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Research Article

Spinal Anesthesia with Controlled General Anesthesia Management for Unexpected Colonic Intussusception During Cesarean Section in Resource Limited Area: A Rare Case Report

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Abstract

Background: Colonic intussusception during pregnancy is an extremely rare case that may have occurred due to various factors like colon cancer, fibroma, colonic leiomyoma and lipoma. It requires a multidisciplinary approach to managing parturient presented with those cases, especially during labour. Colonic intussusception has no specific symptoms to differentiate it from labour induced pain and is also difficult to image during this period. This is a case report of colonic intussusception managed with spinal anesthesia combined with controlled general anesthesia for both maternal and foetal outcomes. Case presentation: A 32-year-old gravida IV para III, 38-week gestational age female patients with a history of severe abdominal pain, nausea, and vomiting presented to our institution. She has had pushing-down pain for six hours' duration, sweating, abdominal cramping, and fever for 2 days' duration. Immediately after she entered the gynecology department, she was diagnosed with obstructed labour and prepared for an emergency caesarean section. After the cesarean section was conducted, the baby was delivered, and uterine contractility was checked. A palpable tubular mass on the mesenteric side of the ischemic colon was appeared. The ischemic colon was packed with warm water until peristalsis regains. The abdomen was washed thoroughly, and a biopsy was taken from the mass. Conclusion: Anesthesia management for unexpected cases during pregnancy is very challenging and requires caution for both intraoperative maternal life and postoperative morbidity. There is no gold standard and safe anesthesia technique for pregnancy patients presented with a non-obstetric emergency like bowel obstruction. Therefore, risks and benefits of the technique, and the perioperative patient condition should be considered. Our case was managed with spinal anesthesia with controlled general anesthesia for both the mother and neonate with good outcomes.

Keywords

Bowel Obstruction, Controlled General Anesthesia, Intussusception, Pregnancy, Spinal Anesthesia

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1. Introduction

Intussusception is a serious abdominal obstruction occurred when the proximal portion of the small intestine joining the distal portion and sliding with the large intestine, which causes blockage and reduced blood flow [1]. Pregnancy-related intussusception is uncommon, occurring in < 1% of cases. It is a surgical emergency that poses a significant risk of complications and mortality for both the mother and the foetus [2] Pregnancy-related physiological, anatomical, and pharmacological alterations make anesthesia management extremely difficult in these situation [3, 4]. Most physiological changes occurring during pregnancy can be affect cardiac, respiratory and centeral nervous system [5]. The most challenges for anesthestist during regional anesthesia is supine hypotension syndrome [6]. Spinal anesthesia is preferred as general anesthesia to reduce complication and additionally it fasten postoperative recovery to normal physiological condition [7].

2. Case Presentation

A 32-year-old gravida IV para III, 38-week gestational age female patients with a history of severe abdominal pain, nausea, and vomiting presented to our institution. She has had pushing-down pain for six hours' duration, sweating, abdominal cramping, and fever for 2 days' duration. Immediately after she entered the gynecology department, she was diagnosed with obstructed labour and prepared for an emergency cesarean section.

On physical examination the patient is febrile (temperature=38.2°), respiratory rate=24 breaths per minute, pulse rate = 110 beats/minute, BP=112/69 mm Hg, and Weight=72 kg. The abdomen was tender on palpation but showed no sign of peritonitis. There are 38 gravid uterus on fundal palpation.

Blood analysis shows Hgb=14.5 g/dl, Hct=41.8%, Plt=144*103, WBC=25*103, neutrophil (87.7%), and lymphocyte (4.7%). One unit (O blood group with positive RH factor) was prepared on hand. She is categorized ASA –III E. Airway examination: The patient is Mallapati-II, with no limitation of mouth opening and no restriction of neck movement. Eye examination: pink conjunctiva, non-icteric sclera. Respiratory examination shows no chest deformity, symmetrical chest movement, clear air entry bilaterally, and on cardiovascular examination, S1 and S2 are well heard with no murmur or gallop.

The obstetrics abdominal ultrasound shows that she was 38 weeks with 6 days of gestational age, cephalic in presentation, with a 156 beat/minute foetal heartbeat, a 3800- gram weight estimation, and adequate amniotic fluid. After the patient was assessed, the risks and benefits of anesthesia were explained to the patient, and the choice of anesthesia was given to the patient.

3. Ethical Consideration

The ethical clearance for this case report is obtained from the institutional review board of Madda Walabu University, College of Medicine and Health science. Confidentiality and privacy of patients was kept. Written informed consent was taken before the patient entered the operation theatre.

4. Intraoperative Anesthesia Management

After the patient entered the operation theatre, she put on normal saline bilaterally, and basic monitoring was attached to it. Pre-induction BP=125/70 mm Hg, PR=120 beats/min. 10 mg of metoclopramide and 8 mg of dexamethasone were given as premedication. Spinal anesthesia was given in a sitting position under aseptic technique using 2.4 ml of 0.5% isobaric bupivacaine at L3/L4 using a 25-gauge spinal needle. After the cesarean section was performed and successfully a 4 000-gram male baby with APGAR 8/10 was delivered, 10 IU of oxytocin was given. There is a palpable tubular mass on the mesenteric side of the ischemic colon (Figure 1).

Figure 1. *The Figure shows detection of a colon mass after delivery of the baby and uterine contractility checked.*

After checking the contractility of the uterus, the telescoping of the sigmoid colon and its distal part, which measured 10 cm by 12 cm, and ischemic intussusception were found (Figure 2).

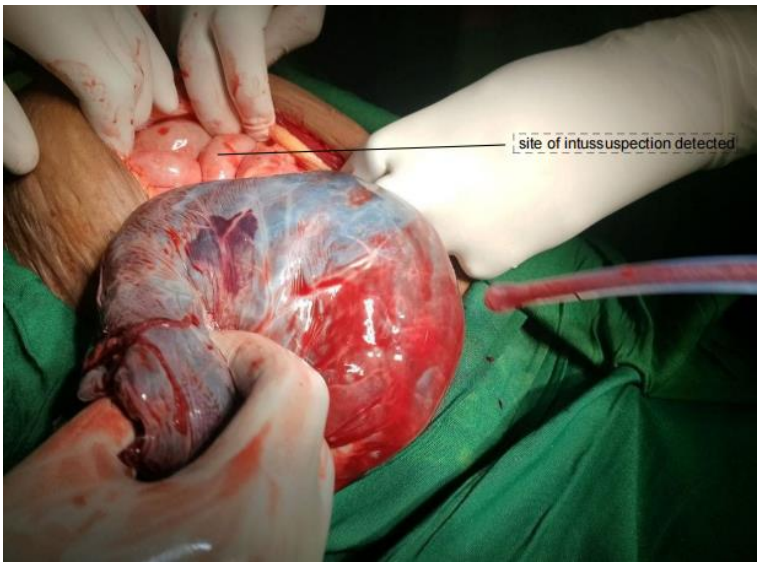

Figure 2. *The Figure shows a finding of ischemic intussusception at distal part of the sigmoid colon.*

There is a palpable tubular mass on the mesenteric side of the ischemic colon. Spinal anesthesia was changed into general anesthesia using ketamine 2mg/kg, 0.1mg/kg of morphine, and 1.5mg/kg of succinylcholine. She was intubated with 6.5 mm ID using rapid sequence induction after succinylcholine was given. After intubation, bilateral air entry was checked, and the patient was put on controlled ventilation (VT=400, Frequency=12, I: E=1: 2) with 4l/min of oxygen. The maintained was used 0.02 mg/kg of verconium and 1% isoflurane. Intraoperatively vital sign was in normal range (Table 1). Reduction was done for the ischemic colon. The abdomen was washed thoroughly, and a biopsy was taken from the mass. Finally, the patient was reversed by neostigmine 2.5 mg and atropine 1 mg. The total time taken by surgery was 3 hours. All vital signs were normal, and the patient was extubated and transferred to recovery with normal vital sign.

Table 1. *Intraoperative vital sign.*

Vital sign/Time	05:00	05:10	05:20	05:30	05:40	05:50	06:00	06:10	06:20	06:30	06:40
BP	120/70	120/70	90/59	90/59	110/67	90/65	110/54	110/54	110/54	110/55	130/80
PR	85	90	96	96	96	90	80	85	80	98	87
SPO2	99	99	100	99	98	96	98	96	100	99	99
ECG	SR	SR	SR	SR	SR	SR	SR	SR	SR	SR	SR

Vital sign/Time	06:50	07:00	07:10	07:20	07:30	07:40	07:50	08:00	08:10	08:20
BP	130/80	136/80	110/83	120/75	115/75	120/67	120/75	110/54	120/85	110/75
PR	86	76	75	70	80	84	75	90	90	95
SPO2	99	99	99	99	99	99	99	99	99	100
ECG	SR	SR	SR	SR	SR	SR	SR	SR	SR	SR

Note: Spo2-oxygen saturation, ECG-Echocardiograph

5. Discussion

Pregnancy-related intestinal obstructions include acute appendicitis, intussusception, peritonitis, and cholestasis. Depending on the area and ethology, its occurrence might range from 0.05% to 0.0015% [8]. Intussusception is extremely uncommon in pregnant women and accounts for 1% of all incidences in adult patients [9]. The diagnosis is challenging because of the signs and symptoms associated with pregnancy as well as the effects of radiation on imaging on the foetus. For those, magnetic resonance imaging (MRI) is the most effective imaging modality.

Abdominal pain, nausea, and vomiting are the most common clinical signs of intussusception during pregnancy. Meckel's diverticulum, inflammatory polyps, colon cancer, especially adenocarcinoma, lipoma, leiomyoma, and villous adenoma are among the conditions that might cause intussusception during pregnancy [10, 11]. Pregnancy-related intussusception requires a multidisciplinary approach from the departments of radiology, gynaecology, and surgery. Surgery is always the course of treatment after imaging tests such as magnetic resonance imaging and abdominal ultrasonography identified the case.

Pregnant patients who come with intestinal obstruction require a specific and cautious approach to anesthesia management, with an emphasis on preoperative stabilization, high-risk stomach aspiration, and hemodynamic disturbances. Maintaining adequate utero-placental blood flow and preventing surgical catecholamine and placental drug transfer are the primary goals of anesthesia throughout the surgery. Furthermore, intussusception results in substantial fluid and electrolyte loss on account of nausea and vomiting hence, vigorous fluid replacement is required [12]. For patients who have intussusception during pregnancy, general anesthesia can be used either with or without regional anesthesia. Rapid sequence induction combined with controlled general anesthesia is a quick method of maintaining the airway and preventing blood pressure drops, but it has less of an impact on surgical catecholamine release, postoperative pain, and the early recovery of bowel function [13]. While regional, spinal /epidural anesthesia is best for early return of bowel function, postoperative pain management and blunting of surgical catecholamine release [14].

Combined spinal anesthesia with general for intussusception is special approach for balancing the risks of both spinal and general anesthesia. Our case was managed by combined of spinal anesthesia with controlled general anesthesia, that is after spinal anesthesia is given under aseptic technique using iodine then with alcohol, 0.5% of bupivacaine (2.4ml) using 25-gauge quincke spinal needle was administered. The foetus is delivered with good Apgar score, and no hemodynamic changes. After the contractility of uterus is checked and the surgeon is started the intussusception, the spinal anesthesia was changed into general anesthesia with rapid sequence induction. Spinal anesthesia combined with controlled general anesthesia is special anesthesia technique require precaution, which is enhancing novelty for our case management.

The limitation of this case report is the absence preoperative abdominal imaging to early detection of colonic intussusception.

Conclusion: Anesthesia management for unexpected cases during pregnancy is very challenging and requires caution for both intraoperative maternal life and postoperative morbidity. There is no gold standard and safe anesthesia technique for pregnancy patients presented with a non-obstetric emergency like bowel obstruction. Therefore, risks and benefits of the technique, and the perioperative patient condition should be considered. Our case was managed with spinal anesthesia with controlled general anesthesia for both the mother and neonate with good outcomes.

Abbreviations

ASA	American Societies of Anaesthesiologist
Apgar	Appearance, Pulse, Grimace, Activity, Respiration
BP	Blood Pressure
I:E	Inspiration to Expiration Ratio
ID	Internal Diameter
Hgb	Haemoglobin
Hct	Haematocrit
ML	Millilitre
MRI	Magnetic Resonance Imaging
Plt	Platelet
PR	Pulse Rate
VT	Tidal Volume
WBC	White Blood Cell

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Author Contributions

Tesfaye Asefa Hordofa: Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft

Abdurjebar Abdurrahman Ahmed: Funding acquisition, Project administration, Resources

Bizuayehu Betemariam Woldemariam: Data curation, Investigation, Validation

Kelil Musa Nerso: Methodology, Resources, Software, Writing – review & editing

Conflicts of Interest

The authors declare no conflicts of interest.

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