



## Case Report

# Enterorrhagia due to pelvic hematoma after femoral catheterization<sup>☆</sup>



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## ABSTRACT

Arterial puncture, better known as catheterization, has become an important diagnostic tool in recent years. For its realization, generally the option is the Seldinger technique, which is considered today the safest and most often used procedure. This technique allows the insertion of large-caliber or multiple-lumen catheters in the vessel. Arterial catheterization helps in several exams, for instance, mesenteric angiography and cardiac output assessment, and contributes in cineangiocoronariography procedures. We report the case of a 67-year-old male patient who was submitted to cineangiocoronariography and evolved with enterorrhagia due to pelvic hematoma. Throughout the patient's care, a conservative treatment was chosen. The progression of the patient was uneventful and then the patient was discharged. It is very hard to determine which arterial segment was injured; however, as the hematoma was located predominantly in the pelvic region, it is believed that an injury occurred at the internal iliac artery, or directly at the bifurcation of the common iliac artery. Furthermore, it is assumed that a catheter kinking occurred during its progression, due to any tortuosity or to the presence of an atheromatous plaque, thus favoring the occurrence of the more distal lesion, rather than the proximal one. We decided to report this case because of its high degree of rarity, with a scarce number of papers in the literature related to the topic. Thus, with the description of this report we believe that other medical teams will have facilitated their decision-making process, when facing a similar case.

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## Enterorragia por hematoma pélvico após cateterismo femoral

## RESUMEN

A punção arterial, mais conhecida como cateterização, tornou-se uma importante ferramenta diagnóstica nos últimos anos. Para sua realização geralmente opta-se pela técnica

## Palavras-chave:

Cateterismo

<sup>☆</sup> Study conducted at Hospital Nossa Senhora Da Conceição, Tubarão, SC, Brazil.

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Enterorragia  
Hematoma

de Seldinger que é considerada a mais segura e utilizada na atualidade. Esta técnica permite a inserção de cateteres de grosso calibre e ou de múltiplos lúmens em vasos.

A cateterização arterial auxilia na realização de exames como arteriografia mesentérica, avaliação do débito cardíaco, além de contribuir na realização da cineangiocoronariografia (CATE). Relata-se um caso de que um paciente masculino de 67 anos que foi submetido ao CATE e evoluiu com enterorragia devido ao hematoma pélvico. Em todo momento foi optado por tratamento conservador. A evolução do paciente ocorreu sem intercorrências e então o paciente foi de alta. Dificilmente é possível precisar qual segmento arterial foi lesado, entretanto, como o hematoma localizou-se predominantemente na região pélvica, acredita-se que ocorreu uma lesão da artéria ilíaca interna ou logo na bifurcação da artéria ilíaca comum. Ademais, supõe-se que aconteceu uma dobra no cateter durante a sua progressão devido a alguma tortuosidade ou mesmo pela presença de placas ateromatosas. Favorecendo, dessa forma, a ocorrência da lesão mais distal e não proximal. Optou-se por relatar tal caso devido ao alto grau de raridade, e conseqüentemente, nota-se que há poucos achados na literatura relacionados ao tema. Dessa forma, com a descrição deste relato podem-se ajudar equipes médicas a tomarem condutas quando deparadas com um caso semelhante.

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## Introduction

Arterial puncture, better known as catheterization, has become an important diagnostic tool in recent years. Usually the technique chosen is the Seldinger technique, which nowadays is considered the safest and most often used procedure. This technique allows the insertion of a large-caliber or multiple-lumen catheter in the vessel.

Arterial catheterization helps in several exams, for instance, mesenteric angiography and cardiac output assessment, and also helps in cineangiocoronariography (CAT) procedures.

Catheterization is a relatively safe technique with less risk of immediate complications, since the vessel is punctured with a relatively small gauge needle. But even with its lower risk of complications, the technique is not free from such problems, one of which is the retroperitoneal and pelvic hematoma. In this study, the mechanism of hematoma formation and its treatment will be discussed.<sup>1,2</sup>

## Case report

We report the case of a male patient, 67 years, with a history of hypertension and coronary artery disease, and who underwent a coronary artery bypass surgery in 2010; he was a chronic user of anticoagulant medication and aspirin.

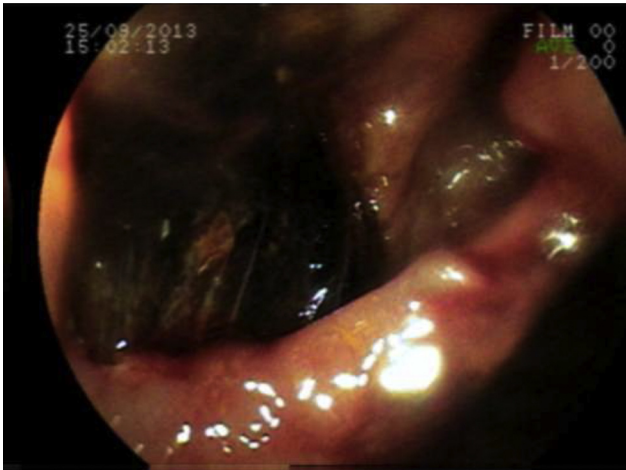
This patient underwent elective coronary angiography via femoral artery. A few hours after the procedure, the patient complained of severe and persistent perianal and suprapubic pain, without relief factors at that time. A physical examination showed no change, and it was found that his vital signs were preserved. It was decided to perform a CT scan of the abdomen and pelvis, which resulted in the following report: "No evidence of abdominal bleeding, iliac vessels and femoral region with no changes, and without retroperitoneal bleeding. Presence of a significant rectal thickening to the sigmoid"

(Fig. 1). Due to the important pelvic pain, requiring even the administration of parenteral opioids, the patient was referred to the intensive care unit (ICU) on the same day, where he remained clinically stable.

After 18 h from the initial event, the presence of a perianal ecchymosis was observed, with the femoral puncture site unchanged. At that time, the patient reported a significant tenesmus and some degree of difficulty in removing gases and feces. Digital rectal examination (DRE) revealed an important, painless, firm bulging in the right lateral rectal wall, apparently with a liquid content and that began roughly 3-4 cm from the anal verge, extending cranially, even out of reach of the finger and displacing the mucous membrane toward the contralateral wall and almost completely occluding the rectal lumen. There was no blood in the glove. A6-point drop in patient's hematocrit was also demonstrated, but without



**Fig. 1 – Pelvic CT scan without rectal contrast, showing an important rectal thickening with rectal wall blurring and perirectal fat compatible with pelvic hematoma. CT, computed tomography.**



**Fig. 2 – RSC after an episode of intestinal bleeding, where an image compatible with rectal perforation and residual melena can be seen (right). RSC, rectosigmoidoscopy.**



**Fig. 3 – A subsequent CRS where edema and rectal wall perforation are still seen, with no signs of healing or bleeding. RSC, rectosigmoidoscopy.**

hemodynamic instability. We decided to adopt an expectant conduct.

The patient progressed with improvement of perineal and pelvic pain and stabilization of perianal ecchymosis. After 8 days from catheterization, the patient reported episodes of a painless enterorrhagia in moderate quantity, but without hemodynamic repercussion. At that time, a digital rectal examination was carried out, when a decrease in the rectal wall bulging was observed, but this time in association with a rectal perforation located approximately 8–9 cm from the anal verge and in the presence of a seemingly old blood on the examination glove. A rectosigmoidoscopy was performed (Fig. 2) allowing the observation of an approximately 15-mm long perforation in the right side wall of the rectum with dark blood coming out in a small amount, probably due to the expansion of the pelvic hematoma and the perforation into the rectum, with no bleeding above the perforation.

We opted for the maintenance of a conservative approach, since this was an extraperitoneal rectal perforation without hemodynamic or infectious repercussion so far.

After a week of expectant treatment, the patient had no further complaints and showed no change at physical examination. A control colonoscopy was performed (Fig. 3), showing perforation in the intermediary rectal segment, but smaller in size compared to the exams previously conducted. Finally, after adopting a conservative approach throughout the treatment, the patient was discharged, with an uneventful evolution.

## Discussion

The femoral artery, a continuation of the external iliac artery distal to the inguinal ligament, is the main artery of the lower limb. Its initial segment, proximally to the deep femoral artery branching, has a superficial location, making this vessel especially accessible and useful for several clinical procedures. Such artery can be cannulated immediately below the midpoint of the inguinal ligament. In CAT, a long, thin catheter is

inserted into the artery through external iliac artery, common iliac artery and aorta, until reaching the left ventricle.<sup>3</sup>

Percutaneous catheterization of the femoral artery has become an important diagnostic adjuvant tool, being usually performed using the Seldinger technique, described in 1953. Most of the time this is a safe technique, however, not without complications.<sup>4</sup>

The complication rate related to femoral artery catheterization is 1–2%.<sup>5,6</sup> Pelvic bleeding is an unusual event, compared to localized hematomas, pseudoaneurysms and arteriovenous fistulas. Few cases related to pelvic hemorrhage have been reported in the literature.<sup>1,7,8</sup>

When a puncture is performed, some precautions must be taken to avoid damage to the vessel. First, one must examine the patient, observing if he/she is obese or has some abdominal bloating, because both conditions affect the procedure. The needle positioning angle for the puncture is also important: if this angle is too oblique, a possible occurrence of vessel laceration becomes more likely.

The presence of instability and oscillation at the time of puncture also facilitates the onset of complications. During withdrawal of the transfixed needle, the expected buffering may not occur, with a difficult-to-control bleeding during angiography, resulting in pelvic hematoma accumulation.<sup>9</sup>

Despite possible complications, the femoral artery puncture should not be condemned, because this is a useful tool in medical practice. Therefore, when puncturing this vessel, the utmost attention must be paid to the proposed technique, in order to avoid possible pitfalls.<sup>9</sup>

The indication of computed tomography (CT) is reserved for patients with suspected pelvic hematoma and presenting with abdominal pain, hypotension or a decline in hemoglobin. CT may demonstrate an increased retroperitoneal space, accompanied by distortion or compression of adjacent structures, and a well localized or diffused abnormal density of soft tissue.

All these CT findings depend on bleeding location, attenuation, duration and origin.<sup>10</sup> All these hematoma characteristics are not pathognomonic of pelvic hemorrhage.

Other differential diagnoses should be considered, for example, abscess, lymphocele and cyst.<sup>10,11</sup>

Thus, the early therapy to promoting hemostasis at the puncture site is by manual pressure. At the same time, hematocrit and hemoglobin determinations should be obtained, together with intravenous fluid administration and a careful monitoring. It is worth considering a surgical option, if the doctor cannot control the problem solely with conservative measures.<sup>9</sup>

In the present case, it was noted that probably an arterial puncture accident occurred, maybe due to the presence of atheromatous plaques that weaken the arterial wall, causing the patient to evolve with the pelvic hematoma manifested through intestinal bleeding. Note that it is not possible to specify the exact etiology of the case. We adopted a conservative approach and the patient progressed uneventfully.

Hardly one could determine which arterial segment was injured, but as the hematoma was located predominantly in the pelvic region, our bet was in favor of an injury at the internal iliac artery, or just at the bifurcation of the common iliac artery. Furthermore, it is assumed that a kink of the catheter had occurred during the progression of the device, thanks to some tortuosity or by the presence of atheromatous plaques, which would favor the occurrence of a more distal, rather than proximal, lesion.

Our decision to report this case was based on its great rarity, as we noted a great lack of findings in the literature related to this topic. Thus, with the description of this report we believe that other medical teams will have facilitated their decision-making process, when facing a similar case.

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## Conflicts of interest

The authors declare no conflicts of interest.

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