



Successful Perioperative Management of Patient with Massive Megacolon

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Abstract

Background: Megacolon is defined as dilation of bowel loop >9 cm in width. Megacolon can be acute that is secondary to some obstruction or chronic which could be congenital (Hirschsprung's disease), acquired (e.g. toxic megacolon secondary to gut inflammation) or idiopathic. Whatever the cause of mega colon is, it always presents as constipation and abdominal distension. Idiopathic mega colon is rare form of mega colon and the actual cause is unknown. Its prevalence is more in females and it can present at any age (childhood or adulthood). Diagnosis of idiopathic mega colon can be made with contrast enhanced computer tomography, barium swallow and tissue biopsy.

Case Presentation: This is the case report of 16 years old girl who presented to A & E Department with ten days history of absolute constipation. She developed progressive abdominal distension with difficulty in breathing over 3 weeks. On further questioning, her past history revealed on and off [intermittent] constipation since 6 years which was relieved by laxatives and enema. Emergency laparotomy was planned under general anesthesia in view of grossly distended and painful abdomen with shortness of breath. Her chest X-ray revealed multiple gas shadows in thorax with upward displacement of diaphragm causing compression effects on her mediastinum. We managed this patient successfully peri-operatively.

Conclusion: Adult idiopathic mega colon is a rare form of massive megacolon. In this case it compromised patient's cardiovascular and respiratory system. There is need for research and education for anesthetic management of such cases so that morbidity and mortality can be decreased.

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Introduction

Intestinal obstruction is defined as impairment of normal forward passage of intestinal content due to any mechanical obstruction or due to decrease gut motility [1]. Megacolon is basically abnormal dilation of large intestine without any obstruction, mostly secondary to any disease condition that causes abnormal gut motility [2]. Congenital a ganglionic mega colon called Hirschsprung's disease is a motor disorder of gut and is characterized by the total absence of intramural ganglion cells of the submucosal (Meissner) and myenteric (Auerbach) neural plexuses in the affected segment of the bowel commonly diagnosed before 5 years of age in 94% of patients [3]. Acute form of megacolon can be toxic secondary to inflammatory diseases of gut or can be nontoxic associated with some syndromes [4]. Hirschsprung's disease of adult is rare and often misdiagnosed cause of long standing refractory constipation [5]. Cause of idiopathic megacolon is not yet known [6].

Case Presentation

In this case we present a 16 years old female patient who presented in A & E Department of Dr. Ruth K.M Pfau Civil Hospital Karachi with complains of acute abdomen secondary to gut distension and shortness of breath. She has history of absolute constipation for ten days and severe progressive abdominal distention for 3 weeks. Her previous history reveals on and off constipation since 6 years, which was relieved by laxative and enema. Her all pre-operative labs are within normal limits. Her ABGs shows respiratory alkalosis. On quick clinical examination she is a thin lean and short heighted girl lying uncomfortably in her left lateral position, all sweaty, tachypnea with respiratory rate of 50 b/min, pulse rate of 140 bpm with blood pressure of 100/70 mmHg. She looks lethargic, pale and dehydrated. Her chest auscultation reveals gurgling sound in her thoracic region with air entry only in apex bilaterally equal. Chest X-ray shows her diaphragm being pushed up by multiple gases filled dilated bowel loops in thorax, compressing the mediastinum and its contents. She has grossly distended abdomen with visible peristalsis. She was rushed into emergency operation theater with two large bore intravenous catheters and crystalloids attached for resuscitation. Monitors attached

her ECG shows ST segment depression in all chest leads. Echo was not available. Nasogastric tube passed and suctioning was done in order to decompress her gut. She has so much oral secretions for which continuous suctioning were done and she was premeditated with inj. Glycopyrrolate 0.2 mg. Rapid sequence induction was done with ketofol (propofol 50 mg and ketamine 20 mg) and succinylcholine with cricoid pressure applied. She was intubated with tube size of 7 mm fixed at 18 cm. She was connected to the ventilator where her peak inspiratory airway pressures were 48 cm of water with tidal volume of 8 ml/kg, so her tidal volume was reduced to 4 ml/kg where as her rate was increased to 24 from 20 b/min. after return of spontaneous breathing she was given 0.5 mg/kg of atracurium. Surgery was preceded. As soon as her abdomen was opened her peak airway pressures decreases. The peritoneal cavity was completely occupied by the hugely distended transverse colon and sigmoid colon which was obscuring all other viscera. The serosal aspect of the colon looked congested though there was no perforation. Extended right hemicolectomy of the affected segment and Hartmann procedure was done. Patient's tidal volume was increased back to 8 ml/kg gradually. Surgery took 5 h patient remains vitally stable and was shifted to surgical ICU for further postoperative management, were she was extubated after 14 h and was shifted toward HDU. Her biopsy reveals no obvious pathology.

Discussion

We reported the case of idiopathic mega colon associated with chronic mega colon. It's a rare form of disease to be found in adulthood.

Megacolon, defined as dilation of the abdominal colon >9 cm, may occur acutely or in a chronic form. Idiopathic megacolon is one of the culprits for chronic constipation and is a rare condition. Megacolon is divided into 3: Acute megacolon in which there is no obvious colonic disease (colonic pseudo obstruction); chronic megacolon which could be congenital, acquired or idiopathic; toxic megacolon, which occurs in association with inflammation of the colon [6]. Acute megacolon without obvious colonic disease is known as Ogilvie's syndrome [5]. The common presentation of chronic megacolon manifests as constipation [1-3]. Clinical characteristics of Hirschsprung's disease may have one of several abnormalities of the myenteric plexus, including not only absence of ganglion cells, but also patchy or zonal loss, abnormal neurons or neuronal dysplasia [3]. Chagas disease is one of the acquired megacolons, which is due to trypanosome infection that may lead to extensive destruction of ganglion cells in the peripheral autonomic system and may result in gross enlargement of the esophagus, colon, and heart [7]. Idiopathic megacolon is a diagnosis of exclusion. The onset of the symptoms can occur in early or late childhood life or adult life and the etiology will be different at each onset [7-10].

Initial assessment of constipation includes detail history and physical examination. Laboratory investigation most vital is electrolytes and thyroid function test. Strong family history of colorectal carcinoma is important too. Abdominal radiography is important to look for diameter of gut and fecal retention.

Idiopathic megacolon is described as permanent dilation of bowel loop in absence of any identifiable cause. Pathological basis of such megacolon is unknown. Suggested mechanism includes abnormality of intestinal smooth muscles, neurotransmitters, enteric nervous system or extrinsic nerves abnormality [7,11].

Anesthetic concerns will be same as that of other colorectal surgeries. Pre-operative status of fluid and electrolytes are mandatory. Intra-abdominal pressure monitoring can reduce morbidity. Urine output of 0.5 ml/kg/hr shows adequate hydration and kidney function. The premedication in these patients is controversial. They are generally considered full stomach patients so the use of H2 antagonists and metoclopramide may not be that useful as like other cases. Yet, these may be considered. Anticholinergics have a limited role because of associated tachycardia. An adequate dose of narcotic, for example, morphine (0.1 mg/kg) or fentanyl (2 µg/kg) with midazolam Intravenous (IV) before induction is optimal [12].

A Rapid Sequence Induction [RSI] with a minimal dose of thiopentone and adequate succinylcholine with cricoid pressure is used by many. Any untoward event during RSI may lead to aspiration and concomitant lung damage. Etomidate as induction agent can be useful in hemodynamically unstable patients [11]. Air, O₂, the agent is better than using nitrous oxide because of its propensity of the latter to increase closed air spaces and complicate distension. Some studies prefer inhalational agents far better than propofol induction [12].

Standard intra operative monitoring should be commenced with strict input output charting [13].

Extubation should be followed by accomplishing all clinical respiratory parameters. In case of post-operative ventilation requirement the continued monitoring of cardio respiratory parameters, the use of inotropes, mechanical ventilation, optimizing blood gas values, fluid and electrolyte status remains the mainstay in the recovery of patients. Hence, the use of selected antibiotics, thromboembolism prophylaxis, and commencement of early enteral nutrition with an eye on abdominal distension is significant. Adequate pain relief to prevent basal atelectasis and intra-abdominal pressure monitoring remains vital [12,13].

In this case we adequately manage patient preoperatively, intra operatively and post-operative.

Conclusion

A proper preoperative assessment with correction of fluid, electrolyte, acid-base, hemodynamic, and respiratory imbalance prior to surgery is a must. Continuous epidural with controlled GA is the best option. Intraoperative maintenance of all the parameters with a special reference to the temperature monitoring is the key to the successful outcome. Persistent postoperative care toward the basics with an eye on abdominal compartment syndrome is certain to improve outcomes in sick patients.

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