CASE REPORT

Wunderlich's syndrome as a manifestation of polyarteritis nodosa

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SUMMARY

Wunderlich syndrome is a rare clinical entity characterised by spontaneous renal haemorrhage that can be life-threatening and requires emergency attention. The most frequent aetiologies are renal tumours and vascular diseases. The authors report a case of a patient admitted with hypovolaemic shock due to a retroperitoneal haematoma in the context of polyarteritis nodosa (PAN). Prognosis of untreated PAN is very poor with 13% 5-year survival rate. Therefore, early recognition of disease and proper treatment with immunosuppressors will prevent catastrophic complications and improves survival.

BACKGROUND

This is an unusual presentation of an already rare condition. As such, it is important to be aware of polyarteritis nodosa (PAN) as a cause for massive renal haematomas since achieving a speedier diagnosis might, in fact, be life-saving.

CASE PRESENTATION

A white woman aged 58 years presented at the emergency department with recurrent episodes of syncope in the week before admission. At physical examination, she was pale, emaciated, hypothermic (33.6°C), hypotensive (76/42 mm Hg) and tachycardic (120 bpm) with systolic heart murmur on auscultation and a slightly distended and tympanic abdomen, diffusely painful during deep palpation identifying a well-defined painful left flank mass. The initial laboratory tests showed severe normocytic hypochromic anaemia (44 g/L—80 fL—25.5 pg) and emergency abdomen CT scan revealed large retroperitoneal haematomas (perirenal and subcapsular) and nodular images suggestive of microaneurysms in the kidneys, liver and spleen (figure 1). She was admitted to our intermediate care unit and transfused with 4 units of packed red blood cells with stabilisation of haemoglobin at 9.8 g/dL and afterwards transferred to the Internal Medicine ward for further investigation. She referred a 6-month history of fatigue, weakness and 10 kg weight loss. She denied fever or apparent blood loss. Her medical and surgical history consisted of hysterectomy+oophorectomy due to a large uterine myoma 17 years prior and more recently, anaemia being investigated by her general practitioner. During this period, she underwent an endoscopy which revealed chronic gastritis positive for *Helicobacter pylori*. She completed a cycle of antibiotics, and the follow-up urea breath test was negative for infection. Her only other medication

Figure 1 CT image showing large perirenal haematoma (H) and renal artery aneurysm (arrow).

consisted of ferrous sulfate during the previous month. She had no history of hypertension, smoking or alcohol consumption. A more thorough physical examination revealed an asymmetrical hypoalgesia of the lower limbs—dorsal surface of the left foot and right foot calcaneus. Her diastolic blood pressure was elevated on follow-up over 100 mm Hg, with systolic values over 150 mm Hg, both controlled using lisinopril, amlodipine and carvedilol.

INVESTIGATIONS

Laboratory test results were consistent with anaemia of chronic disease (ferritin 1018 ng/mL—iron 19 µg/dL—transferrin 127 mg/dL). Folate and vitamin B₁₂ were normal, without evidence of haemolysis (haptoglobin 1854 mg/dL, normal bilirubin and negative Coombs test) despite elevated lactate dehydrogenase (1463 UI/L). There was also an elevation of inflammatory markers (leucocytes 22.1 10⁹/L—C reactive protein 12.7 mg/dL—erythrocyte sedimentation rate (ESR) 88 mm/1 hour) without clinical evidence of infection. Blood and urine cultures were negative. Angio-MRI confirmed the presence of aneurysms in the distal branches of the renal, hepatic and splenic arteries (figure 2).

Further evaluation revealed unaltered protein electrophoresis, c3 and c4 levels and negative serologies for hepatitis B and HIV. Rheumatoid factor and antinuclear antibody were positive at 1:320 dilution with a homogeneous pattern. Anti-DNAs, ENA screening, antiphospholipid antibodies and ANCA were negative. Neither electromyogram nor nerve biopsy were performed to confirm polyneuropathy.

TREATMENT

She was diagnosed with PAN in accordance with American College of Rheumatology (ACR) criteria

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Figure 2 MRI image showing renal and hepatic aneurysms (arrows).

and initiated treatment with oral prednisone (1 mg/kg/day) and intravenous pulses of cyclophosphamide.

OUTCOME AND FOLLOW-UP

By the second cycle, the improvement was remarkable. She felt much better, began working again and gaining weight. She completed the induction treatment with intravenous cyclophosphamide and attained remission status with azathioprine being used in the maintenance phase with a few laboratory relapses. Later switching to oral methotrexate (20 mg/weekly) lead to sustained remission. During the follow-up period, she underwent hip arthroplasty due to aseptic necrosis of femoral head, related to steroid use.

DISCUSSION

Spontaneous retroperitoneal haemorrhage also known as Wunderlich syndrome (WS) is a rare but a potentially life-threatening entity characterised by acute onset of non-traumatic subcapsular and perirenal haematomas. A broad spectrum of renal pathologies may result in WS, where neoplasms account for the majority of cases (61%), and vascular diseases were the next leading cause, with PAN accounting for 17%.¹

PAN is a systemic vasculitis which typically affects medium and small-sized muscular arteries.² Though mostly idiopathic, some cases are related to hepatitis B infections and hairy cell leukaemia (secondary PAN).^{3–5} It is a rare disease which usually presents with systemic symptoms and multiorgan involvement often sparing the upper respiratory airways and the lungs. Its incidence rises with age, with a peak in the fifth decade and a slight male predominance.⁶ Kidneys and skin are the most frequently affected sites. Aneurysms can develop due to segmental necrosis, related to the severity of the disease.⁷ Thrombosis may occur leading to rupture and haemorrhage, but this remains a rare complication.¹

In this particular case, the presentation was hypovolaemic shock with severe anaemia, which is uncommon on its own.⁶ The markedly low haemoglobin level was due both to the chronic inflammation which is due to the vasculitis and to the acute internal bleeding from the renal microaneurysms which formed the haematomas. The largest aneurysm identified was in the left renal artery and measured 14 mm in diameter. Although it was not detected, concomitant elevated blood pressure may have contributed to the aneurysm rupture.

The risk involved in a kidney biopsy was judged to be high, and there was no other accessible site for tissue biopsy which did not present similar risks. Thus, anatomopathological diagnosis was not attempted.

We had at least four ACR criteria: loss of body weight over 4 kg; development of diastolic hypertension; elevation of creatinine >1.5 mg/dL; and aneurysms of visceral arteries. Neuropathy was also likely present, although no formal diagnosis was made.

According to the ACR classification criteria, 3 or more of the 10 criteria have 82% sensitivity and 87% specificity for the diagnosis of PAN.⁸

Less invasive than arteriography, imaging techniques such as CT and MRI are becoming increasingly important for the diagnosis of PAN, as well as evaluation of the response to treatment.⁹ In our case, since biopsy was not a viable option, CT and MRI were of even greater importance.

A ruptured aneurysm resulting in a large perirenal haematoma usually necessitates an urgent surgery.¹⁰ However, therapeutic arterial embolisation is becoming a viable alternative in haemorrhage due to ruptured aneurysms, particularly in patients with haemodynamic instability.¹¹ Our patient's retroperitoneal haemorrhage ceased spontaneously and was easily managed conservatively. A rapid diagnosis and a successful treatment will significantly improve survival from 13% at 5 years to 80%.^{12 13} Thus, clinical suspicion is paramount.

Learning points

- ▶ Wunderlich syndrome is primarily caused by kidney neoplasms, followed by vasculitis.
- ▶ Among kidney neoplasms, angiomyolipoma is the most frequent aetiology.^{14 15}
- ▶ Polyarteritis nodosa is a systemic disease with many different presentations requiring a high level of suspicion.
- ▶ Angio-CT and angio-MRI are good alternatives to classic angiography.

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Competing interests None declared.

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