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(Case Report)

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Rectal venous malformation in children: A rare and frequently underdiagnosed etiology of lower gastrointestinal bleeding

K. Lahlali *, H. Ouazzani, I. Chaouche, A. Akammar, N. El Bouardi, M.Haloua, B. Alami, M.Y. Alaoui Lamrani, M. Maaroufi and M. Boubbou

Department of radiology, CHU Hassan II, FEZ, Sidi Mohammed Ben Abdellah University, Morocco.

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Abstract

Rectal venous malformation is a rare vascular disorder of the gastrointestinal tract.

It most commonly presents with recurrent rectal bleeding, which may be profuse and can lead to severe anemia requiring repeated blood transfusions. The diagnosis is often delayed due to the nonspecific nature of clinical manifestations and the rarity of the condition.

Colonoscopy, in conjunction with imaging studies—particularly magnetic resonance imaging (MRI)—plays a crucial role in establishing the diagnosis and assessing the extent of the lesions. The treatment of choice is complete surgical excision.

We report the case of a 15-year-old boy with no significant past medical history, presenting with a one-year history of recurrent rectal bleeding associated with intermittent abdominal pain. Colonoscopy revealed congestive proctocolitis, while imaging confirmed the presence of a rectal venous malformation.

Keywords: Rectal Hemangiomas; Rectal Bleeding; Phleboliths; MRI

1. Introduction

Rectal venous malformation, previously referred to as a “cavernous hemangioma” of the rectum, has been described as a pseudo-tumoral vascular lesion of the colonic wall, which may be solitary or multiple [1].

Histologically, it is characterized by numerous dilated, tortuous, and interconnected vascular channels lined by venous-type endothelium, without any arteriovenous shunting [2].

The main clinical presentation consists of chronic or recurrent rectal bleeding, which is typically painless.

Diagnosis is usually based on a combination of imaging and endoscopic findings, including barium enema, colonoscopy, selective inferior mesenteric artery angiography, as well as cross-sectional imaging modalities such as computed tomography (CT) and magnetic resonance imaging (MRI).

Due to its rarity and the non-specific nature of its clinical presentation, this condition is frequently misdiagnosed as more common disorders, such as hemorrhoids or inflammatory bowel disease, often leading to delayed diagnosis and management.

* Corresponding author: K. Lahlali

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2. Case presentation

We report the case of a 15-year-old male with no significant past medical history, who presented with moderate, recurrent rectal bleeding occurring both during and independently of defecation, associated with abdominal pain.

On admission, the patient was hemodynamically stable with no respiratory distress with a blood pressure of 110/60 mmHg, a heart rate of 74 beats per minute, and no fever.

Physical examination revealed a soft, non-tender abdomen, with normal respiratory mobility, and no evidence of hepatosplenomegaly or palpable masses. In addition, multiple serpiginous vascular structures were observed within the soft tissues of the right lower limb.

Laboratory investigations showed a hemoglobin level of 12 g/dL, a white blood cell count of 8,000/mm^3, a negative C-reactive protein, and a platelet count of 150,000/mm^3.

Doppler ultrasound demonstrated multiple diffuse varicose venous dilatations involving the entire superficial venous network of the right lower limb, suggestive of an underlying vascular malformation.

Contrast-enhanced computed tomography (CT) revealed numerous serpiginous vascular structures within the soft tissues of the right thigh, gluteal, perineal, and intrascrotal regions, associated with infiltration of the surrounding fat. The lesions extended into the rectal submucosa, resulting in parietal thickening, with the presence of phleboliths in some areas.

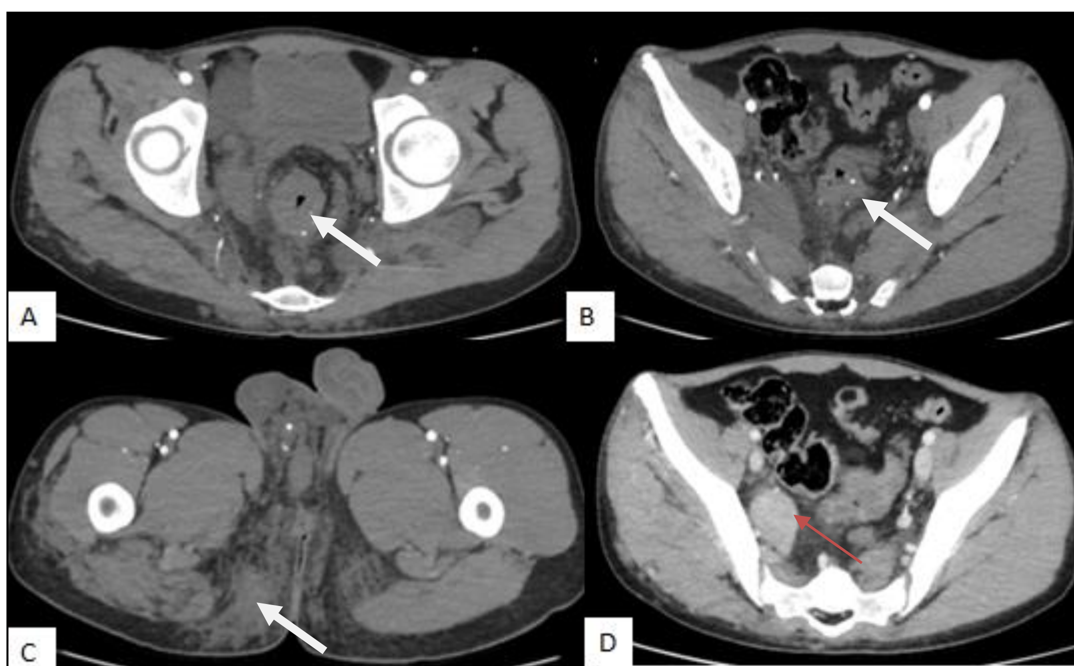
Additionally, abnormal dilatation of the inferior vena cava, bilateral common iliac veins, as well as the right internal iliac and testicular veins was noted (Figure 1).

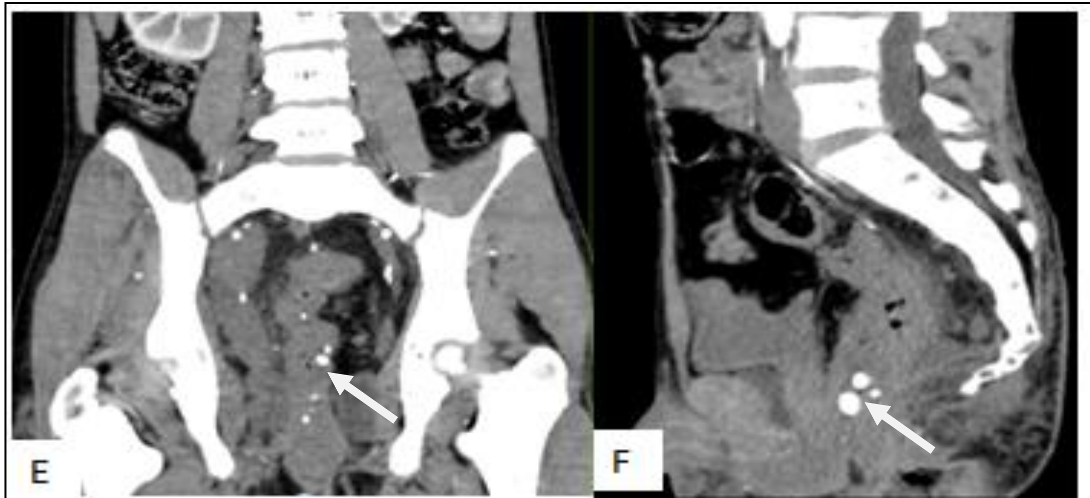
The patient was treated with octreotide (Sandostatin), leading to a slight improvement in symptoms.

Endoscopic evaluation revealed congestive rectocolitis of suspected vascular origin, along with two colonic polyps.

The patient was subsequently lost to follow-up and returned five years later with worsening rectal bleeding and significant anemia (hemoglobin level of 7.5 g/dL), requiring blood transfusion and clinical stabilization.

Follow-up CT imaging demonstrated a globally stable appearance of the anorectal cavernous hemangioma (Figure 2).





Reference: Radiology department CHU HASSAN II, FEZ, Morocco

Figure 1 Contrast-enhanced computed tomography (CT) (axial sections A, B, C, D and coronal E and sagittal F reconstructions) demonstrated multiple serpiginous vascular structures within the soft tissues of the right thigh, gluteal, perineal, and intrascrotal regions, associated with infiltration of the surrounding fat. The lesions extended into the rectal submucosa, resulting in parietal thickening, with the presence of phleboliths in some areas (white arrow). Additionally, abnormal dilatation of the inferior vena cava, bilateral common iliac veins, as well as the right internal iliac and right testicular veins was observed (red arrow)

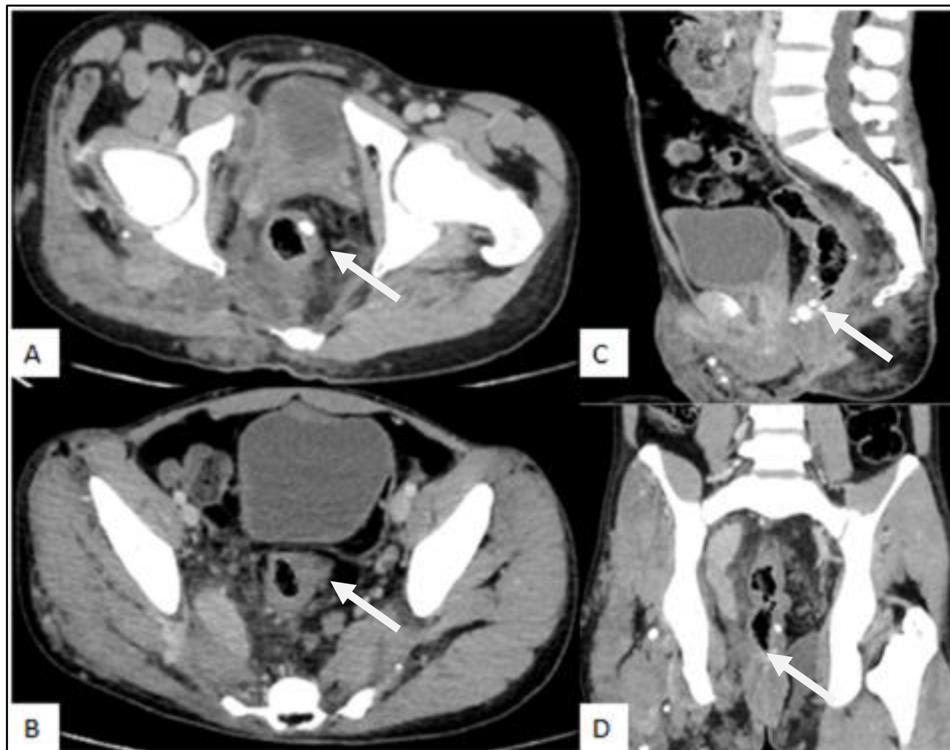


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Figure 2 Contrast-enhanced computed tomography (CT) (axial sections A, B, and coronal D and sagittal C reconstructions) globally stable appearance of the anorectal cavernous hemangioma

3. Discussion

Rectal hemangiomas are rare vascular malformations of the gastrointestinal tract [3–4]. Although benign, these lesions may exhibit an infiltrative behavior with extension to adjacent structures [5].

The first case was described by Phillips in 1839, and approximately 350 cases have since been reported in the literature, most often as isolated case reports [6]. Unlike intestinal hemangiomas, which show a male predominance, colorectal forms appear to affect both sexes equally [7].

Histologically, these lesions are composed of multiple dilated, tortuous, and interconnected vascular channels lined by venous-type endothelium, without arteriovenous communication. They are predominantly located in the submucosa, sparing the mucosa, but may extend into the muscularis propria, serosa, and even adjacent organs [8].

Clinically, rectal bleeding is the most common presenting symptom. It is typically painless, recurrent, and of variable severity [6,8]. Repeated bleeding episodes may lead to chronic anemia, which can be severe and associated with hemodynamic compromise [6]. Other manifestations may occur due to local extension, including lumbar or perineal pain, metrorrhagia, and hematuria [9].

Rectal venous malformations may be isolated or part of a more diffuse form, sometimes associated with cutaneous involvement [5].

Colonoscopy is the investigation of choice for diagnosis, revealing soft, bluish, submucosal lesions corresponding to dilated and tortuous vascular structures [6–10]. It also allows assessment of lesion extent and its relationship with the anal sphincter. However, biopsy should be avoided due to the high risk of significant bleeding [6–10].

Imaging plays a crucial role in diagnosis and staging. Computed tomography (CT) typically demonstrates variable degrees of parietal thickening associated with calcifications corresponding to phleboliths. The presence of multiple pelvic phleboliths is a key diagnostic clue [6,8].

Magnetic resonance imaging (MRI) is considered the most accurate modality due to its superior soft tissue contrast and multiplanar capabilities. It typically shows rectal wall thickening with low signal intensity on T1-weighted images and high signal intensity on T2-weighted images, with enhancement after gadolinium administration, along with serpiginous vascular structures and calcifications. T2-weighted sequences with fat suppression are particularly useful for delineating lesion extent relative to perirectal fat [1,2].

In contrast, selective angiography has a limited role in the diagnosis of rectal venous malformations, as findings are often non-contributory [2].

Definitive management is primarily surgical, most commonly involving complete resection such as rectocolectomy. Alternative treatments, including sclerotherapy or cryotherapy, may be considered in selected cases but remain of limited indication [2].

List of abbreviations

- CT : Computed tomography
- MRI : Magnetic resonance imaging

4. Conclusion

Colorectal venous malformation is a rare but significant cause of recurrent rectal bleeding. It should be considered in cases of unexplained chronic bleeding, particularly in young patients.

Imaging, especially magnetic resonance imaging (MRI), plays a crucial role in establishing the diagnosis and guiding therapeutic management. Surgical resection remains the mainstay of treatment and the only curative option.

Improved awareness of this condition may help reduce diagnostic delays and ultimately improve patient outcomes.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare that they have no competing interests.

Statement of informed consent

Written informed consent was obtained from the patient. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Availability of data and materials

The data sets are generated on the data system of the CHU Hassan II of Fes, including the biological and radiological data.

Author's contribution

- KL Is the corresponding author, she participated in the organization and writing of the article.
- Professor MB supervised the working and validated the figures.
- Professor and chief of department of radiology MB and MM red and allowed the article for publication.
- All authors read and approved the final manuscript.

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