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Multi-Organ Infarction in a Patient Receiving Infliximab

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Case Description

A 54 year-old woman with a history of psoriatic arthritis on methotrexate and infliximab was admitted to a local hospital with fevers and abdominal pain. She underwent cholecystectomy, but was readmitted to our institution 9 days later with persistent symptoms. The patient had a three pack-year smoking history. On arrival, the patient was in moderate discomfort. BP was elevated at 158/80 mm Hg. Examination revealed an early systolic murmur at the left upper sternal border, 2+ nonpitting edema at the ankles, and a psoriatic rash. The abdomen was diffusely tender to palpation, without costovertebral angle tenderness. Abnormal laboratory test results included leukocyte count of 26,300 cells/μl, hemoglobin of 10.4 g/dl, and C-reactive protein of 230.7 mg/L. Viral hepatitis screening was negative. Computed tomography scan of the abdomen and pelvis demonstrated a wedge-shaped focus in the splenic hilum, mild diffuse small bowel dilation, and striated enhancement of both kidneys suggestive of renal infarction (Figure 1, A–C). Intravenous antibiotics and methylprednisolone were initiated. On day 2, she developed confusion with worsening abdominal pain and distention; an exploratory laparotomy was performed and it revealed ischemic bowel requiring multiple extensive resections. Pathology specimens of the ileum, jejunum, and appendix all demonstrated ischemic-type enteritis likely secondary to vasculitis involving the arteries. Intravenous cyclophosphamide was administered on day 12. The patient improved and was discharged on a steroid taper with outpatient rheumatology follow-up.

Here we describe a case of classic polyarteritis nodosa (PAN) in a patient already receiving a multidrug immunosuppressive regimen. PAN is a systemic vasculitis with an exceedingly high mortality when untreated. Systemic signs and symptoms most often include fever, nausea, abdominal pain, and mononeuropathy multiplex in the extremities (1). Abdominal pain can be an early symptom of mesenteric ischemia, which most often affects the small bowel in PAN. The American College of Rheumatology has established ten criteria for the classification of PAN in a patient with vasculitis (2). Serologic autoimmune workup should be performed to rule out alternative diagnoses. Testing for viral hepatitis is important because these infections, particularly hepatitis B, have been implicated in the pathogenesis of up to 33% of PAN cases. Imaging is typically performed with computed tomography angiogram, magnetic

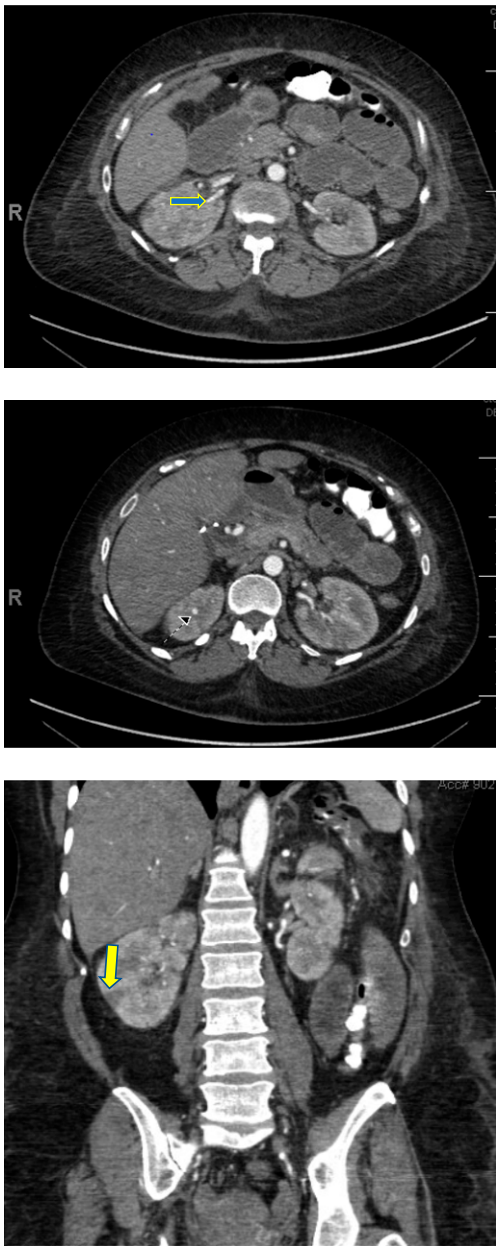

Figure 1. | Computerized tomography (CT) scan images. (A) Computed tomography image of the abdomen showing beading of the left renal artery (arrow). (B) Computed tomography image of the abdomen showing pseudoaneurysms (arrow). (C) Computed tomography image of the abdomen showing wedge-shaped renal infarcts (arrow).

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resonance imaging, or mesenteric or renal arteriography, with a diagnostic finding of multiple small aneurysms and irregular constrictions of the large arteries. A biopsy sample of an affected organ reveals PMN and mononuclear cell inflammation, fibrinoid necrosis of the arterial wall, segmental transmural inflammation of the muscular arteries, and aneurysmal dilation. Initial treatment is glucocorticoids. In patients with severe disease, cyclophosphamide is typically added. Long-term follow-up has demonstrated better survival and clinical outcomes in patients treated initially with combination glucocorticoids and cyclophosphamide versus glucocorticoids alone. Vasculitis, although occurring rarely, is a reported complication of TNF-α inhibitor therapy. A case series from France identified 39 cases of vasculitis during TNF-α therapy, only one of which was consistent with PAN (3). A larger subsequent case series of incident autoimmune diseases associated with TNF-α inhibitors found 233 reported cases, with the majority of patients having cutaneous vasculitis, lupus or lupus-like syndrome, and interstitial lung disease (4). We found no published case reports of PAN associated with TNF-α inhibitor therapy during review of the literature. However, in a subsequent commentary, the authors of the French case series described their own experience of necrotizing vasculitis of the medium-sized vessels in patients on TNF-α inhibitors as occurring much more frequently than reported (5). Given the increasing use of these drugs to treat many inflammatory diseases, we may soon confirm the authors' final sentence, that "results suggest that TNF blockers could trigger systemic necrotizing vasculitis."

Teaching Points

- PAN is a challenging clinical diagnosis, usually requiring biopsy of an affected organ. A high index of suspicion should be maintained for abdominal vasculitis in vulnerable patients with high inflammatory markers and systemic symptoms.
- Patients receiving TNF-α inhibitors may be at risk for this serious and life-threatening vasculitis.

Disclosures

All authors have nothing to disclose.

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Informed consent was obtained from the patient.

Author Contributions

D. Campbell, R. Desilva, and K. Kalra wrote the original draft and reviewed and edited the manuscript; R. Desilva and K. Kalra conceptualized the study; R. Desilva provided supervision.

References

1. Sato O, Cohn DL: *Rheumatology*, edited by Klippel JH, Dieppe PA, St Louis, MO, Mosby, 2003
2. Lightfoot RW Jr., Michel BA, Bloch DA, Hunder GG, Zvaifler NJ, McShane DJ, Arend WP, Calabrese LH, Leavitt RY, Lie JT, Masi AT, Mills JA, Stevens MB, Wallace SL: The American College of Rheumatology 1990 criteria for the classification of polyarteritis nodosa. *Arthritis Rheum* 33: 1088–1093, 1990
3. Saint Marcoux B, De Bandt M; CRI (Club Rhumatismes et Inflammation): Vasculitides induced by TNFalpha antagonists: A study in 39 patients in France. *Joint Bone Spine* 73: 710–713, 2006
4. Ramos-Casals M, Brito-Zerón P, Muñoz S, Soria N, Galiana D, Bertolaccini L, Cuadrado MJ, Khamashta MA: Autoimmune diseases induced by TNF-targeted therapies: Analysis of 233 cases. *Medicine (Baltimore)* 86: 242–251, 2007
5. De Bandt M, Saint-Marcoux B: Tumour necrosis factor Alpha blockade and the risk of vasculitis. *Ann Rheum Dis* 65: 1534–1535, 2006

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