LESSON OF THE MONTH

Digital necrosis with Ogilvie's syndrome

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Case report

A 76 year old retired fisherman presented with a progressive four week history of cold, painful, blue fingers. Systematic enquiry was unremarkable apart from generalised lethargy over the preceding six weeks. He had osteoarthritis of his left hip and had taken indomethacin 25 mg thrice daily for five years. He was an ex-smoker of 20 cigarettes/day for 40 years.

On examination he was afebrile. There was severe ischaemia of both hands with gangrene and necrosis of the fingertips (fig 1). Both feet were cyanosed, but there was no overt ischaemia or necrosis. All peripheral pulses were palpable with a blood pressure in both arms of 160/90. There were no large vessel bruits or cardiac murmurs. Abdominal distension was noted but there was no tenderness or organomegaly. His fundi were normal. The remainder of the physical examination was unremarkable.

Laboratory investigations revealed a hypochromic, normocytic anaemia with a haemoglobin of 9.4 g/dl and a white cell count of 19.1×10^9 with a neutrophilia. The erythrocyte sedimentation rate (Westergren) was 133 mm/1st h with a C reactive protein of 180 mg/l (normal range <10 mg/l). Urine analysis revealed 2+ protein, 3+ blood and granular casts but no red cell casts. Urine and blood cultures were sterile. The urea was 19.7 mmol/l and the serum creatinine 180 μ mol/l with a creatinine clearance of 43.6 ml/min and a urinary total protein of 0.13 g/24 h. The alkaline phosphatase was 472 IU/l and the γ -glutamyltransferase 184 U/l with a serum albumin of 21 mmol/l. The IgG antinuclear antibody assay was positive with a titre of 1:80, but anti-double stranded DNA antibody and rheumatoid factor were not detected. Extractable nuclear antigens, antiphospholipid antibodies, and antineutrophil cytoplasmic antibodies were not detected. Plasma protein electrophoresis, serum immunoglobulins, CH50, C3, and C4 were normal. Cryoglobulins, cold agglutinins, and immune complexes were not detected. Hepatitis B and C serology was negative. Chest and sinus radiographs were normal. Echocardiography showed mild left ventricular hypertrophy but there were no vegetations. Von Willebrand factor antigen was increased >450% (normal range < 200). Upper limb arteriography revealed smooth narrowing and complete cessation of flow in the vessels entering both hands, consistent with diffuse vasculitis (fig 2). Ultrasound examina-

tion of the renal tracts was reported as showing a small 'cyst' on the right kidney.

A working diagnosis of atypical vasculitis was made and the patient given 60 mg of prednisolone/day with little improvement in the digital ischaemia. During the admission, however, the patient complained of vague abdominal discomfort and developed further abdominal distension. A plain erect abdominal x ray revealed severe distension of the large bowel with normal gas and faecal patterns in the rectum, in keeping with acute large bowel pseudo-obstruction or 'Ogilvie's syndrome'.¹ Because of the reported association of Ogilvie's syndrome and malignant infiltration of the myenteric plexus¹ abdominal computed tomography was performed that showed a large mass arising from the right kidney (fig 3). At nephrectomy the kidney was noted to contain a six centimetre round pale tumour in the upper pole. Considerable residual tumour

Figure 1 Severe digital ischaemia and necrosis of the patient's hands at presentation.

Figure 2 Upper limb arteriography demonstrating a long segment of arterial narrowing and cessation of flow in the vessels entering the hand, consistent with vasculitis.

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Figure 3 Abdominal computed tomography. A mass can be seen arising from the right kidney. Nephrectomy and histopathology revealed a renal cell carcinoma.

bulk was noted in the retroperitoneum with spread to local lymph nodes. Histopathological examination of the tumour showed a clear cell renal carcinoma with multifocal areas of necrosis. The tumour was bounded by a fibrous pseudocapsule with no invasion of the renal vein. There was no evidence of vasculitis in the surrounding renal parenchyma. No improvement in the digital ischaemia was noted after surgery.

Discussion

Digital ischaemia is a rare presentation of underlying malignancy. The largest series of six cases was reported by Hawley in 1967, who described digital necrosis associated with a variety of malignancies.² He also reviewed the previous isolated reports of the condition dating back to 1866. To date, 26 cases have been reported in the medical literature and these have been reviewed by Petri.³ The clinical manifestations vary from splinter haemorrhages and pulp atrophy to frank digital necrosis. Classic Raynaud's syndrome is unusual with the changes being rapidly progressive and permanent over a comparatively short time scale and no response to provocative factors. Raynaud's syndrome, however, has been reported as an initial manifestation of an ovarian carcinoma.⁴

The commonest associated malignancy is lung adenocarcinoma. Other associated malignancies include squamous cell carcinoma of the lung, colonic cancer, gastric cancer, ovarian cancer, uterine cancer, breast cancer, renal cell carcinoma, myeloma, leukaemia, and Hodgkin's disease.³ This appears to be the third case of digital necrosis associated with renal cell carcinoma reported in the medical literature.

Postulated mechanisms underlying the digital ischaemia include cryoglobulinaemia, immune complex mediated vasospasm, hypercoagulable state, and necrotising vasculitis.³ In our patient cryoglobulins and immune complexes were not detected and a coagulation screen was normal. In a previous case associated with a renal cell carcinoma, selective arteriography of the hand showed diffuse vasculitis and a skin biopsy revealed leucocytoclastic angitis.⁵ In our patient the arteriography findings and the considerable increase of the von Willebrand factor antigen (a marker of

endothelial cell damage) also suggest necrotising vasculitis as the mechanism resulting in digital ischaemia and necrosis.

It has been postulated that antibodies to tumour antigens may induce the vasculitis⁵ and medium vessel vasculitis of the polyarteritis type has been described in malignancy.^{6,7} In a number of patients reported in the medical literature the digital ischaemia has improved after resection of the tumour.⁵ There was no clinical improvement in our patient after nephrectomy, perhaps resulting from the large residual retroperitoneal tumour bulk.

The second rare presentation of underlying malignancy in this patient was 'Ogilvie's syndrome' or large bowel pseudo-obstruction. Patients with this syndrome have clinical and radiological features of mechanical large bowel obstruction although there is often a discrepancy in the clinical picture, with severe abdominal distension, little pain, and continuing bowel action. x Ray features suggesting pseudo-obstruction include a continuous gas filled colon, a sharp thin bowel wall, preservation of haustra, few fluid levels and gas or faeces in the rectum.⁸ When contrast studies or laparotomy are performed, no evidence of organic disease exists in the colon. Various predisposing factors have been suggested including previous pelvic surgery, respiratory and cardiac disease.⁸ Ogilvie, however, suggested an imbalance in the colonic sympathetic and parasympathetic nerve supply via the myenteric plexus as an explanation of the pathophysiology of the condition.¹ In both the cases he described there was malignant infiltration of the myenteric plexus. We postulate a similar mechanism occurred in our patient secondary to the large retroperitoneal tumour bulk and local lymph node spread. In retrospect, perhaps computed tomography should have been requested earlier in view of the ultrasound report, however, we felt initially the 'cyst' was not a significant finding in view of the systemic nature of the illness.

The lesson

- Digital necrosis may be a rare manifestation of underlying malignancy.
- Patients with acute large bowel pseudo-obstruction or 'Ogilvie's syndrome' may have malignant infiltration of the myenteric plexus.
- Beware 'cysts' on ultrasound examination of the kidneys.

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