4-year-old male baby delivered by LSCS in view of failure of induction. Patient took pills for abortion after which she developed pain in lower abdomen and spotting per vaginum. Transvaginal scan showed scar ectopic pregnancy of 6 weeks and 5 days but no fetal pole was seen. Patient was advised admission but patient refused and went home. Patient had passage of clots with bleeding at home. She came on next day for follow up. Repeat transvaginal scan showed empty uterine cavity with complete abortion of scar ectopic. B-Hcg was 281 mIu/ml. She came for follow up after 1 month when B -Hcg returned to normal. Patient resumed normal menstrual cycles after 2 months. In this case, maybe the gestational sac was superficially attached to scar site. Also, this being blighted ovum, decidual reaction was poor and hence there was no major bleeding.

Case 5: TVS image 6weeks scar ectopic with no fetal pole

Case Report 6

30-year-old female G2P1L1 with previous 1 LSCS was referred from private OBGY specialist for profuse bleeding post MTP. She had 3yr old male baby delivered by LSCS and had visited OBGY specialist for termination of pregnancy. Transvaginal scan showed twinpregnancy, one was 8weeks 2 days with single live embryo within and the other was a thick-walled gestational sac of 5 weeks and 6 days seen low down anteriorly along lower segment probably at scar site. There was no fetal pole in it. During suction evacuation done for MTP, there was profuse bleeding which stopped by conservative measures. Postoperative transvaginal scan showed doubtful septate uterus, which was empty and ET 9.5 mm. A heterogenous lesion of size 4.4 cms by 3.3cms was seen in left lateral wall communicating with endometrial cavity at uterocervical junction suggestive of haematoma. Patient again had heavy bout of bleeding after discharge to home. Bleeding was managed conservatively and patient was referred to tertiary care setup for further management. Transvaginal scan was repeated which showed empty uterine cavity with well-defined heterogenous lesion at scar site of size 4.6 by 4.5 cms with minimal vascularity. B-Hcg was 225.7 mIu/ml. Patient was taken for suction evacuation under ultrasound guidance and retained products of conception evacuated. There was profuse bleeding during evacuation which was controlled with uterine ballontamponade placed for 24 hours. Patient was followed up for next 2 months when b Hcg returned to normal and patient had regular menses.

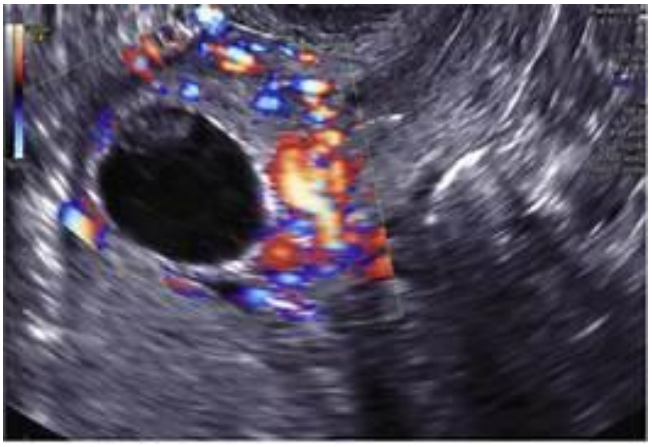


Case 6: TVS image of patient undergone suction evacuation for twin gestation. Heterogenous mass with moderate vascularity at site of LSCS scar

Case Report 7

32-year-old female G3P2L2 with 7 weeks amenorrhoea and mild pain lower abdomen came for MTP. She had 2 live issues one male and one female delivered by LSCS. Transvaginal scan done showed empty uterine cavity with normal sized uterus. Mixed echogenic lesion with moderate vascularity was seen at site of LSCS scar site of size 5.2 by

4.5 by 3.5 cms with multiple vascular spaces. No Gestational sac was seen. Hcg was 1824mIU/l. Pt was counselled regarding diagnosis and offered all modalities of management. After proper consent ultrasound guided suction evacuation was done under saddle block but only minimal products could be removed. On follow-up ultrasound, the vascular mass was persistent. Patient was taken for laparotomy. A bluish mass was seen at centre of LSCS scar bulging towards the peritoneal cavity. The mass was excised and uterus was restored in 2 layers using delayed absorbable suture. Histopathology of mass showed products of conception. Concurrent bilateral tubal ligation was done.



Case 7: TVS image 7 weeks scar ectopic bulging into peritoneal cavity

Case Report 8

28-year-old female G3P2L2 with previous 2 LSCS with 6 weeks amenorrhoea had come for MTP with tubal ligation. She had 6-year-old male baby and 2-year-old female baby. She had no specific complaints. On routine transvaginal scan, the uterus was found to be empty with 6 weeks gestational sac seen at scar site. There was thinning of myometrium with bulge of gestational sac towards peritoneal cavity. In view of exotropic nature of scar ectopic pregnancy patient was counselled and posted for laparotomy after due consent. Resection of scar ectopic was done and uterus was resutured. Bilateral tubal ligation was done at same setting.

Case 8: Live scar ectopic 7 weeks with Gsac bulging towards peritoneum

Case Report 9

32 years female G3P1L1A1 with 8 weeks amenorrhoea came with complains of continuous bleeding pv for 1 day. She had previous 8 yr old female baby full term LSCS. Transvaginal scan showed empty uterine cavity with scar ectopic of 7weeks 5 days. The sac was irregular and seen bulging more towards the endometrial cavity. There was fetal pole seen but no cardiac activity. After explaining patient the diagnosis and management, suction evacuation was done under ultrasound guidance. All products of conception were removed completely without any damage to scar site. Post op BHcg was 391 mIu/L. Patient came for follow up after 2 months and had normal menses.

Case 9: Scar ectopic 7 weeks with fetal pole but no cardiac activity

Case Report 10

29-year-old female G2P1L1 with 6 weeks amenorrhoea had toOBGYconsultant for MTP. She had previously 2years old baby delivered by LSCS. After clinical examination patient was given pills for medical MTP and was asked to follow up after 14 days and earlier if any excess bleeding pv or pain in abdomen. Ultrasound was not done for confirmation of location of pregnancy. Patient had minimal pv bleeding but did not pass products of conception. After 10 days patient of taking tablets, she had profuse bout of bleeding for which she visited a local doctor who gave InjTranexamic acid and IV fluids and sent her home. 2 days later patient again had profuse bleeding after which ultrasound was advised. Abdominal ultrasound showed empty uterus 8.5 cm by 4.9cm by 5.2 cm. There was evidence of well-defined heterogenous area seen along LSCS scar site measuring 44 mm by 32 mm with thinning of myometrial tissue suggestive of retained products of conception secondary to scar pregnancy. Patient was referred to our tertiary care hospital for further management. Repeat ultrasound with colour doppler was done which showed highly vascular mass at site of LSCS scar and mass protruding into the peritoneal cavity. Serum B – Hcg was 2986mIU/l. Patient was explained diagnosis and explained management options. Patient was posted for laparotomy after consent and arranging blood. Intraoperatively there was a large bluish mass at scar site around 6 by 5 cm which was highly vascular and on the verge of rupture into peritoneal cavity. The scar site was extremely thinned out. The scar ectopic was excised completely however the edges being vascular there was continuous bleeding. Bilateral uterine artery and ovarian artery ligation was done to reduce blood loss. Resuturing of uterine edges was attempted but edges being friable, they continued to give way. Finally obstetric hysterectomy had to be done to save the life of the patient.

Case 10: Scar ectopic pregnancy seen at laparotomy

Case 10: Excised mass of scar ectopic pregnancy

DISCUSSION

Cesarean scar ectopic pregnancy (CSEP) is defined as a pregnancy localized over the scar of a previous C-section and that is surrounded by myometrium and fibrotic tissue [2].

Pathogenesis: Impaired wound healing after injury during caesarean section leads to defect in myometrium at scar site where the blastocyst implants. Two types of CSEP have been described: in type 1 (endogenic), the gestational sac grows inward toward the cervical isthmus space (with a potential for carrying to term); in type 2 (exogenic), the gestational sac grows outward toward the bladder and abdominal wall [3]. In our series of 10 patients 7 cases were of endogenic variety, 2 were exogenic type and in the remaining one was too small within the scar and hence could not be classified.

Diagnosis:

Patients having CSEP may have varied clinical features and hence high degree of suspicion is needed in patients with previous CS having pregnancy. Early ultrasound helps in diagnosis. Patient may have amenorrhoea with vaginal spotting, irregular vaginal bleeding, pain in lower abdomen or be totally asymptomatic. Other situations where patients may be suspected to have CSEP are failure to abort after taking pills for medical abortion, profuse bleeding during suction evacuation for first trimester MTP and persistent vaginal bleeding after suction evacuation.

Transvaginal ultrasound is the preferred investigation ordered for diagnosis of CSEP, with a sensitivity of 86.4% [4]. Transabdominal ultrasound can also be used for diagnosis. The type of scar ectopic depends on the myometrial thickness between the gestational sac and the bladder and the distance between the sac and the endometrium. Negative "sliding organ sign," is defined as the inability to displace the gestational sac from its position at the level of the internal os by gentle pressure applied by the transabdominal probe. Colour flow Doppler shows distinct circular peritrophoblastic perfusion surrounding the gestational sac, that can help delineate the CSEP sac with location of the placenta in relation to the scar and proximity to the bladder.

Diagnostic criteria for CSEP [5]

1. Empty uterus with clearly visualized endometrium
2. Empty cervical canal
3. Gestational sac implanted in the lower anterior uterine segment at the presumed site of caesarean section incision scar
4. Thin or absent myometrium between the gestational sac and the bladder. (Majority of cases have a myometrium thickness <5 mm). "Sliding organ sign"
5. Doppler flow at the previous caesarean scar

Management

Several management options are available including medical, surgical, and combined medical and surgical management. There is no fixed protocol and the choice of management largely depends on clinical presentation of patient, type of scar ectopic, weeks of gestation, desire of patient to preserve fertility, skill and experience of the doctor, facilities available at the health care setup and finally patients' choice.

Medical management: It involves systemic administration of Injection Methotrexate 1mg/ kg body weight intramuscular either single dose or multiple such doses weekly upto 3 doses. Patient has to be followed up meticulously for falling B-Hcg titres for next 4 to 6 weeks. Sometimes patient may have rupture uterus and sudden intraperitoneal bleeding. It has been shown that more than 50% of patients treated with medical treatment need a secondary procedure for successful treatment of CSEP. Medical treatment has therefore been combined with surgical aspiration of the sac, guided by ultrasound, in some cases.

Surgical management: One can perform ultrasound guided suction evacuation of CSEP. This is easier to do in endotrophic CSEP where the sac is growing more towards the endometrial cavity. However, one has to perform procedure with extreme caution since it may result in rupture at scar site and torrential bleeding. Another management option is excision of CSEP by doing laparotomy or laparoscopy and suturing the myometrial defect. Sometimes Inj Methotrexate is given prior to surgery to reduce vascularity and reduce blood loss.

Combined Surgical and medical management:

Many times, medical or surgical management alone is not adequate, so a combination of both medical and surgical management is done for optimum outcome of CSEP. After ultrasound guided suction evacuation, Inj Methotrexate single doses or more is given to patient till B -Hcg values return to normal.

CONCLUSION

CSEP is a rare entity which requires high degree of clinical suspicion followed by a good ultrasound for diagnosis. With rising rates of caesarean section, there has been a rise in incidence of CSEP. Early diagnosis and prompt treatment can prevent complications and maternal morbidity and mortality can be endotrophic or exotropic, both are potentially dangerous if undiagnosed and can lead to complications especially exotropic one. Undiagnosed CSEP can be life threatening because of massive intraperitoneal haemorrhage or uterine rupture. Ultrasound guided gentle suction evacuation was successfully used in majority of cases of CSEP especially in CSEP which grow towards endometrium. It is relatively easy, safe, cost effective and minimally invasive procedure for termination of CSEP if used judiciously. Postoperative fewer dosesofInj Methotrexate are required for complete resolution of CSEP. Laparotomy was needed for only those cases where the CSEP was exotropic and there is extreme thinning of myometrium. All cases of CSEP were managed successfully with good outcome and minimal maternal morbidity.

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