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Acute Left Adrenal Enlargement Following Rectal Cancer Surgery: A Case Report

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Abstract **Case Report**

Acute postoperative adrenal vascular abnormalities are uncommon and may present with nonspecific pain. A 73-year-old woman underwent anterior resection for rectal adenocarcinoma (pT3N0Mx). On postoperative day seven, she developed isolated acute left lumbar pain. Contrast-enhanced computed tomography (CT) demonstrated diffuse enlargement of the left adrenal gland and increased caliber of the left adrenal vein, without a definite intraluminal filling defect; the left renal vein remained patent. Morning cortisol was 320 nmol/L and adrenocorticotropic hormone was 25 pg/mL, without a reported clinical adrenal crisis. Enoxaparin was administered at 60 mg subcutaneously twice daily for one month, followed by 40 mg twice daily for another two months. The pain resolved, and CT at one and three months showed sustained regression of adrenal enlargement. A vascular or congestive mechanism was suspected, but adrenal vein thrombosis was not demonstrated. This case highlights the importance of cautious imaging interpretation and serial follow-up in postoperative unilateral adrenal abnormalities.

Keywords: Adrenal enlargement; postoperative complication; computed tomography; adrenal vascular abnormality; rectal cancer; case report.

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INTRODUCTION

Adrenal vascular abnormalities, including hemorrhage, infarction, and congestion, can be challenging to recognize because clinical manifestations are often nonspecific. The adrenal gland receives abundant arterial inflow but drains through a relatively limited venous system, a configuration that may contribute to vascular vulnerability [1]. Postoperative adrenal injury has been described in association with prothrombotic disorders and major surgery [2–4]. We report a unilateral left adrenal imaging abnormality detected after rectal cancer surgery, presenting with isolated lumbar pain and followed by serial CT examinations. The available imaging did not establish a definite adrenal venous thrombus.

CASE REPORT

A 73-year-old woman weighing 62 kg underwent anterior rectal resection for moderately differentiated adenocarcinoma, with pathological staging reported as pT3N0Mx. On postoperative day seven, she developed acute isolated left lumbar pain. No clinical adrenal crisis was reported. Information on perioperative thromboprophylaxis, prior heparin exposure, blood pressure, and platelet trends was not available in the supplied record.

Contrast-enhanced abdominal CT demonstrated diffuse, harmonious enlargement of the left adrenal gland and increased caliber of the left adrenal vein, without a clearly visible intraluminal filling defect. The left renal vein remained patent and of normal caliber (Figure 1A). These findings raised suspicion of a postoperative

adrenal vascular or congestive process; a definitive diagnosis of adrenal vein thrombosis could not be made.

Laboratory results included hemoglobin 14.1 g/dL, urea 0.34 g/L, creatinine 8 mg/L, sodium 140 mmol/L, potassium 4.4 mmol/L, 8:00 a.m. serum cortisol 320 nmol/L, and ACTH 25 pg/mL. A single basal cortisol value does not definitively exclude adrenal insufficiency in a postoperative setting.

Enoxaparin was administered at 60 mg subcutaneously every 12 hours for the first month, followed by 40 mg (4,000 anti-Xa IU/0.4 mL) subcutaneously twice daily for two further months. The lumbar pain resolved. Repeat CT at one month showed marked reduction in adrenal enlargement (Figure 1B), and CT at three months showed sustained morphological improvement (Figure 1C). These findings do not demonstrate venous recanalization.

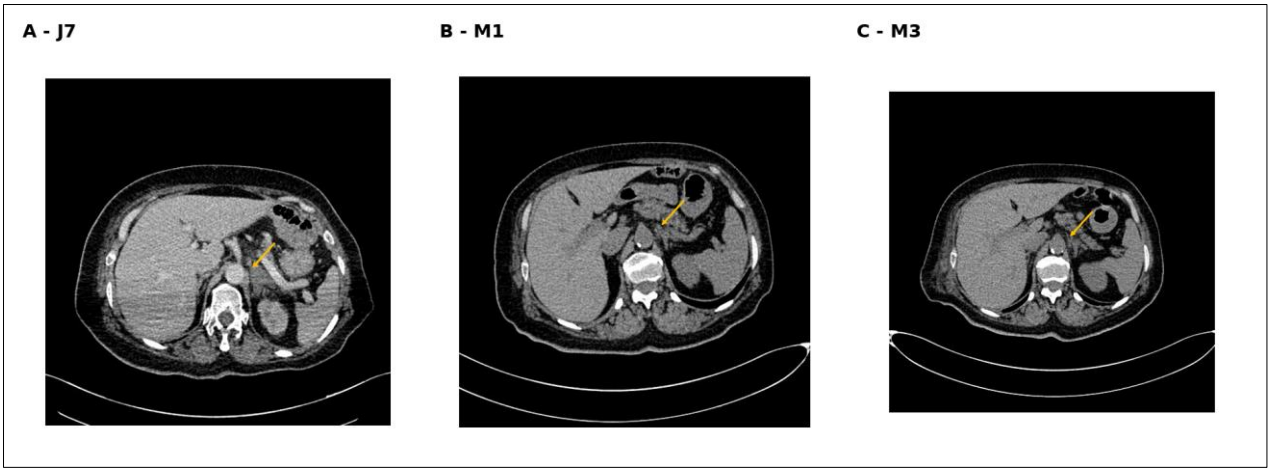


Figure 1: Serial axial abdominal CT images. (A) Postoperative day seven: diffuse enlargement of the left adrenal gland. (B) One-month follow-up: marked regression of adrenal enlargement. (C) Three-month follow-up: sustained morphological improvement. Yellow arrows indicate the left adrenal gland. Images and annotations were reviewed by the radiologist

DISCUSSION

This case illustrates the importance of separating observed radiological findings from a proposed pathophysiological explanation. Diffuse adrenal enlargement and dilatation of its draining vein may suggest venous congestion, but a definite intraluminal filling defect was not seen. Consequently, adrenal vein thrombosis remains a possible mechanism rather than a confirmed diagnosis. Adrenal hemorrhage, ischemic injury, inflammatory changes, and an underlying adrenal lesion are additional considerations, depending on complete CT characterization [1].

Rectal malignancy and recent major abdominal surgery create a plausible prothrombotic context. However, this context alone cannot establish the etiology of the adrenal abnormality. Published postoperative cases have included bilateral adrenal hemorrhage or infarction, often accompanied by adrenal insufficiency or an identifiable thrombotic syndrome [2–4]. In contrast, the present patient had a unilateral imaging abnormality, isolated lumbar pain, and no reported clinical adrenal crisis.

The available endocrine findings, including a morning cortisol of 320 nmol/L, ACTH of 25 pg/mL, and normal reported sodium and potassium concentrations, were not accompanied by a documented adrenal crisis. Nonetheless, these data cannot independently establish adequate adrenal reserve under stress. Additional clinical assessment would depend on symptoms, hemodynamic findings, glucocorticoid exposure, and follow-up testing.

Clinical improvement and regression of adrenal enlargement occurred during anticoagulation. This temporal association cannot prove treatment efficacy or the presence of a thrombus. The dosing regimen was documented, although the rationale for dose reduction and bleeding-risk assessment was not available. Serial CT images support morphological improvement, but cannot be interpreted as proof of venous recanalization.

The strengths of this report are its defined postoperative onset and CT documentation at three time points. Limitations include the absence of a visible thrombus, incomplete imaging characterization, and unavailable perioperative details, platelet trajectory, and detailed endocrine follow-up. These limitations constrain causal inference.

CONCLUSION

Unilateral left adrenal enlargement may present as isolated lumbar pain after rectal cancer surgery. Serial CT imaging can document regression, but should not be used to infer a confirmed venous thrombosis when no thrombus is directly visualized. Careful radiological interpretation and endocrine assessment remain essential.

DECLARATIONS

Patient consent for publication: Written informed consent was obtained from the patient for publication of this case report and the accompanying anonymized CT images.

Ethics approval: Ethics committee approval was waived for this single-patient case report.

Author contributions: Sanae Chakdoufi conceived and coordinated the work, participated in all stages, and drafted and revised the manuscript. Amal Moumen, Hamza Eljadi, and Asmae Chadli contributed to the clinical and scientific work and critical manuscript review. All authors reviewed and approved the final manuscript and agree to be accountable for its content.

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Data availability: Patient-level clinical data are not publicly available to protect patient confidentiality.

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