

Persistent rectal pain after rectosigmoidectomy. Case report*

Dor retal persistente após retossigmoidectomia. Relato de caso

Marcelo Barcellos Redua¹, Angela Maria Sousa², José Osvaldo Barbosa Neto³

*Received from Clinicas Hospital, School of Medicine, University of São Paulo. São Paulo, SP.

SUMMARY

BACKGROUND AND OBJECTIVES: Postoperative chronic abdominal pain still lacks pathophysiological studies, being described after Cesarean section, inguinal hernia, videolaparoscopy and cholecystectomy. In lower abdomen, chronic proctalgia has been described after hemorrhoidectomy and is characterized as pain at evacuation followed by fecal urgency. Persistent postoperative pain after videolaparoscopic rectosigmoidectomy is uncommon. This study aimed at reporting a case of persistent postoperative pain after videolaparoscopic rectosigmoidectomy, controlled with bilateral anesthetic block of the hypogastric plexus.

CASE REPORT: Female patient, 54 years old, submitted to videolaparoscopic rectosigmoidectomy with transverse-rectal colon anastomosis. In the immediate postoperative period she evolved with tenesmus, continuous and severe pain with occasional burning. Non-steroid analgesics would not relieve pain. Evaluation has not shown surgical complications and she was referred to the pain control team. Radioscopy-guided transdiscal bilateral diagnostic blockade of upper hypogastric plexus was induced with 4 mL of 1% lidocaine (without vasoconstrictor) in L₅/S₁ which has in-

duced major pain relief. Patient remained pain-free for two months when a new radioscopy-guided transdiscal bilateral upper hypogastric block was induced with 5 mL of 2% lidocaine (without vasoconstrictor) with major pain remission. Currently pain is controlled with occasional gabapentin (300 mg).

CONCLUSION: Persistent postoperative rectal pain was controlled with bilateral hypogastric plexus anesthetic block with prolonged pain relief, well beyond local anesthetic half-life.

Keywords: Abdominal pain, Chronic pain, Hypogastric plexus, Nervous block, Sigmoid colon, Video-assisted surgery.

RESUMO

JUSTIFICATIVA E OBJETIVOS: Dor abdominal crônica após intervenção cirúrgica possui fisiopatologia ainda pouco estudada, sendo descrita após cesariana, hérnia inguinal, videolaparoscopia e colecistectomia. No andar inferior do abdômen, a proctalgia crônica tem sido descrita após hemorroidectomia sendo caracterizada por dor à evacuação acompanhada de urgência para defecar. A dor crônica pós-operatória persistente após retossigmoidectomia videolaparoscópica é pouco frequente. O objetivo deste estudo foi relatar um caso de dor pós-operatória persistente após retossigmoidectomia videolaparoscópica, controlada com bloqueio anestésico bilateral do plexo hipogástrico.

RELATO DO CASO: Paciente do sexo feminino, 54 anos, submetida à retossigmoidectomia com anastomose em cólon transverso-retal, por videolaparoscopia. No pós-operatório imediato evoluiu com dor retal em tenesmo, contínua, de forte intensidade, com queimação ocasional. Analgésicos não opioides não aliviavam a dor. Investigação do quadro não evidenciou complicações cirúrgicas, sendo encaminhada para a equipe de controle de dor. Foi realizado bloqueio diagnóstico bilateral de plexo hipogástrico superior com 4 mL de lidocaína a 1%, (sem vasoconstritor) por via transdiscal em L₅/S₁

1. Physician, Resident in Anesthesiology, Clinicas Hospital, School of Medicine, University of São Paulo (HC-FMUSP). São Paulo, SP, Brazil.

2. Anesthesiologist, Doctor by the School of Medicine, University of São Paulo (FMUSP); Supervisor of the Pain Control Team, Cancer Institute of the State of São Paulo (ICESP), Clinicas Hospital, School of Medicine, University of São Paulo (HC-FMUSP). São Paulo, SP, Brazil.

3. Anesthesiologist; Member of the Multiprofessional Pain Treatment Center, Cancer Institute of the State of São Paulo (ICESP). São Paulo, SP, Brazil.

Correspondence to:

Angela Maria Sousa, M.D.

Av. Dr Enéas de Carvalho Aguiar, 255 - 8o A
Serviço de Anestesia - Prédio dos Ambulatórios
05403-000 São Paulo, SP.

E-mail: angela-sousa@uol.com.br

guiado por radioscopia, que produziu alívio importante da dor. Permaneceu sem dor durante dois meses, sendo realizado novo bloqueio bilateral hipogástrico superior com 5 mL de lidocaína a 2% (sem vasoconstritor) por via transdiscal em L₅/S₁ guiado por radioscopia, com remissão importante da dor, atualmente controlada com uso ocasional de gabapentina (300 mg).

CONCLUSÃO: A dor retal pós-operatória persistente foi controlada com o bloqueio anestésico bilateral do plexo hipogástrico e a duração do alívio da dor foi prolongada, muito além da meia-vida do anestésico local.

Descritores: Bloqueio de nervos, Cirurgia videoassistida, Cólon sigmoide, Dor abdominal, Dor crônica, Plexo hipogástrico.

INTRODUCTION

Abdominal pain is relatively common and may be the first symptom of severe clinical presentations, such as acute myocardial infarction (AMI), peritonitis, intestinal obstruction or acute pancreatitis. Abdominal visceral pain presentation has numerous facets, but all are associated with psychic distress, physical incapacity and high health system costs¹.

There are two types of abdominal pain: visceral and somatic. Visceral pain is diffuse, intermittent and difficult to locate, has temporal evolution, may be insidious and of difficult identification. Causes are the involvement of visceral sensory fibers by distention, inflammation or visceral obstruction. Somatic pain, on the other hand, is well located and in general involves the musculoskeletal system. Psychological, neurobiological and psychosocial components are involved in both types of pain².

Postoperative chronic abdominal pain still lacks pathophysiological studies, being described after Cesarean section³, inguinal hernia⁴, videolaparoscopy⁵ and cholecystectomy⁶. In lower abdomen, chronic proctalgia after hemorrhoidectomy with staples is present in 1.6% to 31% of surgeries⁷ and is characterized as pain at evacuation followed by fecal urgency. Persistent postoperative rectal pain after this surgical technique⁸ may be attributed to the incorporation of muscles inside the staple, or their retention, anal sphincter spasm, rectal spasm or increased anal pressure. Other complications, such as fissure, rectal abscess or hemorrhoid persistence may also induce persistent pain⁹.

This study aimed at reporting a case of persistent postoperative pain after laparoscopic retosigmoidectomy, with termino-terminal anastomosis with surgical staples, controlled with bilateral hypogastric plexus anesthetic block.

CASE REPORT

Female patient, 54 years old, former smoker, with Chagas disease, systemic hypertension, congestive heart failure III and right branch blockade. Patient was submitted to cardiomyectomy and Heller-Pinotti fundoplication in September 1996, and to videolaparoscopic rectosigmoidectomy with transverse-rectal colon anastomosis in March 23, 2010.

In the immediate postoperative period, patient evolved with tenesmus rectal pain which was continuous and severe by the visual analog scale (VAS = 10 in worst moments) with occasional burning, which forced her to try to defecate several times a day, without success. Pain worsening was related to rectum repletion with feces. Pain was partially relieved in the squatting position and during sitz baths with warm water. Non-opioid analgesics would not relieve pain. Investigation has not shown surgical complications and patient was referred to the pain control team.

Initial approach was gabapentin (300 mg) every 12 hours and dipirone (500 mg) every 6 hours. Radioscopy-guided bilateral diagnostic block of upper hypogastric plexus was induced with 4 mL of 1% lidocaine (without vasoconstrictor) by the transdiscal route in L₅/S₁, which has produced significant symptom relief, with 60% improvement of pain immediately after blockade and total relief one week later. Patient remained pain-free for two months when symptoms have returned however with lower intensity. Analgesic medication with gabapentin (300 mg) twice a day and dipirone (500 mg) every six hours was reintroduced and maintained for six months.

In June 2011 she still had moderate pain and a new radioscopy-guided upper hypogastric bilateral block was induced with 5 mL of 2% lidocaine (without vasoconstrictor) by transdiscal route in L₅/S₁, with significant pain remission for two months. Patient evolved with mild to moderate rectal pain, VAS = 2 to 5 until March 2012, which was controlled with codeine (30 mg) and gabapentin(400 mg) both every 12 hours, 4% chlorpromazine (4 drops) at night and dipirone (500 mg), if needed.

In July 2012 she presented pain controlled with gabapentin (300 mg) every 8 hours, which was occasionally used, was pain-free most of the time and the worst pain in the week previous to return was 5 according to VAS.

DISCUSSION

Persistent postoperative pain, by definition, is contro-

versial and self-limited. Incidence varies from 20% to 50% depending on the surgery¹⁰ and on diagnostic criteria. Etiology is not fully explained, although pain neuropathic character plays a significant role in some situations¹¹. Surgeries with long neural lesion extensions, such as thoracotomy¹², mastectomy and limb amputation have higher prevalence of prolonged postoperative pain. In addition, pain after inguinal hernia repair¹³ has neuropathic pain characteristics for most patients.

However, a significant number of patients with persistent postoperative pain does not have neuropathic pain, or it is impossible to diagnose the type of pain¹⁴. In our case, patient reported severe rectal tenesmus pain, associated to rectal repletion, followed by malaise and sweating. She had burning symptoms and nonspecific symptoms characteristic of visceral pain¹⁵.

After diagnostic investigation about infectious complications, mass effect or rectal obstruction, pain etiology determination was useful not only to define diagnosis but also to assure patient the possibility of pain relief. With the anatomic pain location, etiologic diagnosis could be done by anesthetic block of rectal sympathetic afference originated from the upper hypogastric plexus. Blockade efficacy is due to the interruption of afferent pathways by local anesthetics, which are anatomically distributed together with autonomic afference.

Due to the variability of visceral rectal pain conduction we present a review of abdominal and pelvic visceral plexus anatomy.

Abdominal visceral innervation is through the visceral plexus, a set of fibers and autonomic ganglia close to the viscerae and not anatomically differentiated between sympathetic and parasympathetic. Parasympathetic efference reaches the abdominal-pelvic cavity by anterior and posterior vagal trunks and inferiorly by pelvic splanchnic nerves. Pre-ganglionic sympathetic fibers, on the other hand, travel through thoracic, lumbar and sacral splanchnic nerves. Visceral afference follows any of these efferent pathways¹⁶.

Anatomically, pre-vertebral visceral plexus is anterior to the aorta and extends along it and its branches. Plexus extensions are continuous structures named according to their associated arteries. In the upper abdomen, the celiac plexus is in front of the aorta and of diaphragmatic pillars, at the height of the celiac trunk and issues secondary plexuses which are distributed to viscerae: hepatic, gastric, phrenic, lineal, suprarenal, renal, testicular or ovarian, ureteric and upper mesenteric. They are formed by anterior and posterior vagal trunk, greater splanchnic ganglia, preganglionic para-

sympathetic fibers, pre and postganglionic sympathetic fibers, visceral afferent fibers and phrenic nerve sensory fibers¹⁶.

Fibers traveling inferiorly along the aorta until its bifurcation constitute the aortic plexus, which receives lumbar splanchnic branches. From this plexus, the lower mesenteric plexus is extended, and follows the lower mesenteric artery along its branches to form the upper rectal plexus, which conducts autonomic and afferent fibers to the rectum¹⁶.

Below the aortic bifurcation, the aortic plexus originates the upper hypogastric plexus, which is located from the lower third of L₅ to the upper third of S₁, in the sacral promontory, close to the level of bifurcation of common iliac vessels. Upper hypogastric plexus, anteriorly to sacrum, is divided in two narrow and elongated chains called right and left hypogastric nerves, which go down over lateral rectum faces and join sacral and pelvic splanchnic nerves on the correspondent side, to form right and left lower hypogastric plexuses, also called pelvic plexuses or pre-sacral nerves¹⁶.

As opposed to upper hypogastric plexus, predominantly located in a longitudinal plane, lower hypogastric plexus is more transversely oriented extending postero-anteriorly in parallel to the pelvic floor. Hypogastric plexus subdivisions follow internal iliac arteries branches and innervate pelvic organs. Lower hypogastric plexus branches follow the middle rectal artery and form the middle rectal plexus, which helps rectal innervation¹⁶.

To diagnose the anatomic rectal pain origin, upper hypogastric plexus anesthetic block prevents sensory information from the rectum via sacral plexus to reach the central nervous system. However, several nociceptive transmission pathways are involved with rectal sensitivity: upper or middle rectal plexus, lower mesenteric or lower hypogastric plexuses, sympathetic pathways by splanchnic nerves or sympathetic trunk and white communicating branch until spinal cord. In addition, nociceptive information may travel through the pre-vertebral plexus and follow parasympathetic pathways by pelvic splanchnic nerves¹⁶.

In addition to pre-vertebral plexus innervation, rectum is also innervated by lower rectal nerve, pudendum nerve branch originating from the visceral plexus¹⁶.

In our case, hypogastric plexus was blocked by intradiscal route in L₅/S₁, guided by radioscopy. Local anesthetic-induced pain relief was prolonged, way beyond lidocaine half-life. Persistent postoperative rectal pain is originated in upper hypogastric plexus innervation, which may be relieved for a prolonged time with anesthetic blockade.

CONCLUSION

Persistent postoperative rectal pain was controlled with bilateral hypogastric plexus anesthetic block with prolonged pain relief, well beyond local anesthetic half-life.

REFERENCES

1. Carr DB. Visceral pain. Clinical updates from International Association for the Study of Pain. 2005;XIII:6.
2. Srinath AI, Walter C, Newara MC, et al. Pain management in patients with inflammatory bowel disease: insights for the clinician. *Therap Adv Gastroenterol.* 2012;5(5):339-57.
3. Buhagiar L, Cassar OA, Brincat MP, et al. Predictors of post-caesarean section pain and analgesic consumption. *J Anaesthesiol Clin Pharmacol.* 2011;27(2):185-91.
4. Schopf S, von Ahnen T, von Ahnen M, et al. Chronic pain after laparoscopic transabdominal preperitoneal hernia repair: a randomized comparison of light and extralight titanized polypropylene mesh. *World J Surg.* 2011;35(2):302-10.
5. Munisamy R, Uppalu H, Raghavendra R, et al. Type-I complex regional pain syndrome of umbilical port site: An unforeseen complication of laparoscopic surgery. *J Minim Access Surg.* 2012;8(2):50-3.
6. Schmidt M, Søndena K, Dumot JA, et al. Post-cholecystectomy symptoms were caused by persistence of a functional gastrointestinal disorder. *World J Gastroenterol.* 2012;18(12):1365-72.
7. Pescatori M, Gagliardi G. Postoperative complications after procedure for prolapsed hemorrhoids (PPH) and stapled transanal rectal resection (STARR) procedures. *Tech Coloproctol.* 2008;12(1):7-19.
8. Cheetham MJ, Mortensen NJ, Nystrom PO, et al. Persistent pain and faecal urgency after stapled haemorrhoidectomy. *Lancet.* 2000;356(9231):730-3.
9. Thaha MA, Irvine LA, Steele RJ, et al. Postdefecation pain syndrome after circular stapled anopexy is abolished by oral nifedipine. *Br J Surg.* 2005;92(2):208-10.
10. Flatters SJL. Characterization of a model of persistent postoperative pain evoked by skin/muscle incision and retraction (SMIR). *Pain.* 2008;135(1-2):119-30.
11. Brennan TJ, Vandermeulen EP, Gebhart GF. Characterization of a rat model of incisional pain. *Pain.* 1996;64(3):493-501.
12. Buvanendran A, Kroin JS, Kerns JM, et al. Characterization of a new animal model for evaluation of persistent postthoracotomy pain. *Anesth Analg.* 2004;99(5):1453-60.
13. Bay-Nielsen M, Perkins FM, Kehlet H. Pain and functional impairment 1 year after inguinal herniorrhaphy: a nationwide questionnaire study. *Ann Surg.* 2001;233(1):1-7.
14. Scholz J, Yaksh TL. Preclinical research on persistent postsurgical pain: what we don't know, but should start studying. *Anesthesiology.* 2010;112(3):511-3.
15. Larauche M, Mulak A, Taché Y. Stress-related alterations of visceral sensation: animal models for irritable bowel syndrome study. *J Neurogastroenterol Motil.* 2011;17(3):213-34.
16. Gardner E, Gray DJ, O'Rahilly R. *Anatomia estudo regional do corpo humano.* 4ª ed. Rio de Janeiro: Guanabara Koogan; 1988.

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