Management of non-tubal ectopic pregnancies at a large tertiary hospital

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Abstract

There are limited data on the management of non-tubal ectopic pregnancies (NTEP). We reviewed the management of these cases at a tertiary centre with a dedicated institutional protocol. All cases of confirmed NTEP were retrospectively identified from 2006 to 2014. Records were reviewed for presenting features, mode and success of initial management, preservation of fertility and length of hospital stay. The main outcome measure was the success rate of medical management with methotrexate. The 60 cases identified included 34 cornual, 14 Caesarean section scar, nine cervical and three cervical involving previous Caesarean scar. Primary surgical management was performed in 22 patients. Thirty-eight patients received medical therapy with single or multidose methotrexate. Successful medical management was observed in 33 (87%); however, length of stay was significantly longer compared with surgical patients (mean 14 ± 12 days versus 5 ± 2 days, P < 0.01). Hysterectomy was performed in three patients (one surgical group, two medical group). There was one case of methotrexate toxicity with no long-term adverse outcome. Medical management of NTEP is a safe first-line therapy for clinically stable patients desiring preservation of fertility despite a longer period of inpatient monitoring and follow-up.

Keywords: Cervical ectopic, Cornual ectopic, Ectopic pregnancy, Fertility, Non-tubal ectopic pregnancy, Scar ectopic

Introduction

Non-tubal ectopic pregnancies (NTEP) represent approximately 10% of all ectopic pregnancies (Bouyer et al., 2002). They may implant in the cervix, uterine cornu, ovary, abdominal cavity or Caesarean section scar and pose significant diagnostic and management dilemmas. The incidence of NTEP is rising, largely due to the increase in Caesarean section...
delivery rates and use of assisted reproductive techniques (Kirk et al., 2006; Seow et al., 2004). The major complications are the high risk of haemorrhage and potential loss of fertility.

Management usually includes a combination of medical and surgical modalities. Medical management of ectopic pregnancies is primarily systemic and/or local methotrexate administration. Described surgical treatment modalities include suction curette, hysteroscopic resection or vessel coagulation, wedge resection, balloon tamponade and hysterectomy (Ash et al., 2007; Gun and Mavrogiorgis, 2002; Litwicka and Greco, 2011; Ng et al., 2009; Sanz and Verosko, 2002). The choice of procedure depends on clinical presentation, location of ectopic and surgeon experience or preference. Surgical management is associated with increased morbidity and potential loss of fertility. Advances and increasing availability of first trimester ultrasound and quantitative beta human chorionic gonadotrophin (βHCG) measurements have resulted in earlier diagnosis of all ectopic pregnancies including NTEP. Accordingly, it is increasingly feasible to manage these cases medically, with associated reduction in morbidity and preservation of fertility.

The literature regarding medical management of NTEP consists of case reports and small case series. There are no consensus guidelines informing management of these cases and further investigation is required to determine optimal management of these patients. This study seeks to add to the current body of evidence regarding management of NTEP by evaluating the management of such patients over a 9-year period at a large tertiary referral centre.

Materials and methods

A retrospective review of all patients who received care for an NTEP was performed from 2006 to 2014 at Monash Health, a tertiary care centre. The local human research ethics committee approved the study on 2 June 2011 (reference number 11185Q) as a quality assurance study.

Patient cases were identified from the clinical coding data collected for each hospital care episode. Specifically, cases of cervical, cornual and Caesarean section scar ectopic pregnancies were reviewed. Ovarian ectopic pregnancies were excluded, as these could not be isolated from the coding data.

An online survey tool (Survey Monkey Inc, Palo Alto, California) was used to assist in the collection of patient data. Data were collected from the patient record regarding the patient demographics, previous pregnancy history where available, gestational age and symptoms at presentation, βHCG at presentation and ultrasound findings at diagnosis. If medical management was instituted, the protocol for medical management was recorded including doses of systemic methotrexate, repeat doses and the use of direct methotrexate injection into the gestational sac. If the eventual management differed from the intended mode of management, the reasons for this change were noted. Mode of surgical management was also recorded from the operative records. The time to resolution as determined by the return of βHCG levels to normal (<5 mIU/ml) and duration of inpatient stay were recorded.

As per institutional protocol (Figure 1), the attempted first line of management was a conservative approach with medical therapy, predominantly with a multidose regimen. Single dose therapy was administered in some instances at the discretion of the treating clinician (Appendix S1). Primary surgical management was mandated when there was evidence of haemodynamic instability (systolic blood pressure < 90 mmHg, haemorrhage requiring blood transfusion, postural blood pressure change > 30 mmHg, syncope or presyncope) or acute surgical abdomen (persisting severe abdominal pain or signs of abdominal peritonism). A primary surgical approach was also performed if there was a pregnancy of unknown location whereby diagnostic laparoscopy was undertaken, or if the patient requested surgical fertility. Secondary surgical therapy was performed in cases of a failure of medical therapy, defined as development of haemodynamic instability or acute surgical abdomen as above.

These results were then collated to calculate summary statistics and to examine the efficacy of medical management in this patient group. Data are presented as mean ± SD and median (interquartile range, IQR) as appropriate based on the normal distribution.

Results

Baseline characteristics

Five hundred and forty-six patients received care for suspected or confirmed ectopic pregnancy over the study period. The mean age was 33 ± 5 years with 45% of patients having had at least one previous Caesarean delivery. There were 60 cases of NTEP: 57% cornual pregnancies, 23% scar implantations, 15% cervical ectopics and 5% cervical ectopics involving a previous Caesarean section scar (Figure 2).

Presentation and diagnosis

The commonest presenting features were per-vaginal bleeding (57%), abdominal pain (49%) or a combination of both (25%). Evidence of ruptured ectopic (haemodynamic instability [11%] or acute surgical abdomen [15%]) was present in 26% of presenting patients, 91% of whom were subsequently diagnosed to have a cornual pregnancy. The median quantitative βHCG at diagnosis was 13,659 mIU/ml (IQR 4326, 32506).

Management

Primary surgical management was instituted in 22 patients (37%). Of these, 20 (91%) were cornual ectopic pregnancies. Of the other two patients, one requested surgical therapy for sterility measures. The other had a pregnancy of unknown location (rising HCG with no pregnancy identified definitively on ultrasound and MRI) and laparoscopy was performed with diagnostic intent. Both laparoscopic and open procedures were performed for definitive management. Except for one patient who desired a hysterectomy, all surgical procedures were successful in preserving fertility. There were no major surgical complications.

Thirty-eight patients (63%) received primary medical management with methotrexate. Dosing regimens ranged from single dose to multidose regimens of up to five doses of

![Figure 1](image_url)

![Figure 2](image_url)