

Anesthetic management of a patient with torsion of ovarian cyst in the third trimester of pregnancy

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Abstract

Nonobstetric surgeries during pregnancy are complicated by the need to balance the requirements of two lives—the mother and the fetus. Normally, surgeries during pregnancy are indicated only when it is absolutely necessary for the well-being of the mother, fetus, or both. The incidence of nonobstetric surgeries during pregnancy ranges between 0.75% and 2%. Torsion of ovary is one such nonobstetric emergency commonly seen in the third trimester. The ultimate goal is to provide safe anesthesia to the mother while simultaneously minimizing the risk of preterm labor or fetal demise. Given the general considerations of avoiding fetal exposure to polypharmacy and protection of maternal airway, regional anesthesia is usually preferred in pregnancy whenever appropriate.

Here, we report a case of 23-year-old female parturient with 8 months of gestation, diagnosed as a case of torsion ovarian cyst, who was posted for emergency laparotomy, which was successfully managed with spinal anesthesia.

KEY WORDS: Pregnancy, torsion ovary, spinal anesthesia

Introduction

Nonobstetric surgeries during pregnancy are not uncommon and can have excellent outcomes with proper planning. Surgeries can be required during any stage of pregnancy depending on the urgency of the indication. The incidence of nonobstetric surgeries during pregnancy ranges between 0.75% and 2%. Of all, 42% of surgeries during pregnancy are done in the first trimester, 35% in the second, and 23% in the third.^[1,2]

When a pregnant woman is undergoing nonobstetric surgery, safe anesthesia must be provided to the mother, ensuring well-being of the baby. Anesthetic management of such patients is very challenging as all general anesthetic

drugs cross the placenta and there is a risk of exposure of fetus to these drugs. Thorough understanding of the physiological and pharmacological adaptations to pregnancy is required to ensure maternal safety.

As an anesthesiologist, you need to follow these measures before providing anesthesia to such patients:

1. optimize and maintain normal maternal physiological function;
2. optimize and maintain uteroplacental blood flow and oxygen delivery;
3. avoid unwanted drug effects on the fetus;
4. avoid stimulating the myometrium (oxytocin effects);
5. avoid awareness during general anesthesia; and
6. use regional anesthesia, if possible.^[3]

Case report

A female parturient aged about 28 years, primigravida, was presented to us at 32 weeks of gestation with a sudden onset of severe right-sided abdominal pain and nausea for one day. She described the pain as sharp non-radiating type in the right iliac fossa with a sudden onset, with no relieving factors. There was no history of bleeding or leaking per

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Figure 1: (a and b) Hemorrhagic, gangrenous twisted ovarian cyst alongside the pregnant uterus.

vaginum. There was no history of diarrhea, constipation, fever, urinary complaints, or any recent illness. She did not show any risk factors for adnexal torsion such as ovarian hyperstimulation, ovarian cysts, and previous history of torsion. No history of recent sexual intercourse or sudden movement was reported.

On general physical examination, the patient was conscious and afebrile with pulse rate of 100 beats/min, blood pressure of 110/70 mmHg. Cardiovascular and respiratory systems examination did not reveal any significant findings. Abdominal examination revealed tenderness on the right lumbar and iliac regions. There were no signs of peritoneal irritation. Her airway examination revealed adequate neck extension, with Mallampatti grade 3, normal dentition and spine, and adequate mouth opening.

All laboratory investigations done on her were within normal limits. Transabdominal sonography visualized a fetus *in utero* with a gestational age of 30 weeks 4 days. Adjacent to the uterus on the right side, there was a relatively well-defined cystic lesion measuring 6.6 × 6.2 × 4.9 cm noted in the right adnexa containing internal echogenic debris. Bilateral ovaries could not be visualized. There was no evidence of free intra-peritoneal fluid collection.

The patient was explained about the anesthetic procedure and the informed anesthesia consent was obtained from her. Our plan of anesthesia was subarachnoid block, as patient's vitals were stable, so as to minimize the exposure

of fetus to adverse effects of general anesthetics and to avoid unnecessary handling of maternal airway. A thorough cockpit drill of the anesthesia machine was performed. Anticipating difficult airway, a difficult airway cart was kept ready, which consisted of two working scopes with appropriate size Macintosh blades, cuffed endotracheal tubes of size 6.5, 7, and 7.5 mm, Laryngeal mask airways (LMA), proper fitting masks, stylet, and appropriate size oral and nasopharyngeal airways. All emergency drugs like atropine, adrenaline, noradrenaline, dopamine, dobutamine, and amiodarone were kept ready and arrangements were made for emergency defibrillation, along with other resuscitation equipments.

The patient was shifted to operation theatre with an 18G IVC (intravenous cannula) on right hand and Ringer lactate infusion was started. Another intravenous line on left hand was taken with 18G IVC and IV fluid was started. Monitors were connected and baseline values of heart rate, blood pressure, and room air saturation were noted. The patient was made to lie on lateral decubitus position. Under strict aseptic precautions, L3-4 space was identified and local skin infiltration was done with Inj. Lignocaine 2% with adrenaline. Spinal needle 26G was inserted into subarachnoid space at L3-4 space. Position of the needle was confirmed by free flow of CSF. Inj. Bupivacaine 0.5% heavy 2.2 ml was injected into subarachnoid space. Patient was positioned supine and wedge was kept under the right hip in order to minimize the aortocaval compression. Maternal oxygenation was ensured

with 5 L of O₂ through facemask throughout the procedure. Adequate level of anesthesia was obtained till T6. Intraoperatively, blood pressure, heart rate, and oxygen saturation were maintained under close supervision.

An exploratory laparotomy was performed through Pfannenstiel's incision, which showed an enlarged, hemorrhagic, gangrenous right ovary, twisted two and half turns at the infundibulopelvic ligament. No free intraperitoneal fluid collection was found. A right salpingo-oophorectomy was then performed. The postoperative course was uneventful, and an intact intrauterine pregnancy was confirmed later [Figure 1a and b].

Discussion

Torsion of the ovary during pregnancy is commonly seen in third trimester. Adnexal torsion is rarely bilateral and is more common on right side, probably because the sigmoid colon leaves a limited space for left adnexal mobility. When surgery is indicated during pregnancy, maintenance of maternal oxygenation, perfusion, and homeostasis with the least extensive anesthetic that is practical will ensure the best outcome for the fetus.^[3] Fetal safety requires avoiding of potentially dangerous drugs at the time of fetal development in the first trimester, maintaining adequate uteroplacental perfusion, and treatment of preterm labor and delivery.^[1,2] The pregnant woman undergoes well-known physiological adaptations to pregnancy. The earliest of these changes are hormonally driven, while changes that occur later in pregnancy are associated with mechanical effects of the enlarging uterus, increased metabolic demands of the fetus, and the low-resistance placental circulation. Whatever the period of gestation, the most important step in all of them is thorough pre-operative evaluation. Particular attention is to be paid to airway examination as this subset of the population invariably have edema of the airway as a result of hormonal impact. All other difficulties encountered during the first two trimesters regarding airway management get accentuated due to increased airway edema as a result of hormonal interactions.

An emergency surgery beyond 28 weeks can be undertaken with simultaneous administration of steroids, which provide an essential cover for fetal lung maturation and prevent any possible incidence of acute respiratory distress syndrome in the neonate.^[4,5] It is important that whatever type of anesthesia, the goal should be to maintain stable hemodynamics, perioperative good analgesia, avoid drugs having teratogenicity, maintain good uteroplacental flow, and prevent intra-op fetal hypoxia and acidosis.^[6,7] General anesthesia brings about hemodynamic changes in both mother and fetus, also changes in fetal blood gas exchange. The asphyxiated fetus cannot increase oxygen extraction, thus blood flow to

vital organs is reduced.^[8,9] The use of general anesthesia for cesarean delivery has dramatically declined during the recent decades, but it is still necessary for the management of several situations, including maternal hemorrhage, overt coagulopathy, life-threatening fetal compromise, or cases in which a patient refuses regional anesthesia. Potential problems associated with general anesthesia for cesarean section include failed intubation, pulmonary aspiration of gastric contents, neonatal depression, and maternal awareness.

Regional anesthetic techniques present the most flexible, effective, and least depressant options when compared with parenteral and inhalation techniques. Regional analgesia does not produce drug-induced depression in the mother or fetus.^[10] In our case, we managed with regional anesthesia (spinal anesthesia) successfully avoiding the complications of general anesthesia.

Conclusion

Nonobstetric surgeries during pregnancy are not uncommon and the decision regarding the type of anesthesia is very challenging for an anesthesiologist. One should keep in mind that, any emergency surgery can be performed in any trimester depending on the type of urgency. Whenever possible, surgeries should be considered in the second trimester as spontaneous abortion is less likely. General anesthesia is not an absolute contraindication but regional anesthesia does avoid the potential risk of failed intubation and aspiration in addition to reducing the exposure of fetuses to potential teratogens. Multidisciplinary approach in the peri-operative period involving anesthesiologist, obstetrician, surgeon, and neonatologist should be considered when applicable for a better outcome.

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