



A CASE REPORT OF LAPAROSCOPIC CHOLECYSTECTOMY IN PREGNANCY UNDER SPINAL AND EPIDURAL ANAESTHESIA

Dr K Cheran

Professor and Head, Department of Anaesthesiology, Vinayaka Missions Medical College, Karaikal, Pondicherry U.T – 609609

Dr M Bastina Jenoffia*

Post Graduate, Department of Anaesthesiology, Vinayaka Missions Medical College, Karaikal, Pondicherry U.T – 609609. *Corresponding Author

ABSTRACT General anaesthesia is most commonly used anaesthetic technique for laparoscopic cholecystectomy. In view of possible teratogenicity of anaesthetic drugs in pregnancy, regional anaesthesia (spinal and epidural) yields better fetal outcome. We report a case of pregnant patient who underwent laparoscopic cholecystectomy under regional anaesthesia (spinal and epidural) in her second trimester without any complication.

KEYWORDS : Laparoscopic Cholecystectomy, Neuraxial Block, Pregnancy, Teratogenicity

INTRODUCTION

Most common non obstetrical surgical emergencies which complicates pregnancy are acute appendicitis and cholecystitis^[1,2]. General Anaesthesia would be the most preferred choice for laparoscopic cholecystectomy, but considering the risk of teratogenicity due to anaesthetic drugs, regional anaesthesia would be an alternative technique. We report a case of laparoscopic cholecystectomy done under regional anaesthesia (Spinal and Epidural) in pregnant patient.

Case report

A 26-year-old Primigravida at 28 weeks and 1 day had complaints of fever, vomiting and pain in the right hypogastric region for 2 days and was diagnosed as acute cholecystitis after evaluation. Patient was planned for elective laparoscopic cholecystectomy.

A complete pre-anesthetic evaluation was done and her baseline blood investigations, ECG were normal except for elevated serum amylase of 780 IU/L and serum lipase of 428 IU/L, ultrasonography revealed thickened gall bladder with multiple calculi. Airway assessment revealed Mallampatti class 1, abdominal examination revealed distension with uterofundal height corresponding to 28 weeks and tenderness in right hypogastrium, spine was normal. Patient's obstetric history was uneventful, obstetrician opinion was obtained and case was accepted under ASA-PS-2.

Patient was planned for elective laparoscopic cholecystectomy under epidural and spinal anaesthesia. Informed written consent was obtained, patient was kept at nil per oral for 8 hours, premedicated with T. ranitidine 150mg. Patient was shifted to operation theatre, baseline parameters were recorded and ECG was continuously monitored. 23G iv cannula was secured and patient was preloaded with Ringer's Lactate. Patient was kept in right lateral decubitus position. Under aseptic sterile precautions 18G Tuohy epidural needle was inserted in space T10-T11, epidural space was identified using loss of resistance technique and 18 G catheter was threaded into needle and advanced cephalad and fixed at 8cm, test dose of 3ml of 2% Inj. lignocaine with adrenaline administered and the position of the epidural catheter was confirmed. Sub arachnoid block was given with Inj. bupivacaine 0.5%(H) 2cc using 23G Quincke needle in L3-L4 interspace. Adequate level is achieved (T4-6) and surgery was commenced.

2% Inj. lignocaine with adrenaline 5ml was given epidurally in titrated doses every 30 minutes. Patient was continuously monitored and there was no significant hypotension and bradycardia.

Patient was conscious and oriented throughout surgery, fetal monitoring done by non-stress test was normal. Surgery was uneventful and patient transferred to postoperative ICU. Postoperative pain relief was done with continuous epidural analgesia of 0.125% bupivacaine. She was transferred to postoperative ward after 3 days and to ANC ward after 1 day, discharged on POD 10.

DISCUSSION

The main objective of a non-obstetric surgery in pregnancy is to

administer an anaesthetic technique that is safe for both the mother and the fetus. To achieve this, the anaesthetist should have a thorough knowledge of the physiological and pharmacological adaptations during pregnancy.

Following are the main principles that are required to be adhered by an anaesthetist during pregnancy^[3],

- A fetal safety includes prevention of potentially unsafe drugs during a fetal development, continuance of adequate utero-placental perfusion and prevention of treatment of preterm labour and delivery
- Avoid drugs that stimulates the myometrium (oxytocic effects)
- Avoid awareness during a general anaesthesia
- To use a regional anaesthesia, if possible

Trepidations about anaesthetic effects on a fetus during pregnancy have been considered for many years. Anaesthetic drugs affect intra and intercellular signalling and have known effects on cellular mitosis and DNA synthesis.

General anaesthetic drugs inhibit synaptic transmission and may lead to abnormal synaptic connections and inappropriate apoptosis^[4]. Nitrous oxide inhibits methionine synthetase, an enzyme necessary for DNA synthesis, the teratogenic effect of nitrous oxide in experimental animals cannot be extended for humans.^[5] Thiopentone in late pregnancy had no significant effect on intra-uterine pressure. Ketamine was found to cause uterine contraction in early pregnancy. Ketamine exposure in perinatal period causes neurotoxicity^[6]. Therefore, ketamine's excellent analgesic property may be utilised in late pregnancy. Volatile anaesthetics such as halothane, sevoflurane, desflurane and isoflurane are shown to inhibit the uterine contractility, which may prove beneficial in preventing preterm contractions^[7]. Even though there had been numerous studies and observations, there is neither a conclusion of anaesthetic drugs that are potentially hazardous nor an anaesthetic technique that is considered ideal. But arguably, all anaesthetic agents can be potentially teratogenic. The solution for all this seems far-fetched as it would not be ethical to conduct a randomized trial on pregnant patients and no animal model would perfectly mimic human gestation.

Regional anaesthesia includes peripheral nerve blocks as well as neuraxial anaesthesia, is an option for some surgical procedures. The pregnant patient should be positioned at a left lateral tilt, to reduce aortocaval compression and supine hypotension syndrome after 18-20 weeks of gestation^[9]. Regional anaesthesia decreases the exposure of fetuses to potential teratogens, avoid the potential risk of failed intubation and aspiration, and provides an excellent post-operative analgesia.

The administration of neuraxial anaesthesia for non-obstetric surgery for a pregnant patient is quite similar to a caesarean delivery. One of the significant concerns during neuraxial anaesthesia is maternal hypotension, which may reduce placental perfusion^[10,11]. During anaesthesia and surgery, foetal well-being is best ensured by careful

maintenance of stable maternal haemodynamic parameters and oxygenation. Close monitoring of fetal responses for signs of distress is strongly advocated.

CONCLUSION

Thus the patient with acute cholecystitis posted for laparoscopic cholecystectomy was successfully managed under spinal and epidural anaesthesia without any complications.

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