

Visceral pain in complicated postoperative urological surgery period. Case report*

Dor visceral em pós-operatório complicado de cirurgia urológica. Relato de caso

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ABSTRACT

BACKGROUND AND OBJECTIVES: Patients may have visceral pain in different parts of the body. This pain is perceived as diffuse, differently from painful skin stimulation pain, with regard to location and interval of presentation. This study aimed at showing a case of visceral pain in a patient submitted to urological procedure followed by postoperative complication.

CASE REPORT: Male patient, 60 years old, using warfarin, entered the first-aid unit with abdominal pain predominantly in the left flank, 48 hours after transurethral urological procedure. Investigation has identified the presence of retroperitoneal hematoma in left renal fascia. Initially patient was conservatively treated with intravenous morphine by patient-controlled analgesia pump. Since hematoma has increased, we decided for left nephrectomy surgical procedure.

CONCLUSION: The neurophysiologic convergence of somatic and visceral afferents entering the central nervous system seems to explain referred visceral pain, where noxious viscera stimuli induce referred pain in somatic areas. This report illustrates a case of acute visceral pain management where venous patient-controlled analgesia with morphine associated to dipirone was used to control pain, for which it was effective.

Keywords: Acute pain, Morphine, Patient-controlled analgesia, Postoperative pain, Visceral pain.

RESUMO

JUSTIFICATIVA E OBJETIVOS: Os pacientes que sofrem de dor visceral podem apresentá-la em diferentes áreas do corpo. Este tipo de dor é percebido de forma difusa, diferente da dor

por estimulação dolorosa cutânea, no que concerne a localização e intervalo de aparecimento. O objetivo deste estudo foi demonstrar um caso de dor visceral em paciente submetido a procedimento urológico seguido de complicação no pós-operatório.

RELATO DO CASO: Paciente do gênero masculino, 60 anos, em uso de varfarina, deu entrada no pronto-socorro apresentando quadro de dor abdominal com predominância em flanco esquerdo, 48 horas após procedimento urológico transuretral. Na investigação complementar foi identificada a presença de hematoma retroperitoneal em loja renal esquerda. Inicialmente o paciente recebeu tratamento conservador, e foi iniciada analgesia com morfina por via endovenosa através de bomba de analgesia controlada pelo paciente. Com o aumento do hematoma, optou-se por intervenção cirúrgica para realização de nefrectomia esquerda.

CONCLUSÃO: A convergência neurofisiológica dos aferentes somáticos e viscerais que adentram o sistema nervoso central parece explicar a dor visceral referida, onde estímulos noxios sobre as vísceras provocam dor referida em áreas somáticas. Este caso ilustra o manuseio de um caso de dor visceral aguda onde a utilização de analgesia venosa controlada por paciente com morfina associada à dipirone foi empregada como estratégia para o controle de dor, para o qual se mostrou eficiente.

Descritores: Analgesia controlada pelo paciente, Dor aguda, Dor visceral, Dor pós-operatória, Morfina.

INTRODUCTION

Most people have already suffered from visceral pain, from the mild discomfort caused by indigestion to the agony of a renal colic¹. The abdomen is a very frequent site for acute or chronic pain syndromes originated from visceral diseases. However, patients suffering from this pain may present it in different body areas, such as: bladder, referred to the perineal region; heart, referred to left arm and neck; left ureter, referred to left flank and lumbar region.

The diffuse presentation and the difficulty to locate visceral pain are due to the low density of visceral sensory innervations and to the wide divergence of their connections to the central nervous system. For this reason, visceral pain is diffuse, differently from pain induced by skin painful stimulation with regard to location and time to appear².

This study aimed at presenting a case of visceral pain in patient submitted to urological procedure followed by postoperative complication.

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CASE REPORT

Male patient, 60 years old, admitted to the first aid unit with abdominal pain predominantly in left flank, heavy, severe, continuous and progressively increasing, without worsening factors and with transient partial improvement after using analgesics. Patient reported that pain had started approximately 48 hours after transurethral urological procedure to remove left kidney double J catheter.

As personal morbid background, patient reported systemic hypertension, aortic valve replacement (metal prosthesis) six years ago and having presented ureter lithiasis two months ago being treated with transureteroscopic ureterolithotripsy without interurrences during the procedure. Patient was under regular use of enalapril (20 mg/day) and warfarin in alternate doses: 1 mg on Mondays, Wednesdays and Fridays, and 1.5 mg on Tuesdays, Thursdays, Saturdays and Sundays. At physical evaluation patient had blood pressure 170x100 mmHg, heart rate 100 bpm, temperature 36.5° C, respiratory rate 20 irpm and visual analog scale (VAS) 8 for pain evaluation. Patient was also conscious and oriented, hypocolored mucosa (+/4+), positive Giordano sign to the left and diffusely painful abdomen, especially in left flank. Other apparatus were normal. For diagnostic propaedeutics we decided for laboratory tests, chest X-rays, abdominal TC and echocardiogram (ECO). ECO has revealed good heart and metal valve function; chest X-rays were normal; abdominal TC has shown the presence of retroperitoneal hematoma in left peri-renal region; laboratory tests have shown mild renal dysfunction (creatinine = 1.5 m and urea 98 mg/dL), anemia (hemoglobin 10.2 mg/dL and hematocrit 31%), and coagulopathy with International Normalized Ratio (INR) of 1.7.

Patient was transferred to the intensive care unit and conservative treatment was initially proposed with warfarin withdrawal for 48 hours, followed by bridging with subcutaneous full dose heparin and radiological and laboratory follow up of bleeding.

Diagnosis was visceral pain induced by retroperitoneal hematoma in left renal fascia as a consequence of urological procedure complication. This complication was caused by coagulation disorder induced by coumarin used for metal aortic valve thrombosis prophylaxis.

Intravenous morphine by patient-controlled analgesia pump (PCA) was used to control pain, being started flow of 0.5 mg/hour and 2 mg bolus during the first 12 hours. After this period the flow was withdrawn and only bolus on demand was maintained. Intravenous dipirone (2 g) was also associated every 6 hours, and ondansetron (4 mg) every 8 hours. Patient was maintained with oxygen catheter with 2 L/min flow during the period he remained with PCA.

There has been satisfactory pain control in the first 24 hours, however control CT has detected increased hematoma associated to decreased hematocrit to 24%, being then indicated total nephrectomy by lumbotomy.

Surgery went on without interurrences and patient was maintained with intravenous PCA for analgesia during the first 24

postoperative hours. Patient evolved with improvement and was discharged from the ICU in the second postoperative day. Patient was discharged home in the 16th postoperative day after reintroduction of coumarin therapy.

DISCUSSION

In this case, patient presented left flank, diffuse, severe and continuous pain. This location, together with temporal correlation with surgical procedure, has directed investigation to the renal fascia. However, features different from renal colic, such as the absence of pain paroxysm and the presence of heavy pain may confuse the anatomic origin of pain. This confusion is due to the fact that afferent fibers innervating different viscera are projected to the CNS through sympathetic and parasympathetic autonomic nervous system nerves^{3,4}. Some of these spinal afferents are integrated to hypogastric, lumbar colonic and splanchnic nerves in such a way that they end in the thoraco-lumbar region as integral part of sympathetic innervations, crossing pre and paravertebral ganglia toward the spinal cord⁵.

These pathways act both for sensory function and to activate visceral functionality. When, for example, gastrointestinal or urinary tract walls are distended causing stimulation of sensory afferents, these organs functions (absorption, secretion and motility) are activated and a conscious sensory response is evoked which may be interpreted as pain or plenitude⁶.

The transduction of noxious stimuli received by viscera is performed by receptors with high excitation threshold in organs such as: heart, liver, esophagus, colon, ureter and uterus. Non noxious stimuli occur in normal conditions; however transduction is performed by low threshold receptors. Most important visceral pain receptors are: Transient Receptor Potential Vanilloid Type 1 (TRPV1) ASIC3 channels, tetrodotoxin-resistant sodium channels (NAV 1.8 AND NAV 1.9) and calcium channels⁷.

Stimuli conduction is performed by splanchnic fibers made up almost exclusively of thin myelinated fibers type A and by non myelinated fibers, or C fibers. These fibers originating from the periphery get together forming afferents whose common destination is the CNS. The neurophysiological convergence of somatic and visceral afferents entering the CNS seems to explain referred visceral pain, where noxious stimuli on viscera induce referred pain in somatic areas¹. Visceral-somatic convergence is probably a consequence of the scarcity of visceral afferent fibers with termination in the spinal cord¹. In our case, patient had retroperitoneal hematoma in left renal fascia without ureter injury determining heavy pain referred to the left flank, which is the somatic area corresponding to renal innervation. A conservative treatment was initially proposed aiming at preserving the kidney and, for this reason, a specific pain management should be used. For such, it was considered the use of analgesia via epidural catheter however due to the use of warfarin, catheter insertion was contraindicated. Finally, intravenous morphine analgesic was indicated with PCA associated to common analgesics.

Visceral pain management has been rarely considered for clinical trials so it is difficult to determine a specific drug for this purpose. Still, considering the differences between somatic and visceral pain (neurotransmission, neurotransmitters, channels and receptors), a difference in analgesic response is also to be expected. Taking into consideration that visceral pain has multiple mechanisms, multimodal therapy has better analgesic potential than the use of a single drug⁸.

Some analgesics seem to be better for this purpose: non-steroid anti-inflammatory drugs (including paracetamol and dipirone), opioids, gabapentin, pregabalin, octreotide (indicated for cases of malignant intestinal obstruction), dexmedetomidine, tricyclic antidepressants, dual serotonin and norepinephrine reuptake inhibitors, sodium channel inhibitors and n-methyl-d-calcium aspartate. The combination of such drugs is always superior as compared to their single use⁷. Major limiting factor to the pharmacological treatment is related to adverse effects of the drugs.

In this case, we decided for a strong opioid associated to dipirone due to pain severity and adequate pain control was obtained during the observation period preceding surgical intervention and during the postoperative period.

This study has limitations because it deals with the response of a single patient, but we considered important to present

this strategy as a feasible option to treat acute visceral pain. However, clinical trials directed to this subject are still to be developed.

Visceral pain evaluation and management are critical to decrease morbidity associated to several situations, such as visceral oncologic pain, visceral acute pain and functional syndromes. This case illustrates the management of acute visceral pain where PCA was used as pain control strategy and for which it was effective.

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