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Conservative surgical management of ovarian ectopic pregnancy by vasopressin injection: A rare case report

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Abstract
Introduction: Ovarian pregnancy is estimated to be 3% of diagnosed ectopic pregnancies. Most of the ovarian ectopic pregnancies are managed by ovariotomy, salpingoovariotomy or partial wedge resection of ovary which compromises the fertility in future. Use of a vasopressor in the mesosalpinx may achieve hemostasis during conservative surgery for ectopic pregnancy.
Case Report: We report a case of young second gravida presented with 40 days of amenorrhea along with abdominal pain and spotting per vagina and was diagnosed as ectopic pregnancy and was confirmed intra operatively and histo pathologically as primary ovarian pregnancy, managed successfully with laparoscopic removal of ovarian pregnancy.
Discussion: In true ovarian pregnancy, the ovum is fertilised while it is in the abdominal cavity, in the Graffian follicle or in the process of leaving the follicle. In our case though the corpus luteum was in the same ovary it was located away from the ovarian pregnancy, so it is an extrafollicular ovarian pregnancy. Control of bleeding is the most important factor for successful conservative surgery in ovarian pregnancy. The local infiltration of mesosalpinx with diluted vasopressin solution will achieve hemostasis by constriction of small vessels and interruption of blood flow to the implanted gestational sac without endangering the ovarian vascularity in future.
Conclusion: Conservation of ovary in ovarian ectopic pregnancy is possible using vasopressin injection.

Keywords: ovarian ectopic pregnancy, vasopressin injection, laparoscopic conservative management

Introduction

Ovarian pregnancy is estimated to be 3% of diagnosed ectopic pregnancies [1]. The incidence has increased in the last 50years with the causes attributable to better diagnostic modalities, increased use of intrauterine devices, ovulatory induction drugs and assisted reproductive techniques. It is usually terminated by rupture in the first trimester and because of increased vascularisation of ovarian tissue it leads to internal haemorrhage and hypovolemic shock. Most of the ovarian ectopic pregnancies are managed by ovariotomy, salpingoovariotomy or partial wedge resection of ovary which compromises the fertility in future. Use of a vasopressor in the mesosalpinx may achieve hemostasis during conservative surgery for ectopic pregnancy.

We report a case of ovarian ectopic pregnancy managed conservatively through laparoscopic approach using 0.1U/ml vasopressin injection and removing only the products of conception with completely preserving the ovarian tissue.

Case Report

A 25 year old third gravid came with history of 40 days amenorrhea and complain of pain abdomen and spotting pv since one day. Her previous cycles were regular with moderate flow and no dysmenorrhea. Her previous medical and surgical history was not relevant. On examination, there was no palor, pulse 80/min, BP 100/60mmHg and abdominal tenderness present. Per vaginal examination showed normal uterine size and cervical motion tenderness was present, and a palpable mass of 4 × 3 cm was felt in the right and posterior fornix and was tender. Her investigations were urine pregnancy test was positive, Hb% was 11.1gm%, total leucocyte count was 10800/cumm, platelet count was 2.5 lakh and blood group was O positive. Her serum beta hCG value was 1324.06mIU/mL. On Ultrasonography, no gestational sac was seen inside the uterus but a right adnexal complex cystic mass of 5.4× 4×5.7 was seen with fetal pole measuring 4mm with cardiac activity, right ovary is not visualised separately and mild to moderate collection with internal echoes noted in the pelvic cavity. Provisional diagnosis was made as ruptured ectopic pregnancy. Decision for laparoscopy and proceed was taken. Intra operatively, the uterus was normal in size, left ovary and both the fallopian tubes were normal. The right ovary was 6 × 5cm, with perforation noted on the lateral surface near to lower pole with oozing of blood. Hemoperitoneum was around 300cc. Thus, the intra-operative findings satisfied the criteria for ovarian pregnancy as described by Spigelberg[2], which are as follows: (a) intact fallopian tube on the affected side, (b) fetal sac must occupy the position of the ovary on the affected side, (c) ovary connected to the uterus by ovarian ligament. 20ml0.1U/ml (10%) vasopressin is injected into right infundibulopelvic ligament and mesosalpinx, blanching of right fallopian tube and mesosalpinx noted. Incision was taken on the anti-mesentric border with unipolar hook and products of conception were suctioned and removed. Hemostasis was achieved. Corpus luteum was noted in the same ovary adjacent to the ovarian pregnancy and corpus luteal cyst was excised, to prevent the growth of residual

chorionic tissue. The post-operative period was uneventful and patient was discharged successfully on postoperative day 3 and follow up serum beta HCG was 23m IU/ml on postop day 7 and was 4m IU/ml on post op day 14, which indicates absent chorionic activity. Power Doppler study of affected ovary on day 14 showed normal vascularity. Ovarian pregnancy was confirmed by histopathology with ovarian tissue located in the sac wall, satisfying the fourth criteria of Spigelberg.

Discussion

In true ovarian pregnancy, the ovum is fertilised while it is in the abdominal cavity, in the Graffian follicle or in the process of leaving the follicle. The pregnancy then develops within a capsule of ovarian tissue with the corpus luteum immediately alongside it. In our case though the corpus luteum was in the same ovary it was located away from the ovarian pregnancy, so it is an extrafollicular ovarian pregnancy. In a study conducted by Roy J, Sinha Babu A, reported that the combination of symptoms of acute abdomen with history of amenorrhea, with raised beta Hcg level and ultra sono graphically empty uterus with adnexal mass should not only raise a suspicion of tubal pregnancy but also ovarian pregnancy [3].

The differential diagnosis for ovarian pregnancy, remains a clinical challenge that is to distinguish an ovarian ectopic pregnancy from a corpus luteum or haemorrhagic cyst [4] or even ruptured chocolate cyst. A corpus luteum in an early or failing intrauterine or tubal pregnancy can mimic a cystic adnexal mass without clear intrauterine gestation.

Vasopressin is an endogenous antidiuretic hormone released by the posterior lobe of pituitary gland. Because of its vasoconstrictive effect, local injection of diluted vasopressin solution is widely used as to control bleeding in gynecological surgery, like myomectomy, ovarian cystectomy, and endometriosis and during salpingotomy for tubal ectopic pregnancy **[5].** The local infiltration of mesosalpinx with diluted vasopressin solution will achieve hemostasis by constriction of small vessels and interruption of blood flow to the implanted gestational sac without endangering the ovarian vascularity in future. Control of bleeding is the most important factor for successful conservative surgery in ovarian pregnancy. Vasopressin solution was diluted at various levels for use in gynecological surgery (0.02 – 1 U/ml**)** **[6-9]** as reported in a study conducted by Chang Y, Kay N, Chen YH *et al*. The maximum safe dose of locally injected vasopressin solution in uterus is unknown. In our clinical experience, we have achieved hemostasis with same dose of 0.1U/mldiluted vasopressin solution in myomectomy. Hypertension, coronary artery spasm and pulmonary edema are cited as potential adverse effects of vasopressin injection. Care is required to avoid injecting the diluted vasopressin solution directly into blood vessels and to check vital signs repeatedly. In the present case, we did not encounter these adverse effects.

The established modes of surgical treatment of ovarian pregnancy are either removal of the entire ovary containing the ectopic gestation or performing a wedge resection of the ovary. In our case we have used vasopressin injection to avoid torrential hemorrhage during and following removal of only ovarian pregnancy which was similar to a study conducted by Kenji Hishikawa *et al* who has used vasopressin injection to achieve hemostasis in a case of abdominal pregnancy. Vasopressin use reduces both operating time and the need for electrocoagulation for hemostasis, which can have undesirable effects on the tube.

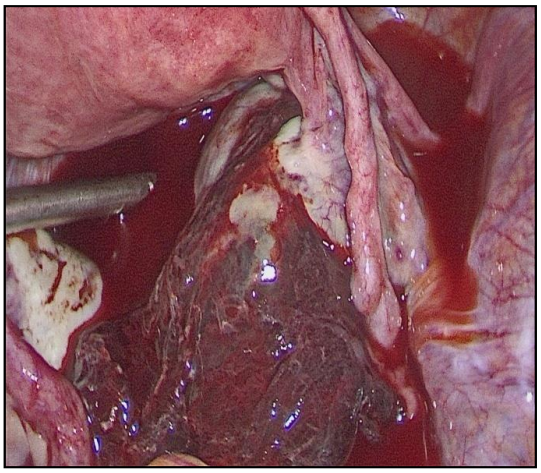

Fig 1: Hemoperitoneum with hematoma covering right ovary.

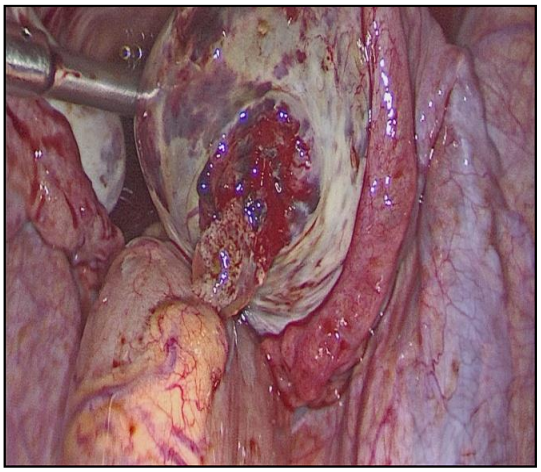

Fig 2: Ruptured right ovarian pregnancy

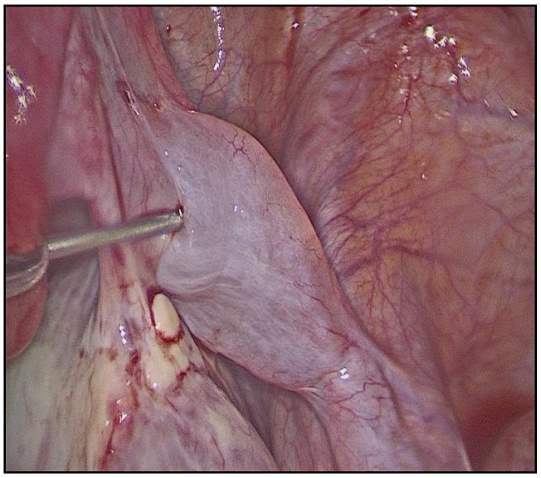

Fig 3: Vasopressin injection into right infundibulopelvic ligament and blanching can be noted

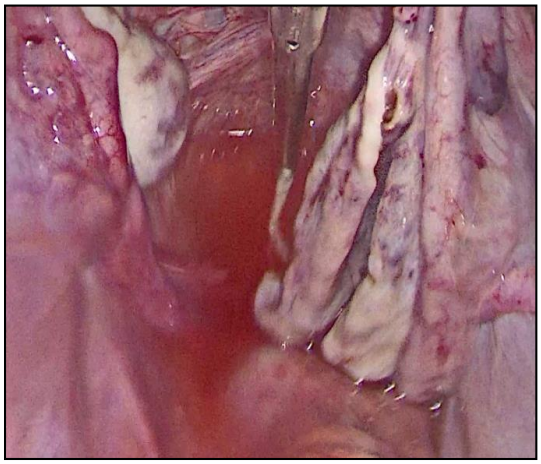

Fig 4: Conserved right ovarian tissue after removal of ectopic pregnancy and showing complete hemostasis

Conclusion

Ovarian pregnancy is usually diagnosed intraoperative Conservation of ovary in ovarian ectopic pregnancy is possible using vasopressin injection. This method is proven safe and effective to achieve hemostasis and for the complete removal of products of conception.

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