ANAESTHETIC MANAGEMENT OF INTUSSUSCEPTION IN PREGNANCY

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Abstract
A 35-year-old woman presented with a 3-month history of amenorrhoea and a ten-day history of abdominal pain, vomiting and fever. Abdomino-pelvic ultra sonogram revealed a twin gestation of 12 weeks with acute intestinal obstruction. She had an emergency exploratory laparotomy during which an ileo-ileal intussusception was found. Reaction and anastomosis was done under a balanced general anaesthetic. Intussusception in pregnancy is a rare surgical emergency, and the anaesthetic management of these patients presents a challenge. A general anaesthetic, a rapid sequence induction, high concentration of oxygen and a suitable combination of opioids, volatile agent and muscle relaxant may be used. Anaesthetic agents have an extremely low risk of teratogenicity. Pregnant patients undergoing surgery must be approached with caution and respect, but not fear. Teamwork will win and effective communication between obstetrician, surgeon, anesthesiologist and neonatologist is obligatory. Good knowledge of the simplest and fastest anaesthetic techniques available will ensure a fruitful outcome.

Mots clés: Anesthésie, invagination, patients obstétricaux

Résumé
Une femme de 35 ans avait consulté pour une aménorrhée de 3 mois avec des douleurs abdominales évoluant depuis 10 jours, accompagnée de vomissement et de fièvre. L’échographie abdominopelvienne avait révélé une grossesse gémellaire de 12 semaines et une obstruction intestinale aigue. Elle avait bénéficié d’une laparotomie exploratrice en urgence qui avait mis en évidence une invagination iléo iléale. Une résection anastomose a été réalisée sous anesthésie générale équilibrée. L’invagination au cours de la grossesse est une urgence chirurgicale rare et la prise en charge anesthésique de ces patients constitue un challenge. Une anesthésie générale, une séquence rapide d’induction, une haute concentration d’oxygène et une bonne combinaison d’opioïdes, des agents volatiles et une relaxation musculaire peuvent être utilisés. Les produits anesthésiques présentent une faible toxicité et un faible risque tératogène. Les patientes enceintes candidate à la chirurgie doivent être abordés avec attention et respect mais sans crainte. Un travail d’équipe avec une bonne collaboration entre obstétricien, chirurgien, anesthésiste et néonatologue est obligatoire. Une bonne connaissance des techniques anesthésiques disponibles les plus simples et plus rapides va permettre d’obtenir de bons résultats.

Introduction
Surgery during pregnancy is not an uncommon event. Approximately 1-2% of pregnant women require anaesthesia during pregnancy for operative procedures other than delivery. Anaesthetic management of the pregnant surgical patient must address the well-being of both mother and fetus.

Attention is paid to the patient’s surgical condition pregnancy – induced physiologic changes, possible teratogenicity of drugs, the condition of the pregnancy, the gestational age and continued viability of the fetus.
Case report

A 35-year-old gravida 10 para 8+1 (7 alive) woman presented with a three-month history of amenorrhoea, a ten-day history of colicky abdominal pain, vomiting and passage of bloody mucoid stools, and three-day history of fever. Physical examination showed fever (38.2°C), respiratory rate of 24 per minute, pulse rate of 100 per minute and blood pressure 130/80 mmHg. The abdomen was obese with vague, generalized tenderness. There was a tender, firm mobile mass in the upper abdomen, measuring 12cm x8cm and the right iliac fossa was empty. Rectal examination was normal. Vaginal examination showed a twelve-week size uterus with free adnexiae and empty pouch of Douglas. The patient weighed 82kg.

An indwelling urethral catheter was passed and stomach decompressed with a nasogastric tube. Haemogram was 12.5gm/dl. Serum electrolytes and urea, and blood sugar were within normal limits. Abdomino-pelvic ultrasound scan showed live intrauterine twin gestation with crown rump length and biparietal diameter consistent with 12 weeks and 3 days gestation. The intestines were grossly dilated.

During the pre-anaesthetic review, Mallampati assessment was grade 1. She was classified as ASA PS II surgical category 3. Two units of blood were grouped, cross-matched and screened. The patient was counselled about the options for anaesthesia and reassured. Intravenous 5% dextrose in 0.9% saline was commenced. Premedication was with intramuscular pentazocine 30mg on call to theatre.

Pre-induction pulse rate was 100 beats per minute, the blood pressure was 130/80 mmHg and oxygen saturation 96%. Pre-oxygenation was done for five minutes with oxygen at 8 litres per minute via facemask using Magill’s attachment. Intravenous atropine 0.6mg was given. Rapid sequence induction of anaesthesia was done using intravenous thiopentone sodium 500mg and endotracheal intubation with a size 7.0mm cuffed endotracheal tube facilitated with suxamethonium chloride 100mg intravenously. Anaesthesia was maintained with oxygen at a flow rate of 8L per minute and halothane 0.5-1%. Muscle relaxation was with pancuronium bromide 6mg intravenously and maintained with top up does of 2mg after every 60 minutes, to a total of 10mg. Controlled ventilation was done manually using a closed circuit with a leak. Analgesia was maintained with intravenous pentazocine 30mg at induction. The intraoperative course was uneventful. The estimated blood loss was 400mls and the urine output was 1000ml. Fluid maintenance was with 3 litres of 5% dextrose in 0.9% saline.

The finding at surgery was that of gangrenous ileo-ileal intussusception with a polyp as lead point. Resection of 56cm segment of gangrenous ileum was done and end-to-end anastomosis effected. The procedure lasted two hours fifteen minutes. At the end of surgery 100% oxygen was given residual neuromuscular blockade was reversed using intravenous neostigmine 2.5 mg and atropine 1.2mg. Oropharyngeal toileting was done and the patient extubated awake.

Postoperatively, the patient was maintained on nil per oral, nasogastric tube drainage, intravenous fluids and antibiotics. Pain relief was with intramuscular pentazocine 60mg 8 hourly. Graded oral sips were started on the 5th day and abdominal stitches removed on the 8th. She was discharged home on the 10th day after surgery to be followed up in the outpatient and antenatal clinics.

Discussion

Adult intussusception is rare occurring in 2 – 3 in a population of 1,000,000 per year.4 The true epidemiology of adult intussusception especially in pregnancy in this environment has not been ascertained. It is important to make an early diagnosis and plan for immediate surgical management.

During any anaesthetic performed in pregnancy, one is concerned for the safety of both mother and foetus. Several unique problems must be addressed, such as; alterations in maternal physiology, possible teratogenic effects of anaesthetic agents and maintenance of uterine perfusion. Other considerations include effects of anaesthetic interventions and prevention of premature labour (which is the greatest cause of fetal loss).

Though a rare surgical condition and a rarer cause of acute abdomen in pregnancy, the general principles of anaesthesia in a pregnant mother undergoing major surgery is applicable. Sine rapid sequence induction is to be employed, airway evaluation should be done and contingency plans made for management of the patient in the event of failure to intubate the trachea, which is even more common in the obstetric patient. Samsoon and Young described an incidence of 1:280 in the obstetric population and 1:2230 in other surgical patients.6 Mallampati et al 6 used inspection of pharyngeal structures to predict difficult intubation. Class I & II usually pose no problems with intubation, class III intubation may be difficult but not impossible and class IV is usually impossible to intubate.

Adequate premedication should be used to allay anxiety, both for the mother’s comfort and to prevent increased endogenous catecholamines, which could decrease uterine perfusion. Opioids are safe even during early gestation and so pentazocine was utilized for this patient at 13 weeks gestation. Neither atropine nor glycopyrrolate have fetal effects and may be used if an antiallologue is desired. Of all the hazards of emergency anaesthesia, vomiting or regurgitation of gastric contents, followed by aspiration into the tracheobronchial tree whilst protective laryngeal reflexes are obtunded, is one of the commonest and most devastating. 7 Intussusception like all cases of acute abdomen is often accompanied by delayed gastric emptying. So adequate measures for aspiration prophylaxis like placement of a nasogastric tube should be done.

Aspiration prophylaxis can also be achieved with a combination is a non – particulate antacid (e.g. 0.3M sodium citrate), a histamine –2 receptor blocking agent, and/or metoclopramide which should be
included as part of the preoperative medications. \(^1\) \(^2\) These measures are more important during the second and third trimesters.

Surgery and anaesthesia in early pregnancy lead to an increased risk of spontaneous abortion. \(^8\) \(^11\) Ideally, surgery should be postponed until 6 weeks post-partum \(^12\) except in emergencies such as this one. Nitrous oxide has been implicated as an emetogenic and its omission reduces the risk of postoperative nausea and vomiting (PONV) by nearly 30\%. \(^13\) There is no evidence that any specific drug or anaesthetic techniques is safer than another, if maternal tissue perfusion (blood pressure and cardiac output) and oxygenation are maintained within normal limits. The anaesthetist should avoid hypoxia and hypotension. It is important to discuss the anaesthetic options of regional versus general anaesthesia with the patient.

A regional anaesthetic technique, especially spinal anaesthesia will allow for minimal exposure of the foetus to drugs and this is an important consideration in the first trimester. The principal anaesthetic problems in patients with intestinal obstruction are extreme fluid and electrolyte depletion the increased risk of vomiting and inhalation of gastric contents. Though subarachnoid and extradural anaesthesia will obviate the risk of inhalation of gastric contents, they should be avoided if there is uncorrected fluid losses.

The paediatricians should be notified of the surgical procedure and the possibility of a preterm delivery if the foetus is of a viable gestational age and size. The most important variable for surgery during pregnancy is safe skilled anaesthetic management rather than any specific agent or technique. \(^14\)

References

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