

Síndrome de Compartimento Abdominal Durante Pinçamento por Via Endoscópica de Perfuração Intestinal Secundária à Colonoscopia *

Abdominal Compartment Syndrome During Endoscopic Clamping of an Intestinal Perforation Secondary to Colonoscopy*

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RESUMO

Fernandes ML, Pires KCC, Chimelli PHB, Issa MRN - Síndrome de Compartimento Abdominal Durante Pinçamento por Via Endoscópica de Perfuração Intestinal Secundária à Colonoscopia.

JUSTIFICATIVA E OBJETIVOS: A colonoscopia é um exame muito utilizado nos dias atuais para diagnóstico, tratamento e controle de doenças intestinais. A perfuração intestinal, embora rara, é a mais temida complicação deste exame. A correção da perfuração pode ser feita através do uso de cliques posicionados por via endoscópica. O objetivo deste relato de caso foi alertar os especialistas para a ocorrência e o tratamento de síndrome de compartimento abdominal durante pinçamento endoscópico de perfuração intestinal secundária à colonoscopia.

RELATO DO CASO: Paciente do sexo feminino, 60 anos, estado físico ASA II, submetida à colonoscopia sob sedação. Durante o exame constatou-se perfuração acidental do intestino e optou-se por tentar pinçar a perfuração por via endoscópica. A paciente evoluiu então com dor e distensão abdominal, pneumoperitônio, síndrome de compartimento abdominal, dispnéia e instabilidade cardiovascular. Realizou-se punção abdominal de emergência, o que determinou a melhora clínica da paciente até que laparotomia de urgência fosse realizada. Após laparotomia exploradora e sutura da perfuração a paciente evoluiu clinicamente bem.

CONCLUSÕES: O pinçamento por via endoscópica de perfuração intestinal secundária à colonoscopia pode contribuir para a formação de pneumoperitônio hipertensivo e síndrome de compartimento abdominal, com repercussões clínicas graves que exigem tratamento imediato. Profissionais capacitados e recursos técnicos adequados podem ser fatores determinantes do prognóstico do paciente.

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SUMMARY

Fernandes ML, Pires KCC, Chimelli PHB, Issa MRN – Abdominal Compartment Syndrome during Endoscopic Clamping of an Intestinal Perforation Secondary to Colonoscopy.

BACKGROUND AND OBJECTIVES: Colonoscopy is widely used for diagnosis, treatment, and control of intestinal disorders. Intestinal perforation, although rare, is the most feared complication. Perforations can be treated by endoscopic clamping. The objective of this report was to alert specialists for the development and treatment of abdominal compartment syndrome during endoscopic clamping of an intestinal perforation secondary to colonoscopy.

CASE REPORT: This is a 60 years old female, physical status ASA II, who underwent colonoscopy under sedation. During the exam, an accidental intestinal perforation was observed, and it was decided to attempt the endoscopic clamping of the perforation. The patient developed abdominal pain and distension, pneumoperitoneum, abdominal compartment syndrome, dyspnea, and cardiovascular instability. Emergency abdominal puncture was done with clinical improvement until urgent laparotomy was performed. After exploratory laparotomy and stitching of the perforation, the patient presented good clinical evolution.

CONCLUSIONS: Endoscopic clamping of an intestinal perforation secondary to colonoscopy can contribute for the development of hypertensive pneumoperitoneum and abdominal compartment syndrome with severe clinical repercussions that demand immediate treatment. Capable professionals and adequate technical resources can be determinant of the prognosis of the patient.

Keywords: COMPLICATIONS: intestinal perforation, pneumoperitoneum, compartment syndrome; DIAGNOSTIC TESTS: colonoscopy; SEDATION: intravenous.

INTRODUÇÃO

A colonoscopia flexível é um exame amplamente utilizado nos dias atuais para diagnóstico, tratamento e controle de doenças intestinais, principalmente neoplasias¹. Para conforto do paciente, este exame é feito sob sedação, realizada por médico anestesiologista. É um procedimento relativamente seguro,

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INTRODUCTION

Flexible colonoscopy is widely used for diagnosis, treatment, and control of intestinal disorders especially neoplastic tumors¹. It is performed under sedation with the assistance of an anesthesiologist. It is a relatively safe procedure with a low incidence of severe complications recorded in approximately 5/1,000 procedures¹. Among them, intestinal perforation should be mentioned due to the high morbidity and mortality². Fecal peritonitis, sepsis², pneumoperitoneum, abdominal compartment syndrome (ACS), pneumomediastinum, subcutaneous emphysema, cardiovascular collapse, and cardiac arrest³ have been reported in association with intestinal perforation. Correction of the perforation can be conservative, surgical, or endoscopic². Here we report a case of ACS with respiratory distress and cardiovascular instability during endoscopic clamping of an intestinal perforation secondary to colonoscopy.

CASE REPORT

This is a 60 years old female patient weighing 59 kg, physical status ASA II, with hypothyroidism and depression, treated with levothyroxine and clonazepam. She had a history of two laparotomies, the first for appendicitis with peritonitis and the second for intra-abdominal adhesions. She underwent elective diagnostic colonoscopy under sedation in a specialized clinic. Monitoring consisted of electrocardiograph, pulse oximeter, and non-invasive blood pressure. The patient was sedated with 100 µg of fentanyl and 380 mg of propofol administered as a bolus. She maintained spontaneous respiration with oxygen (3 L.min⁻¹) via a nasal catheter. During the procedure accidental intestinal perforation was observed and the procedure continued in an attempt to clamp

the perforation endoscopically. After approximately 20 minutes the patient developed pain, abdominal distension, cyanosis, and hypoperfusion of the lower limbs which were followed by sweating, tachycardia (120 bpm), arterial hypotension (70 x 50 mmHg), and moderate dyspnea and reduction in O₂ saturation (90%). Emergency abdominal puncture was performed, introducing two 14G catheters on the right abdominal flank. The patient showed partial improvement with increase in blood pressure (110 x 70 mmHg) and recovered respiratory pattern, and she was transferred to the hospital for an urgent laparotomy. On abdominal exploration, a perforation of the sigmoid colon that was repaired and abdominal adhesions were observed. The postoperative period was unremarkable and the patient was discharged from the hospital after two days.

DISCUSSION

Although rare, iatrogenic abdominal perforation during colonoscopy is seen in approximately 0.9/1,000 procedures, ranging from 0.14 to 0.65%, for diagnostic exams, and 0.15 to 3%, for therapeutic exams^{1,2}. Perforations are triggered by mixed mechanisms, including trauma, and mechanical, pneumatic, and therapeutic factors^{3,4}. Inflammatory disease, diverticulum, history of pelvic radiotherapy, prior abdominal surgery³, advanced age, male gender, and polypectomy or endoscopy performed by a physician with little experience⁵ are some of the risk factors for perforations described in the literature. The sigmoid and cecum are affected more oftenly^{4,6}. Abdominal pain and distension are the symptoms mostly seen⁴.

Intestinal perforation might not be associated with immediate clinical repercussions; however, the presence of large amounts of air in the peritoneal cavity can lead to fast and progressive increase in intra-abdominal pressure characterizing hypertensive pneumoperitoneum⁶. Abdominal compartment syndrome is used to describe clinical situations with abdominal distension, increased in abdominal pressure, inadequate ventilation, and renal dysfunction⁷. Although iatrogenic insufflation of the peritoneal cavity is not the main event in those situations, it can result in a clinical condition similar to that of ACS, and it has been described as such⁸. Besides respiratory changes, hypertensive pneumoperitoneum and ACS result in severe hemodynamic repercussions, such as decreased venous return, systolic volume, cardiac output, increased systemic vascular resistance, and increased intrathoracic pressure⁹. The air can also invade other cavities causing pneumoretroperitoneum, pneumomediastinum, pneumothorax, and subcutaneous emphysema in the face, neck, and thorax^{3,10}.

A similar case to the one presented here, with severe hemodynamic repercussion, low cardiac output, and pulseless electrical activity was described in the postoperative period of an intestinal surgery⁸. However, the patient presented here did not have a history of recent surgery, but a history of intes-

tinal adhesions and two surgeries. As mentioned before, prior abdominal surgery is a risk factor for intestinal perforation, which can result in the escape of air into the abdominal cavity and hypertensive pneumoperitoneum⁶. The endoscopic clamping of the perforation probably contributed for the development of pneumoperitoneum and its deleterious consequences since insufflation of air should be maintained during clamping¹¹. Although recent studies suggest that endoscopic clamping of the perforation is a good therapeutic decision^{2,12}, its technique and indications should be defined within rigid criteria^{2,11}.

Abdominal compartment syndrome due to iatrogenic intestinal perforation evolving with respiratory distress and cardiovascular instability is a medical emergency and requires immediate measures. Treatment consists on abdominal decompression, and hemodynamic and respiratory support⁸. The procedure should be interrupted immediately and abdominal puncture with a large bore catheter should be performed. Depending on the severity of the case, tracheal intubation, volume infusion, and inotropic support might be necessary. In the case presented here, the patient showed immediate improvement after abdominal decompression and an immediate tracheal intubation or the use of amines were not necessary, but clinical vigilance and monitoring were maintained until laparotomy.

Adequate material resources, emergency equipment, and support hospital, as required by Resolution CFM number 1886/2008¹³ of the (Brazilian) medical federal board, are fundamental to guarantee a favorable outcome. Professionals involved should be attentive to risk factors and able to treat complications secondary to accidental intestinal perforation during a colonoscopy.

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RESUMEN

Fernandes ML, Pires KCC, Chimelli PHB, Issa MRN - Síndrome de Compartimento Abdominal Durante Pinzamiento por Vía Endoscópica de Perforación Intestinal Secundaria a la Colonoscopia.

JUSTIFICATIVA Y OBJETIVOS: *La colonoscopia es un examen utilizado muy a menudo en la actualidad para el diagnóstico, tratamiento y el control de las enfermedades intestinales. La perforación intestinal, aunque sea rara, es la más temida complicación de ese examen. La corrección de la perforación puede ser hecha a través del uso de clips introducidos por vía endoscópica. El objetivo de este relato de caso, fue avisarles a los expertos sobre el apareamiento y el tratamiento del síndrome de Compartimento Abdominal durante el pinzamiento endoscópico de perforación intestinal secundario a la colonoscopia.*

RELATO DEL CASO: *Paciente del sexo femenino, 60 años, estado físico ASA II, sometida a la colonoscopia bajo sedación. Durante el examen se comprobó la perforación accidental del intestino y se optó por tratar de pinzar la perforación por vía endoscópica. La paciente evolucionó con dolor y con una distensión abdominal, neumoperitoneo, síndrome de Compartimento Abdominal, disnea e inestabilidad cardiovascular. Se realizó la punción abdominal de emergencia, lo que determinó la mejoría clínica de la paciente hasta que se hiciera la laparotomía de urgencia. Después de realizarla con exploración y con sutura de la perforación, la paciente evolucionó bien clínicamente.*

CONCLUSIONES: *El pinzamiento por vía endoscópica de perforación intestinal secundario a la colonoscopia, puede contribuir a la formación de neumoperitoneo hipertensivo y el síndrome de Compartimento Abdominal, con repercusiones clínicas graves que exigen un tratamiento inmediato. Los profesionales capacitados y los recursos técnicos adecuados, pueden ser factores determinantes del pronóstico del paciente.*