Case Report

Unstable Angina as the First Manifestation of a Relapse in Polyarteritis Nodosa

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ABSTRACT

Coronary involvement with polyarteritis nodosa (PAN) has been identified in post-mortem studies, yet rarely in clinical practice. We report a 38-year-old woman who presented with unstable angina for two days. She had a history of PAN and had received immunosuppressive therapy for two years, six years ago. Her initial ECG showed ST depression in most leads. Troponins were not elevated. Coronary arteriography revealed multiple aneurysms and stenotic lesions without obstruction. She also had anemia and progressive renal failure, indicating acute flare of PAN. She was treated with infusions of heparin, nitroglycerin, and oral Clopidogrel. Moreover, she received three daily infusions of 1 g solumedrol, followed by tapering dose of prednisone and three monthly 1 g Cyclophosphamide infusions, followed by Mycophenolate 1 g twice daily. She improved and remained stable for the next two years.

KEY WORDS: arteriography, coronary arteritis, polyarteritis nodosa, vasculitis

INTRODUCTION

Polyarteritis nodosa (PAN) is an autoimmune, systemic, inflammatory vasculitis that results in transmural fibrinoid necrosis with surrounding inflammation in small and medium-size vessels[1]. It is a rare disease with an annual incidence of 2.4 per million[2]. It typically presents with generalized fatigue, myalgia, testicular pain and arthralgia, mononeuritis multiplex as well as renal and mesenteric ischemia. At autopsy, vascular involvement with arterits, thrombosis, dissections, aneurysms, and stenosis was evident in 79% of kidneys and 62% of coronary arteries[3,4]. However, ischemic heart disease is rarely reported as the initial manifestation of the disease or its relapse[5-7]. In this case report, we describe a young woman who presented with unstable angina that preceded her relapse with PAN.

CASE REPORT

A 38-year-old woman was admitted with recurrent retrosternal chest pain for two days. The pain had progressed rapidly from few minutes to 30 minutes and lately even at rest. The ECG on admission showed ST depression in most leads (Fig 1), yet repeated serum troponin were not elevated. Her pain regressed after intravenous (IV) nitroglycerin and unfractionated heparin as well as oral aspirin and Clopidogrel. Review of her past medical history revealed that she had PAN six years ago. At that time, she had recurrent abdominal pain, weight loss and progressive renal failure with serum creatinine of 570 μmol/L at presentation. Diagnosis of PAN was established by a kidney biopsy that showed leukocytoclastic vasculitis. At that time, she was treated with pulse Methylprednisone (1 g IV daily for three days) followed by Prednisone 1 mg/kg daily. Subsequently, the dose was tapered down gradually after the first month to 5 mg/day by the sixth month. The latter was maintained for a total of two years. In addition, she had received 1 g of Cyclophosphamide infusions on a monthly basis for three consecutive months. Subsequently, she received Azathioprine 1 mg/kg daily for 21 months. She improved clinically, and serum creatinine fell to 180 μmol/L and albumin returned to normal by the end of the third month. The

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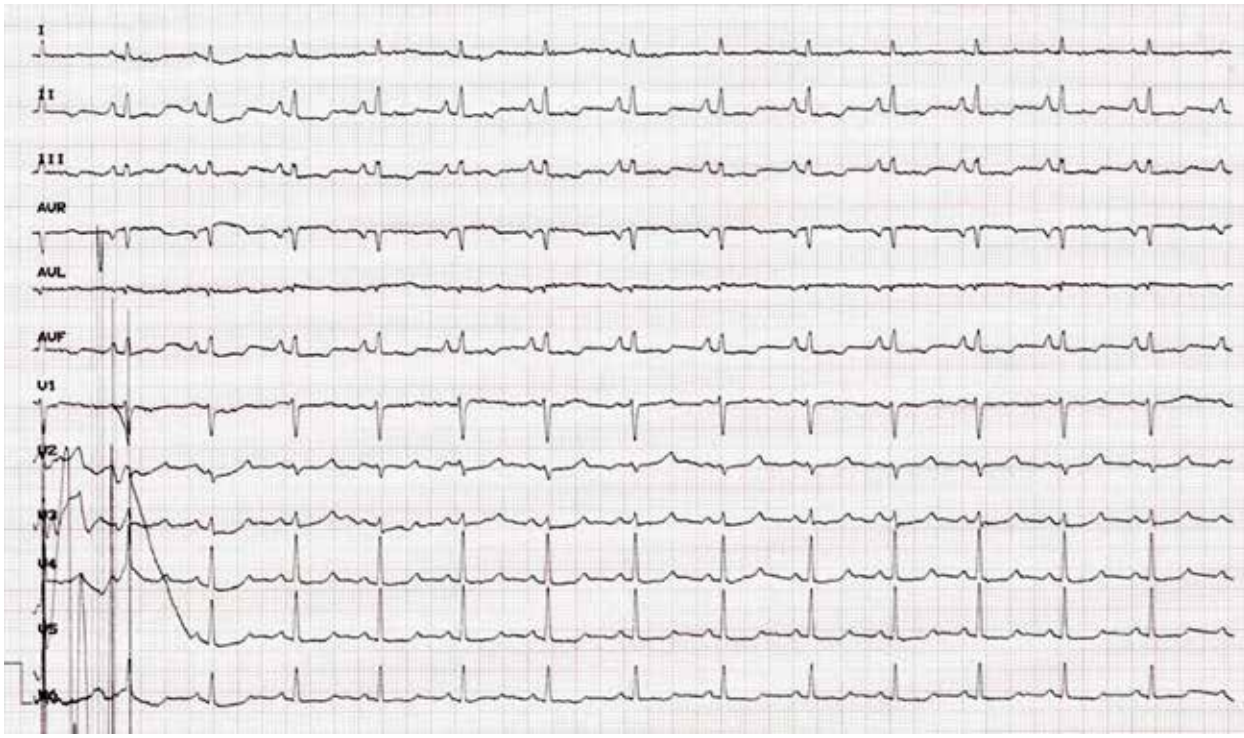

Fig 1: ECG showing ST-segment depression and T-wave inversion in leads I, II, III, AVF, and V3-6

patient did not have a history of hypertension, diabetes mellitus, dyslipidemia, or smoking.

At the present admission, her physical examination did not show any abnormality. However, she had normocytic normochromic anemia with hemoglobin at 105 g/L. Her biochemical profile showed increase of serum creatinine to 360 μmol/L and decrease of albumin to 25 g/L. Urine showed 2 (+) proteinuria and excess red cells per high power field, yet without pyuria. A transthoracic echocardiography did not show significant valvular or wall-motion abnormalities. Due to her age, unstable angina and history of PAN, she was subjected to coronary angiography. The latter showed multiple aneurysms and stenotic lesions in all coronary arteries (Fig. 2 & 3). MRI scanning excluded involvement of the aorta and its major branches. She received the

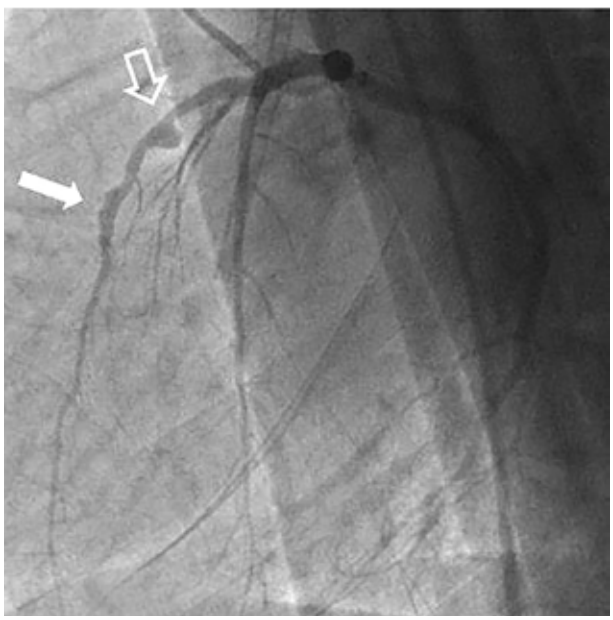

Fig 2: Left lateral projection of the left coronary system showing eccentric aneurysmal dilatation of the anterior descending artery (open arrow) after first septal branch and diagonal branch, followed by irregularities in the mid segment. The vessel tapers distally towards its apical part

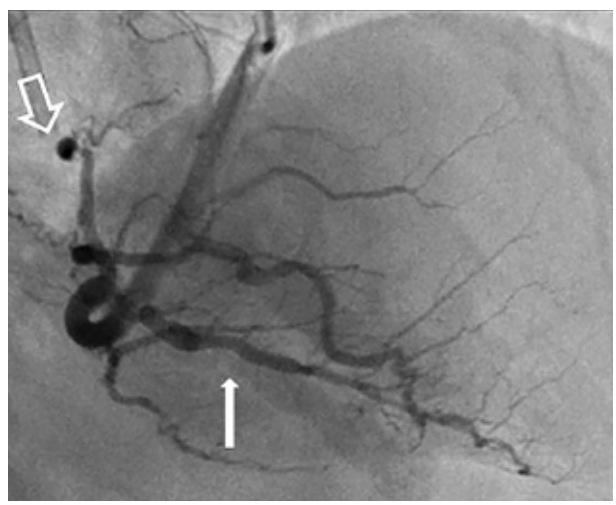

Fig 3: Left lateral projection of the right coronary system showing normal main trunk and irregularities of the posterior descending branch (solid arrow) as well as a localized aneurysmal dilatation (open arrow)

same corticosteroid therapy and Cyclophosphamide. However, in view of the recurrence of her vasculitis and the potentially fatal coronary lesions, a more powerful immune-suppressive regimen was chosen as a maintenance therapy. The latter consisted of oral Mycophenolate mofetil 1 g twice daily for 21 months instead of Azathioprine. She improved clinically, and her serum creatinine fell to 120 μmol/L. She remained stable for the last two years.

DISCUSSION

PAN, unlike other vasculitides, is an insidious disease that usually manifests as gastrointestinal bleed/ perforation or rapidly progressive renal failure. Florid systemic manifestations or positive antineutrophil cytoplasmic antibodies (ANCA) tests are rare. Diagnosis of PAN rests on radiological investigations and/or the finding of active leukocytoclastic vasculitis with loss of the internal elastic membrane in medium-sized vessels, or at autopsy in unfortunate cases[1,8,9]. Classic PAN is progressive vascular attacks with focal and acute inflammatory infiltration, followed by fibroblasts proliferation leading to either wall weakness with aneurysmal dilatation and subsequent rupture or dense fibrosis with luminal stenosis and ischemia[3]. Those angiographic findings of microaneurysm, ectasia, and/or occlusive disease are not pathognomonic of PAN and can be seen in other vasculitides, including rheumatoid vasculitis, Churg-Strauss syndrome, necrotizing angitis associated with drug abuse, and systemic lupus erythematosus[10]. As in our patient, the correlation of the angiographic features with the clinical findings was essential for establishing the diagnosis of PAN. Cardiac involvement with PAN was studied extensively by Holsinger *et al*[3]. Hypertension was the most common cardiovascular manifestation of PAN and accounted for 37% of the cases studied, while congestive heart failure was present in 27%. Interestingly, coronary arteritis was described in 62% of the cases studied and 89% of them had histological evidence of myocardial infarction, yet most were clinically silent. As has been described earlier and as the name implies, vascular involvement with PAN is a perivascular disease, contrary to the diffuse disease associated with systemic vasculitides, *viz*. Wegner's or Churg-Strauss[4]. In the latter ones, the early endocardial involvement and subsequent thickening triggers thrombosis and overt ischemic heart disease during disease activity, contrary to the silent PAN.

In general, survival of untreated or misdiagnosed PAN is grim, with an average survival of only 6 - 12 months after diagnosis[3,4]. Hence, cardiac involvement justifies immediate and aggressive immunosuppressive treatment in addition to conventional antiplatelet agents as well as bypass surgery for the persistently stenotic lesions[11].

CONCLUSION

Coronary artery disease is not rare in polyarteritis nodosa.

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