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Case Series: Management Modalities of Caesarean Scar Ectopic Pregnancy

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Abstract: ***This study presents a comprehensive analysis of Caesarean Scar Ectopic CSE pregnancies, a rare form of ectopic pregnancy with increasing incidence due to the rise in caesarean deliveries. It explores the pathogenesis, closely related to placenta accreta, and delves into four distinct cases, detailing their management through medical and surgical interventions. The discussion highlights the importance of early diagnosis via transvaginal ultrasound TVS to prevent severe complications such as uterine rupture. Given the absence of a consensus on treatment due to the rarity of CSE, the study emphasizes individualized treatment plans considering factors like the patients desire for future fertility, gestational age, and hemodynamic stability. The findings suggest that both medical and surgical approaches have their merits, but no single protocol proves superior. The study underscores the significance of awareness and the role of specific ultrasound features, supported by MRI, in the early recognition and management of CSE to preserve fertility and prevent adverse outcomes.***

Keywords: Caesarean Scar Ectopic Pregnancy, Transvaginal Ultrasound, Methotrexate, Fertility Preservation, Medical and Surgical Management

1. Introduction

Ectopic pregnancy is defined as any pregnancy that implants in a location other than the uterine endometrium. Most ectopic pregnancies occur in the fallopian tube, but embryo can also implant in the abdomen, cervix, ovary and cornua of the uterus.1

Caesarean scar ectopic (CSE) pregnancy is defined as implantation into the myometrial defect occurring at the site of the previous uterine incision. One of the rarest of all ectopic pregnancies with prevalence of approximately 1 in 2000 pregnancies. The incidence has risen in recent times due to increase in number of caesarean deliveries. These pregnancies may be ongoing potentially viable pregnancies or miscarriages within the scar.2

Pathogenesis of CSE resembles that of placenta accreta i. e. chorionic villi invading through the myometrium to the serosal surface of the uterus involving the region of the previous uterine scar.3 Whether the incidence of CSE increases with multiple caesarean deliveries or if it is affected by either one or two - layer uterine incision closures during caesarean is still unknown and require further in - depth evaluation.4

2. Cases

Case 1
35 - year - old female, Gravida (G) 3 Para (P) 2 Live (L) 2 with history of two previous Lower segment caesarean section (LSCS) deliveries, presented with 06 weeks 05 days of pregnancy. Patient had no complaints, regular cycles, with no other significant medical history. Vitals were normal and stable. TVS revealed a Single intrauterine gestational sac (SIUGS) over LSCS scar, sac diameter measuring 06 weeks and 02 days. Yolk Sac (YP), Fetal pole (FP) and fetal cardiac activity (FCA) were present (Fig 1). Liver Function Tests (LFTs) were normal. Couple were counselled and medical management was planned. Pre - procedure β - hCG was 99316 mIU/ml. Intra - sac injection of Inj Methotrexate 90 mg and 10 meq/ml Inj KCL 5 ml was injected using OPU needle under USG guidance till FCA disappeared (Fig 2). Day four and day 7 β - hCG level were 84379 mIU/ml and 111548 mIU/ml respectively. TVS was repeated, collapsed sac and absent FCA were noticed. Second dose of Inj Methotrexate 90 mg was administered and β - hCG was repeated on day 7 which was 25576mIU/ml. Patient was discharged on Inj DMPA 150 mg IM. B - hCG was undetectable after 4 weeks.

Case 2
A 35 - year - old female, G2P2L2 with history of two previous LSCS deliveries, presented with 05 weeks 05 days of pregnancy. TVS revealed SIUGS over previous LSCS scar, about 06 weeks and 00 days. YS, FP & FCA were present. Pre - procedure β - hCG was 99316 mIU/ml. She was

managed as per previous case. Day four β - hCG level was 13582 mIU/ml and day 7 was 10488 mIU/ml. TVS showed collapsed sac and absent FCA. Second dose of Inj Methotrexate 90 mg was administered and β - hCG was repeated on day 7 which was 1293 mIU/ml. Patient was discharged on Inj DMPA 150 mg IM. β - hCG after 4 weeks was undetectable.

Case 3

29 - year - old female, G2P1L1 with history of previous LSCS delivery, presented with 06 weeks of pregnancy. TVS revealed SIUGS over previous LSCS scar, about 06 weeks and 00 days, YS was present but FP, FCA were absent. LFTs were normal. Multidose regime was planned. Pre - procedure β - hCG on day 1 was 3424mIU/ml. Inj Methotrexate 50 mg IM and Inj Leucovorin 5 mg IV was administered on alternate day. β - hCG was measured on day 3, 5, 7 and the values were 4084 mIU/ml, 5088 mIU/ml, and 2844 mIU/ml respectively. Repeat TVS, revealed a crenate sac with sub chorionic collection. Under USG guidance MVA was done. Patient was discharged on Inj DMPA 150 mg IM. β - hCG after 4 weeks was undetectable.

Case 4

28 - year - old female, G4P2L2A1 with history of previous LSCS deliveries, last child birth 8 months back presented with bleeding per vagina on & off with passage of clots. TVS revealed a sac like structure in lower uterine segment near previous LSCS scar. Single dose regime was planned in this patient. Pre - procedure β - hCG on day 1 was 1011 mIU/ml. Inj Methotrexate 70 mg IM was administered. β - hCG was measured on day 7 and the values were 582 mIU/ml. TVS was repeated, revealed a crenate sac. Patient was discharged on Inj DMPA 150 mg IM. β - hCG after 4 weeks was undetectable.

3. Discussion

Two types of CSEP have been described: in type 1, the gestational sac grows inward toward the cervical isthmus space in type 2, gestational sac grows outward toward the bladder and abdominal wall. Determination of the type may help with counselling on expectant management or the medical/surgical approach for termination.

Women with CSP usually present early, pain and bleeding are common. Up to 40 percent of women are asymptomatic, diagnosis is made during routine TVS.

Early diagnosis of CSEP is necessary to avoid the high risk of bleeding and associated morbidity and mortality if uterine rupture occurs. The most common presentations include vaginal bleeding, generalized abdominal pain, and previous history of cesarean section. TVS is the preferred test for diagnosis of CSP, with a sensitivity of 86.4%.

Due to the rarity of the condition, there's no consensus on the preferred mode of treatment. Treatment should be tailored to the individual patient. Desire for future fertility, size and gestational age of the pregnancy, and hemodynamic stability should be considered when determining a treatment plan. Treatment objectives should be to perform embryo reduction prior to rupture, to remove the gestation sac, and to preserve the patient's future fertility.

Medical Treatment or Combined

There should be no reason to doubt efficacy of MTX in CSEP. A dose of 50 mg/m^2 or 1 mg/kg has proven to be useful. It has been shown that > 50% of patients treated with medical treatment need a secondary procedure for successful treatment of CSEP.

Conservative medical treatment alone or in combination has the advantage of preserving fertility but requires time and patience. Its disadvantages are that it may take 4–16 weeks for β - hCG to drop to normal and risk of rupture and haemorrhage.

Surgical

Several additional techniques have been described as treatment of CSEP, including dilation and curettage; direct excision of CSEP via an abdominal, laparoscopic, or hysteroscopic approach; and definitive management with hysterectomy.

4. Conclusion

Our experience while using both surgical and medical management protocol for CSE reveals that no single management protocol is superior to other. Optimal management of CSE should be individualized depending upon the hemodynamic status, serum β - hCG levels, size of gestational sac, desire for preservation of future fertility, patient's compliance for long term follow - up and available infra - structure of the hospital. Awareness of specific ultrasound features of scar ectopic pregnancy supported by MRI is crucial for early recognition, correct diagnosis, and initiating prompt management to prevent complications.

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