Caesarean scar ectopic pregnancy: A 15-year retrospective case study of medical management as first line treatment

Dr Malgosia Kowalski MD, Dr Justine Toh MBBS
Women's and Children's Hospital Adelaide, SA

Abstract

Caesarean scar ectopic pregnancy: A 15-year retrospective case study of medical management as first line treatment of Caesarean scar ectopic pregnancy

Objectives: To review cases of caesarean scar ectopic pregnancy (CSEP) at a tertiary metropolitan hospital, where first line management has been predominantly medical for the last 15 years. The treatment outcomes in terms of safety, efficacy and success were reviewed to add to the growing body of evidence supporting medical treatment of CSEP.
Methods: Patients with an official ultrasound diagnosis of CSEP over the period January 2005 to December 2020 at the Women's and Children's Hospital (WCH) in South Australia, were identified and reviewed for demographical data, presenting symptoms, gestation at diagnosis, quantitative human chorionic gonadotrophin (HCG) levels at diagnosis, treatment modality, need for successive treatment, time to resolution and complications. The data was analysed to determine success of initial treatment, safety and efficacy of medical treatment.
Findings: 38 cases of CSEP were identified over the 15-year period, all diagnosed primarily based on ultrasound findings. Treatment was individualised based on clinical presentation, risk factors and patient preference. 32 of 38 patients received medical management as first-line treatment, consisting primarily of intramuscular (IM) or intrasac methotrexate +/- intrasac potassium chloride (KCl). 6 cases either received medical management followed by surgical intervention, or primary surgical management due to evidence of rupture, haemorrhage, or extension into the bladder. 31 of 32 cases where initial management was medical required no further surgical intervention giving a success rate of 97%. 21 of 32 cases were successful following initial treatment, and 11 of 32 required further medication before resolving. 1 case required surgical uterine artery embolisation due to the complication of increased size of the pregnancy despite two doses of medication.
Conclusions: This study provides support to first-line medical management of CSEP as opposed to surgical intervention in a specific cohort of women who show no evidence of rupture, are clinically stable, have no ultrasound evidence of extrauterine invasion and are reliable to follow up.
Key Words: Caesarean scar ectopic pregnancy, ectopic pregnancy, medical management, methotrexate, intrasac methotrexate

Introduction

Caesarean scar ectopic pregnancies (CSEP) are a rare form of ectopic pregnancy where the embryo embeds itself into the myometrium of a previous CS uterine wound. CSEP incidence is increasing globally (1:1800-2226 of pregnancies) secondary to increasing rates of CS and improved methods of imaging.

Complications include bladder invasion, uterine rupture, life-threatening maternal haemorrhage and hysterectomy.

Current management options are based on case findings of reports and cohort studies and include:

- Surgical - combination of laparoscopy guided dilatation and curettage (D&C) and hysteroscopy guided D&C
- Medical - Systemic and intra-sac methotrexate with or without potassium chloride
- Combination of medical and surgical

The aim of the study was to review management, success and complications in a tertiary maternity centre where first-line management has been primarily medical.

Methods

Patients admitted and diagnosed with a CSEP at the Women's and Children's Hosptial (WCH) in Adelaide, South Australia between January 2005 and December 2020 were included in a retrospective case series

Data collected included - presenting symptoms, gestation at presentation, ultrasound (US) findings, quantitative human chorionic gonadotrophin (qBHCG) concentration, treatment modality and outcomes

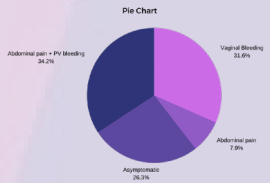
Outcomes of interest - success of the primary treatment regime, complications (further unplanned intervention) and time to resolution of qBHCG

Cases were grouped according to treatment methods

Results

Clinical presentation

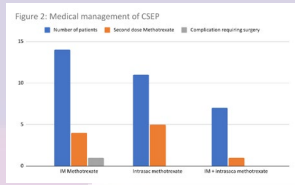
- A total of 38 CSEP patients were identified, average maternal age of 31-35yo
- The majority of women had 2 or more CS (73%), the most common being 2 previous (47%)



- 76% were referred from other health centers
- Gestational age averaged 6+4 - 7+3, qBHCG of 20000
- 63% of women had a fetal heart beat detected

Management

- Women were admitted and managed by a team of gynaecologists
- Treatment plans were individualised and based on clinical presentation and stability, qBHCG levels, US findings, personal preferences and available expertise



- Figure 2 shows the different medical management combinations
- Potassium chloride was given additionally in some cases where a fetal heart beat was detected

- 5 patient had case-indicated surgical management
  - 2 had evidence of rupture and went on to have laparotomies. One of these cases was complicated by a bladder injury and severe haemorhage with the patient going to intensive care
  - 2 patients had laparoscopically-guide D&C due to evidence of myometrium bulging towards the bladder
  - 1 patient had a suction D&C as indicated by BMI

Outcomes

- Of the patients receiving medical management
  - 66% had successful primary treatment
  - 34% required a second dose of methotrexate due to increasing qBHCG levels, persistent fetal heart activity or growth of pregnancy tissue
  - 97% of patients required no further surgical intervention following medical management
- All women had their qBHCG followed until negative from day 1, day 4 and day 7 and then weekly. Median time to resolution was 73 days
- 36% of patients went on to have a further successful pregnancy without CSEP

Complications

- 1 patient who received medical management had ongoing bleeding which required surgical uterine artery embolisation
- 1 patient who received laparoscopically-guided suction D&C had retained products of conception and haemorrhage of 1000ml requiring a return to theatre for further D&C and balloon tamponade
- 1 woman with evidence of uterine rupture was complicated with haemorrhage, a bladder injury requiring internal iliac artery ligation and admission to ICU.

Discussion

Incidence of CSEP in our hospital is similar to that quoted by others - 2.6% of all ectopic pregnancies.Current evidence points towards surgical management of CSEP as first lin

Our findings support medical management of CSEP as first line in suitable patients, with minimal complications and excellent success rates (97%) with 1 or 2 doses of methotrexate.

For cases where gestation was <8 weeks and no FHR, IM methotrexate alone was used, with no limit to qBHCG level at diagnosis with a success rate of 100%. 36%, however, did require a second dose.

For cases where fetal cardiac activity was present, intrasac methotrexate alone or combined with IM methotrexate was used, with or without KCl.

Both methods had a 100% success after at least two doses of methotrexate, with no surgical complications noted.

36% of intrasac methotrexate alone had to have two doses whilst 25% of the combined had two doses.

Surgical treatment has been heralded as first line treatment in recent studies, showing higher rates of success, shorter time to resolution and high rates of patient satisfaction. Our findings showed a similar risk of complications to medical management, although this was used in higher risk cases compared to the medical management group

Time to resolution was definitely longer in patients receiving medical management and required patients to be able to comply with follow up blood tests

Conclusion

Our findings support medical management as first line treatment in appropriately selected patients

Few complications or adverse outcomes were identified