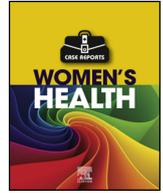




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Persistent omental trophoblastic implantation following salpingostomy, salpingectomy and methotrexate for ectopic pregnancy: A case report

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ABSTRACT

2% of all pregnancies are ectopic. Optimal surgical management is currently salpingectomy over salpingostomy, secondary to the risks of persistent trophoblastic tissue or omental implants (15%). However, rare cases of omental trophoblastic implants following laparoscopic salpingectomy have been noted in the literature. Current practice dictates that serial determinations of human chorionic gonadotropin (beta-hCG) levels after salpingectomy are not required, as it is considered a definitive treatment. However, given that these cases are hard to interpret through ultrasound and are almost always detected via sudden-onset abdominal pain and acute haemoperitoneum (33%), an argument can be made for post-operative beta-hCG assessment.

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1. Introduction

Ectopic pregnancies account for approximately 2% of all pregnancies [1]. An increase in prevalence has dictated changes to both diagnosis and management of these pregnancies. Treatment paradigms have sought to prioritize minimizing risk to the patient whilst preserving fertility wherever possible. Current guidelines indicate that the once commonly used surgical management strategy of salpingostomy is no longer first-line management for initial presentation of tubal ectopic pregnancy; however, it may be considered for repeated presentations where ongoing fertility is desired [1]. This is secondary to the risk of persistent trophoblastic tissue or omental implants, which can occur in up to 15% of women undergoing salpingostomy [2–5]. The rates of persistent trophoblastic implants following successful salpingectomy are less clear, with very few cases reported in the literature [3,5,7].

This article examines research to date on omental trophoblastic implants following laparoscopic salpingectomy and management with methotrexate. It also outlines an extremely unusual case presentation of persistent omental trophoblastic implants following an ectopic pregnancy that was managed by laparoscopic salpingostomy, salpingectomy and methotrexate.

A retrospective review of ectopic pregnancy at the Royal Prince Alfred Hospital, Australia, was performed and a single patient was identified with persistent omental trophoblastic implants within the last five years. A literature review on the topic was performed using Ovid MEDLINE, EMBASE, Scopus, Google Scholar and Cochrane databases using a combination of keywords and MeSH terms (Table 1). Hospital departmental ethics was waived following written patient consent.

2. Case Presentation

AA, a 24-year-old woman, presented acutely with pain in the right iliac fossa and a positive pregnancy test. Her gynaecological history included one term normal vaginal birth and one conservatively managed left ectopic pregnancy.

On admission, AA had a human chorionic gonadotropin (beta-hCG) level of 3413 IU/l, and ultrasound showed a right tubal ectopic pregnancy with a 2 mm fetal pole without a heart beat and 20mls of blood in the pouch of Douglas. The patient was counselled and advised to have a salpingectomy but she requested a salpingostomy if the unaffected left tube appeared abnormal on laparoscopy.

AA underwent a laparoscopy, where the left tube was found to adhere to the pelvic sidewall and omentum, with a closed fimbrial end. The ectopic pregnancy was identified in the right fallopian tube and salpingostomy was attempted, but was converted to salpingectomy as all trophoblastic tissue could not be safely removed. Her immediate post-operative course was uneventful and histopathology confirmed a tubal ectopic pregnancy at review two weeks later.

AA presented to the emergency department 19 days following her operation with one week of lower abdominal and coccygeal pain. She was thoroughly investigated by the emergency physicians; tests included a FBC, U&E, LFT, beta-hCG, group and antibody screen, and an obstetrics consultation was requested. She was haemodynamically stable with a normal haemoglobin level. The histopathology was confirmed at this presentation, noting both fallopian tube and gestational tissue present from her previous surgery (Fig. 1). As such, the condition was managed as a presumed urinary tract infection; the patient was discharged home and the beta-hCG level was not followed up, as histology had been confirmed. On post-operative day 27 she presented to the emergency department with ongoing lower abdominal pain,

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Table 1
Overview of keywords and MeSH terms.

Keywords	MeSH terms
Tubal pregnancy	"Pregnancy, Tubal/surgery" [MeSH Terms], "Pregnancy, Tubal/surgery" [MeSH Terms] AND "Peritoneum/pathology" [MeSH Terms]
Persistent ectopic pregnancy	"Ectopic Pregnancy" [MeSH Terms]
Salpingectomy	"Salpingectomy" [MeSH Terms], "Salpingostomy" [MeSH Terms]
Extratumal secondary trophoblastic implants	
Methotrexate	
Haemoperitoneum	

polypharmacy overdose and suicidal ideation. She was found to be haemodynamically stable and her beta-hCG level was 5718 IU/l. At this time, it was noted that the previously ordered test reported her beta-hCG level to have been 5076 IU/l. Ultrasound showed a simple right ovarian cyst, 20 mm right adnexal avascular mass, 27 mm vascular mass posterior to the uterus presumed to be persistent trophoblastic tissue, with 20mls of free fluid in the pouch of Douglas. Further operative management versus treatment with methotrexate was discussed with the patient. Methotrexate was administered the same day and she was admitted for observation. She developed sudden-onset severe generalized lower abdominal pain on day 2 post-methotrexate. Haemoglobin had dropped to 98 g/L (from 126 g/l), and 3 h later she became increasingly unwell. A decision was made to return to theatre. At this point her haemoglobin was 59 g/l.

At the time of surgery she was found to have a 3000 ml haemoperitoneum and trophoblastic tissue was seen on the right pelvic sidewall, bladder peritoneum and omentum. The haemoperitoneum was suctioned and all visible trophoblastic tissue was removed laparoscopically. She received 3 units of packed red blood cells and other blood products intraoperatively. The patient made an uneventful recovery and her care was handed to the psychiatric team on day 5 after surgery. Her beta-hCG level was <5 IU/l at follow-up 2 weeks later. Histopathology confirmed trophoblastic tissue adherent to the right pelvic sidewall, bladder peritoneum and omentum (Fig. 2).

Considered aetiologies of the trophoblastic implants included residual tissue from the previous salpingostomy, simultaneous peritoneal and tubal ectopic pregnancies, and a subsequent peritoneal ectopic pregnancy. With dating of the chorionic villi, subsequent peritoneal ectopic pregnancy was excluded, and the multifocality of the deposits made simultaneous tubal and peritoneal ectopic pregnancies highly unlikely.

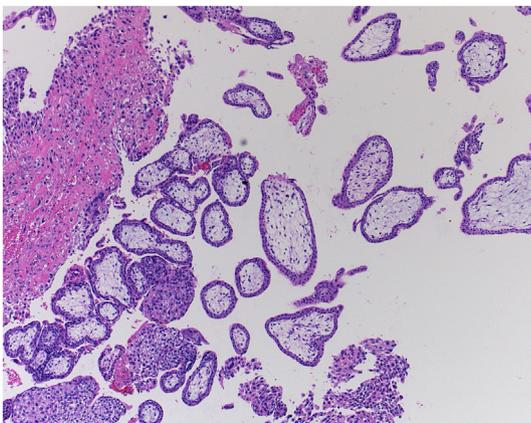


Fig. 1. Surgery One – Histopathology, fallopian tube & trophoblastic tissue.

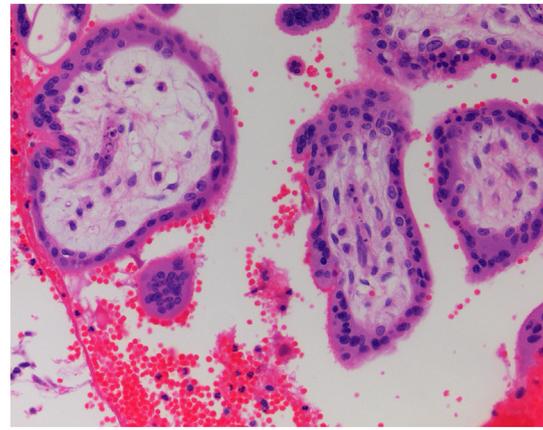


Fig. 2. Surgery Two – Histopathology, trophoblastic tissue and omentum.

3. Discussion

Omental implants of gestational tissue following successful surgical or medical management of an ectopic pregnancy is a rare complication [4–8]. To our knowledge, fewer than 40 cases worldwide have been reported since 1985 and only nine of these cases reflect persistent trophoblastic implantation following successful laparoscopic salpingectomy [4,6,9]. The vast majority of cases describe persistent trophoblastic tissue following treatment of ectopic pregnancy with salpingostomy alone, and guidelines appropriately dictate that serial beta-hCG follow-up should be done to aid diagnosis in this subset of patients [4,5,7–12]. Current practice dictates that serial beta-hCG levels after salpingectomy for ectopic pregnancy are not required as it is considered a definitive treatment [1,13,14].

This article outlines a complex case where the management strategy included attempted salpingostomy, successful salpingectomy (with confirmed pathology) and subsequent treatment with methotrexate. Only one other case report to our knowledge describes a similar management strategy [10]. Whilst cases of omental trophoblastic implants following laparoscopic salpingectomy remain rare, given that they are hard to interpret through ultrasound and are almost always detected via sudden-onset abdominal pain and acute haemoperitoneum (33%), an argument can be made for post-operative beta-hCG assessment [15,16]. In our case, with the benefit of hindsight, it would have been reasonable to have performed serial beta-hCG measurements given the attempted salpingostomy, regardless of confirmed histopathology.

There is limited definitive data on the effect of intramuscular methotrexate as a treatment for omental implants. Several case studies suggest that treatment with methotrexate can prevent sudden haemorrhagic shock and that it is a safe treatment option [5,17]. Bora et al. suggest that post-operative methotrexate can reduce the proportion of patients with persistent trophoblastic tissue following salpingostomy from 15% to 2% and would arguably reduce the rates of omental trophoblastic implants that result in acute haemoperitoneum [18]. Our patient received methotrexate 27 days after her initial surgery; however, she still had a significant intra-abdominal bleed. Given current research, an initial dose of methotrexate following any ectopic pregnancy where rupture or spillage of trophoblastic tissue is a high risk could be considered post-operatively.

The mortality rate for an abdominal pregnancy is seven times higher than in non-abdominal cases and up to 10% of pregnancy-related deaths are secondary to ruptured ectopic pregnancy [19,20]. It is important to ensure patient safety and minimize the likelihood of persistent ectopic pregnancy or trophoblastic implants when managing these patients surgically. Suggested practice to minimize this include aspiration of blood clot or tissue, minimizing the degree of trendelenburg positioning, extraction of the tissue from the fallopian tube and use of a retrieval

bag, as well as the use of suction as opposed to irrigation at the time of surgery [5,10].

This case prompts consideration of both medical and surgical treatment for ectopic pregnancy and of whether we are ensuring safe and appropriate follow-up of our patients. Management strategies for ectopic pregnancies are continuing to change with the evolution of the specialty. Safe and appropriate follow-up for all patients with ectopic pregnancies is critical to reduce maternal morbidity and mortality. Serial determination of beta-hCG levels following surgical management, irrespective of histopathology, has the potential to identify these rare complications and ensure patient well-being. Certainly, any patient presenting post-operatively with pain should be thoroughly investigated and persistent omental trophoblastic implants should be considered as a working diagnosis.

Contributors

Danielle Robson is the primary author of this paper and was involved in all aspects of the project.

Vanessa Lusink and Neil Campbell contributed to data analysis and writing of the paper.

Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

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Patient Consent

Obtained.

Provenance and Peer Review

This case report was peer reviewed.

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