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## Omental implantation of gestational tissue following laparoscopic salpingectomy for ruptured ectopic pregnancy, with large bilateral multiseptated ovarian cysts and mesenteric defect: A case report

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### Abstract

**Objective:** To describe a case of omental implantation of gestational tissue following laparoscopic salpingectomy for ruptured tubal ectopic pregnancy, with large bilateral multiseptated clear ovarian cysts and a mesenteric defect in a segment of intestine.

**Design:** Case Report.

**Setting:** Dept of Obstetrics & Gynae, BLK Superspeciality Hospital, Pusa Road New Delhi.

**Patient:** A 31 year old presenting 32 days after laparoscopic salpingectomy with acute abdomen.

**Intervention:** Partial Omentectomy, Bilateral ovarian cystectomy, Segmental intestinal resection with side to side anastomosis.

**Main outcome measure:** Serial Beta HCG measurement and partial omentectomy.

**Results:** Histopathological examination confirmed omental pregnancy, serial beta HCG showed a rapid fall after surgery.

**Conclusion:** Secondary omental pregnancy or implantation of trophoblastic tissue on omentum though rare can occur after laparoscopic salpingectomy. Hence caution in aspiration of blood products and tissue fragments, meticulous extraction of trophoblastic tissue preferably using a tissue retrieval bag, and careful follow up with serial beta HCG should be done.

**Keywords:** trophoblastic tissue, omental implants, ruptured ectopic pregnancy, ovarian cysts

### Introduction

Ectopic pregnancy is an increasingly common clinical problem. The incidence of extrauterine pregnancies has increased from 0.5 %, 30 years ago to 1-2 % in recent years.

Persistent trophoblastic tissue is a rare complication of laparoscopic salpingectomy with only two previously reported cases in literature (Thatcher *et al*, 1989; Doss *et al*, 1998). It is the result of incomplete removal of gestational tissue [1-3].

Omental implants are rare after surgery to remove an EP, and can be hardly detected by ultrasound and may present with sudden onset of lower abdominal pain, with bleeding from implant sites. We report the rare case of persistent ectopic pregnancy in one patient with omental implants at the lateral port site who had previously undergone laparoscopic salpingectomy. Along with the omental implants patient had bilateral large ovarian masses and mesenteric defect in a segment of small intestine [2, 3].

This case illustrates one of the potential problems that may arise, especially with minimal access surgery for ectopic pregnancy.

### Case report

Patient Mrs. XYZ, 31 year old women, G5P0A4, with previous 4 spontaneous early abortions reported in gynae casualty with 5 weeks of amenorrhea and severe pain in abdomen for 1 day. She gave history of fainting, sweating and inability to sit for 1 day. There was tachycardia but her other vitals were stable. Her Beta HCG was 4303 mIU/ml. She was carrying a report that showed a haemoglobin of 13.2 gm% done 3 days back. After admission it showed a significant drop to 10.5 gm %. Ultrasound was suggestive of right sided adnexal mass with massive hemoperitoneum. The uterus showed thickened endometrium and no gestational sac.

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A diagnosis of ruptured ectopic pregnancy was made and patient prepared for surgery. During laparoscopic surgery, around 1.5 litres of blood was removed from the abdomen. Left sided (not right as diagnosed on ultrasound) ruptured tubal ectopic pregnancy was seen. Left salpingectomy was done. Right tube and both ovaries were normal size and healthy. An intraabdominal drain was kept. 3 units of packed red cells transfused. Post-operative period was smooth and the patient was discharged on Day 3 of surgery. Her beta HCG on the day of discharge was 837.1 mIU/ml and Hb% was 10.3 gm%.

Patient reported in the outdoor clinic one week later with no significant complains for follow up. The histopathology report was consistent with ectopic gestation. Patient was counseled about further treatment especially in view of recurrent pregnancy losses and advised to come after 4 weeks.

One month after surgery she reported to the casualty again with similar type of pain, especially on the left side, towards drain port side. The port sites were healthy. Patient was admitted. CBC, Beta HCG and an ultrasound was done.

On day 0 of admission - Her Hb was 11.3 gm, TLC 12.3, Platelet 2.37 lakhs. Surprisingly the Beta HCG was 1171mIU/ml.

Ultrasound further showed Bilateral well defined multiloculated cystic lesion, 72x61mm in the right ovary and another anechoic cyst 41 x40 mm with internal septations in the left ovary with significant free fluid and internal debris seen in Morrisons pouch & POD. An MRI was done that corroborated the same findings of bilateral multiseptated ovarian cysts plus mild to moderate ascitis. Ca125 was 19.3. However the source of Beta HCG could not be found out.

Patient was managed conservatively with analgesics and broad spectrum antibiotics. On day 1 the Beta HCG was repeated and found to be 117mIU/ml, Hb 11, TLC 9.5, showing no fall in HB or suggestive of bleeding and neither rise in TLC. The patient was not living with her husband. Keeping persistent chorionic activity in mind, Inj Methotrexate was given. On day 2, the Hb was 11.2 and TLC 10.29 showing no significant change. Ultrasound however showed slight regression in free fluid though the size of ovarian masses on both sides remained same. Patient was symptomatically better.

On day 3 although the pain was better, Hb 9.9 gm & TLC 11.3; the patient started developing fever. CRP was 67.59. Suspecting postoperative collection, that was getting infected the patient was taken up for surgery the same day.

#### On Diagnostic laparoscopy

1. The omentum was pulled up & adherent towards the 10mm port on the left side lateral port (Previous drain port).
2. No significant intra abdominal fluid collection was seen.
3. Bilateral thin walled ovarian cysts were present. Right ovary 7x8cm (3-4 multicystic), left ovary 5x9cm with clear fluid.
4. The right tube was healthy.

The omentum was gently pulled down from the port side. Omental caking with hematoma was seen. Partial omentectomy was done and brought out through a tissue retrieval bag.

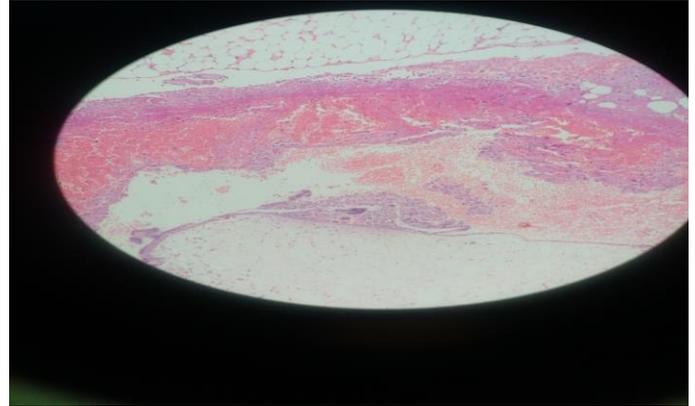
Bilateral ovarian cystectomy done. Both were clear cysts While exploration, a mesenteric defect in a segment of the small intestine was detected. Surgical opinion was taken. The segment was looking dusky and devascularised so segmental resection and side to side anastomosis done.

An intrabdominal drain was kept. The postoperative period was smooth. Beta HCG on Day 2 postop day dropped down to 142.9 mIU/ml.

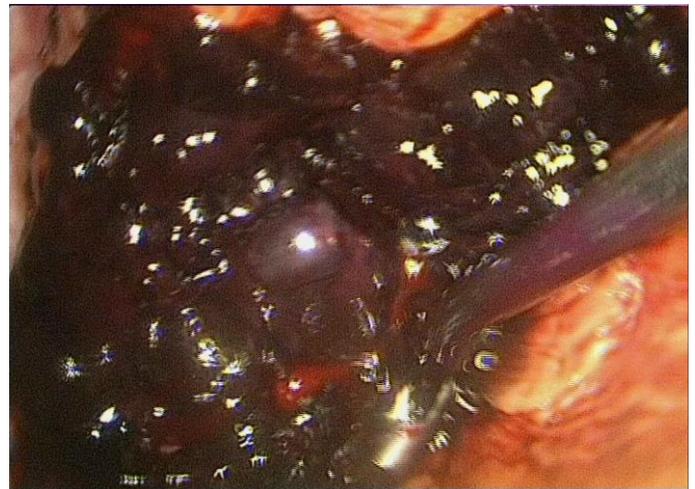
The drain was removed on Day 4 postop day and patient was discharged on Day 5. The beta HCG on day of discharge was 36.23mIU/ml.

Patient had an uneventful recovery and has been followed till Beta HCG dropped below 10 and menses resumed.

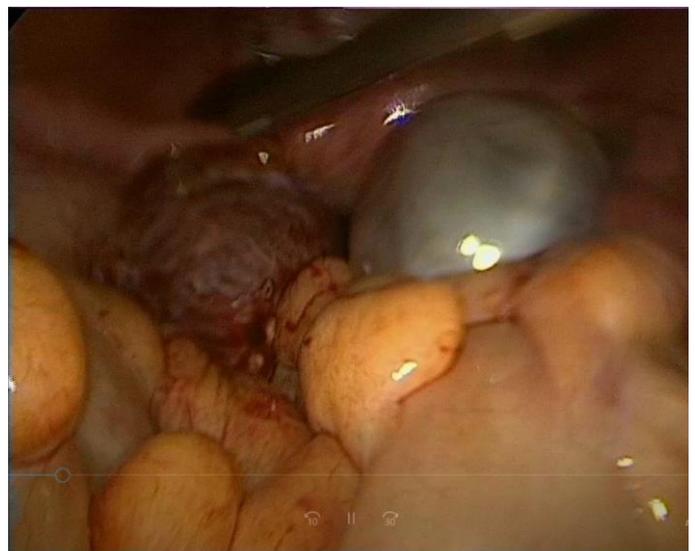
In the histopathology report, omentum showed trophoblastic proliferation with hydropic changes and products of conception. The ovarian tissue and bowel loop was unremarkable.



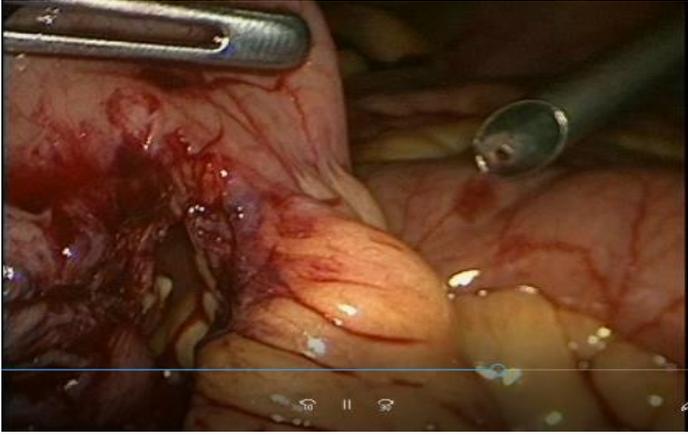
**Fig 1:** Section showing omental tissue with areas of hemorrhage, chorionic villi with hydropic changes and trophoblastic proliferation



**Fig 2:** Picture showing secondary omental pregnancy



**Fig 3:** Picture showing Bilateral Ovarian Cysts



**Fig 4:** Picture showing the Mesenteric defect in an intestinal segment

**Conclusion**

1. It was concluded that patient had persistent trophoblastic activity due to secondary omental pregnancy. It is likely that the implantation of gestational tissue over the omentum occurred during salpingectomy or as a consequence of inadequate removal of gestational tissue especially in presence of massive hemoperitoneum following tubal rupture.
2. The mesenteric defect in the intestinal segment could not be explained. It was an old lesion and the mesenteric segment could have got weakened while getting pulled up alongside the omental ectopic tissue. Trauma during the first surgery was another theoretical possibility that couldn't be ruled out.
3. The bilateral ovarian cysts could represent continuous stimulation to the ovaries in view of persistent trophoblastic activity.

**Discussion**

Pelvic and omental trophoblastic implantation has never previously been reported as a complication of assisted reproduction. This case demonstrates the need for post-operative surveillance by serial serum  $\beta$ -HCG for ectopic pregnancies managed laparoscopically until complete resolution, as abdominal pregnancy, though rare, has a seven times higher mortality rate when compared with non-abdominal pregnancies (Atrash *et al.*, 1987) [1]. Omental pregnancy is the least common form of abdominal pregnancy, and can be classified as primary or secondary. Secondary omental implants are diagnosed in the absence of histological evidence of neovascularization or growth of trophoblast into the supporting tissue (Berghella and Wolf, 1996) [2]. It is an unusual complication of laparoscopic procedures for ectopic pregnancy, and may result from a ruptured ectopic pregnancy, as in this case. These trophoblastic implants continue to secrete  $\beta$ -HCG, and hence presented with rising or plateauing  $\beta$ -HCG following removal of the ectopic pregnancy [4].

Seventeen cases of omental ectopics, including the primary omental pregnancy reported by Onan *et al.*, have been reported in the literature, (Onan *et al.*, 2005) [5] and only two of these were following laparoscopic salpingectomy (Thatcher *et al.*, 1989; Doss *et al.*, 1998) [3]. In the case reported by Thatcher, the patient presented with pain and rising  $\beta$ -HCG concentrations following laparoscopic removal of an early unruptured ectopic pregnancy; subsequent laparotomy demonstrated multiple pelvic implants of the trophoblastic tissue. In the second case, reported by Doss *et al.*, the patient was found to have an unruptured

ectopic on laparoscopy. The tube was removed laparoscopically, and in this case the patient was asymptomatic; however, the quantitative  $\beta$ -HCG plateaued 4 weeks after initial surgery. An ultrasound scan suggested the presence of a right adnexal mass (which was found to be a haemorrhagic corpus luteal cyst) and an exploratory laparotomy was performed on the suspicion of residual ectopic pregnancy. Multiple peritoneal implants and extensive omental deposits were found on laparotomy, and a partial omentectomy and excision of peritoneal implants was carried out without any complications.

The pneumoperitoneum, positive intra-abdominal pressure and Trendelenburg position adopted during laparoscopy along with the scavenging action of the omentum may predispose to omental implantation following laparoscopic surgery (Pal *et al.*, 2003) [6]. The pelvis, paracolic gutters and the sub-diaphragmatic areas should be systematically assessed and copious irrigation should be used along with reverse Trendelenburg position to facilitate removal of any tissue that may have migrated to the upper abdomen (Pal *et al.*, 2003). These secondary trophoblastic implants acquire a new blood supply and can present as secondary haemorrhage. The patients may or may not be symptomatic; most present with severe abdominal pain and intra-abdominal haemorrhage. Haemorrhagic shock is the commonest cause of mortality from omental pregnancy (Onan *et al.*, 2005) [5].

Omental implantation of ectopic gestational tissue after laparoscopic salpingectomy though rare is a known entity, hence meticulous follow up of patient is recommended with serial beta HCG for at least 51 days. Though more common after conservative surgery like salpingostomy, in one study more than half the cases of omental implantation occurred after salpingectomy. These omental implants are usually not detected on ultrasound [7].

Omentum with its rich and abundant blood supply is a favourable site for implantation of ectopic gestational tissue. Several precautions are proposed such as aspiration of blood products and tissue fragments, minimizing trendelenburg position, meticulous extraction of the trophoblastic tissue, using a tissue retrieval bag.

Positive intraabdominal pressure during laparoscopic surgery and the trendelenburg position may be contributory to cephalad migration of trophoblast remnants, with the scavenging action of the omentum and adherence to the site of trocar placement theoretically providing a mechanism of neovascularization and sustenance of parasitic trophoblast [8].

Suction should be used carefully under vision especially in presence of hemoperitoneum to avoid any intestinal damage. The bowels should be handled carefully and a thorough exploration for any injury should be done at the end of surgery.

In summary, this case demonstrates an unusual complication of laparoscopic removal of ectopic pregnancy. This report emphasizes the importance of intra-operative care during laparoscopic management of ectopic pregnancy and raises the question of post-operative follow-up with serial HCG. A diagnosis of secondary implantation of trophoblastic tissue should be considered if a patient presents with signs of intraabdominal haemorrhage following removal of an ectopic pregnancy or a tubal abortion.

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