

A Case of Classic Polyarteritis Nodosa Resembling Lupus Nephritis

Lupus Nefritine Benzeyen Klasik Poliarteritis Nodosa Olgu Sunumu

ABSTRACT

Classic polyarteritis nodosa (cPAN) is a systemic necrotizing vasculitis of medium-sized muscular arteries. Glomerular involvement is not expected in the course of cPAN. Herein, we describe a case of cPAN with glomerular and multiple arterial involvement. The patient presented with severe abdominal pain and high fever. Urine analysis showed hematuria and 1g/day proteinuria. Kidney biopsy showed fibrinoid necrosis of arterioles and IgG, IgA and C1q positivity raising a suspicion of lupus nephritis. However digital subtraction angiography revealed typical multiple micro-aneurysms in the coronary, mesenteric, splenic and renal arteries establishing the diagnosis of cPAN. Kidney biopsy in cPAN may reveal non-specific immune-deposits and fibrinoid necrosis of arterioles mimicking lupus nephritis and microscopic polyangiitis. c-PAN should be carefully differentiated from these entities.

KEY WORDS: Polyarteritis nodosa, Lupus nephritis, Microscopic polyangiitis, Glomerulonephritis, Systemic lupus erythematosus

ÖZ

Klasik poliarteritis nodosa (cPAN) orta boy musküler arterleri tutan sistemik nekrotizan bir vaskülitir. Klasik PAN'ın seyrinde glomerüller tutulum genelde beklenmemektedir. Burada glomerüller ve multipl arteriyel tutulumu olan bir klasik PAN olgusu tartışılacaktır. Hasta ciddi karın ağrısı ve yüksek ateş nedeni ile başvurdu. İdrar tahlilinde hematüri ve 1 gr/gün proteinüri gözlemlendi. Böbrek biyopsisi yapıldı ve histolojide lupus nefritini düşündürülen arterioller fibrinoid nekroz ve IgG, IgA, C1q pozitifliği görüldü. Buna karşın dijital subtraksiyon anjiyografide koroner, mesenterik, splenik ve renal arterlerde tipik multipl mikroanevrizmalar görülmesi üzerine cPAN tanısı kondu. Klasik PAN'ın böbrek biyopsisi non-spesifik immün deposit ve arterioller fibrinoid nekroz görünümü ile lupus nefritini ve mikroskopik polianjiti taklit edebilir. Ayrıntı tanıda Klasik PAN bu antitelardan dikkatlice ayrılmalıdır.

ANAHTAR SÖZCÜKLER: Poliarteritis nodosa, Lupus nefriti, Mikroskopik polianjitis, Glomerülonefrit, Sistemik lupus eritematosus

INTRODUCTION

Classic polyarteritis nodosa (cPAN) is a systemic necrotizing vasculitis of predominantly medium-sized muscular arteries. Glomerular involvement is not expected in the course of cPAN and this feature may be useful in distinguishing cPAN from other vasculitic syndromes such as microscopic polyangiitis (mPA) and systemic lupus erythematosus (SLE) (1,2). Herein, we describe a case of cPAN with glomerular and multiple arterial involvement.

CASE REPORT

A 28-year-old male presented with gradually increasing severe abdominal pain and fever of 39°C. The pain had started at the epigastric region two weeks ago and worsened since. On physical examination, hypertension with a blood pressure of 170/110 mmHg and diffuse abdominal tenderness were found. ECG, and chest and direct abdominal X-rays were normal. Laboratory tests revealed leukocytosis (WBC= 11.900/mm³), and high acute

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Received : 04.04.2013

Accepted : 09.05.2013

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phase reaction (C-reactive protein= 122 mg/L, erythrocyte sedimentation rate=126 mm/h). Serum creatinine levels were normal at 1.0 mg/dL. Urinalysis showed hematuria and 1 g/day proteinuria. Abdominal ultrasonography showed minimal ascites. The serum-ascites albumin gradient was 0.53 g/dL, indicating a non-portal hypertensive etiology. The patient's hepatitis serology, namely HbsAg, Anti-HbsAg and Anti-HCV (Enzyme-Linked ImmunoSorbent Assay), was found to be negative. Abdominal computed tomography (CT), magnetic-resonance (MR) angiography, and upper and lower endoscopy results were normal. Arthritis of the elbows and proximal interphalangeal joints was observed on the 8th day inpatient day. An extensive infectious disease work-up including echocardiography was performed to rule out endocarditis but no pathology was found and cultures remained sterile. The patient had a left ventricular ejection fraction of 35% with apical dyskinesis. Anti-nuclear antibody (ANA) and anti-neutrophil cytoplasmic antibody (ANCA) were both negative. A kidney biopsy was performed as hematuria and proteinuria were found. Pathology revealed fibrinoid necrosis in the arteriolar walls and normal glomerules without crescents. Despite a negative MR angiography, digital subtraction angiography was performed

with a high suspicion of cPAN, and showed typical multiple micro-aneurysms in the renal (Figure 1), coronary (Figure 2), mesenteric and splenic arteries. Pulse cyclophosphamide (1 g/month 6 times) and methyl-prednisolone (1 g/month 3 times and subsequently 1 mg/kg oral maintenance) were started. Fever and abdominal pain subsided dramatically. The patient is currently being followed-up as an outpatient by the rheumatology and nephrology departments without any symptoms.

DISCUSSION

PAN is a form of life-threatening systemic necrotizing vasculitis affecting medium-sized muscular arteries, with rare involvement of small muscular arteries. The prevalence of PAN has been reported to be 3-33 per million (1-3). Patients typically present with systemic symptoms. The kidneys, skin, joints, muscles, nerves, and gastrointestinal tract are commonly involved, usually in various combinations. PAN can affect virtually any organ but almost always spares the lungs. Hence, various clinical pictures may be observed according to the location of the vasculitic involvement.

Kidneys are the most commonly involved organs in cPAN. Variable degrees of renal insufficiency and hypertension are frequently observed (4). Rupture of renal arterial aneurysms may cause perirenal hematomas that were not observed in our case. Other vasculitic syndromes such as mPA and SLE should be included in the differential diagnosis of cPAN (5,6). While



Figure 1: Subtraction angiography revealing typical renal micro-aneurysms establishing the diagnosis of cPAN.



Figure 2: Subtraction angiography revealing coronary micro-aneurysms.

more active urine sediments are observed because of necrotizing crescentic glomerulonephritis in mPA, cPAN is characterized by mildly active urine sediment as it is primarily caused by renal ischemia due to luminal narrowing of medium-sized arteries (7). Probably the most important distinguishing features are the presence of crescentic glomerulonephritis in mPA and a full house pattern together with C1q positivity in lupus nephritis whereas these are absent in cPAN (8). We observed hypertension and sub-nephrotic, mild proteinuria and hematuria in our case, similar to the literature. Kidney biopsy revealed the presence of IgG, IgA and C1q positivity with immunofluorescence examination, strongly suggesting lupus nephritis. However ANA and anti-DNA were both negative and subsequent angiography established the diagnosis of cPAN. These immune-deposits were probably non-specific.

Serologic testing for ANCA is used to differentiate between cPAN and mPA. ANCA is highly positive in primary small-vessel vasculitis and pauci-immune necrotizing crescentic glomerulonephritis (9). ANCA was negative in the present case.

The combination of acute abdominal pain, arthritis and high fever in our patient suggested infective endocarditis as a possible diagnosis. However all the imaging procedures including abdominal and thoracic Cts and echocardiography, and the cultures failed to reveal an infective agent.

Low ejection fraction with apical dyskinesia was probably related to coronary artery involvement by PAN which is quite rare in the literature. Myocardial ischemia has been reported as a result of coronary artery occlusion due to cPAN (10).

If an affected area or lesion of the skin, muscle or other tissue is available, biopsy may provide diagnostically important findings. The characteristic histopathological changes of PAN are fibrinoid necrosis of the walls of medium sized arteries and a marked inflammatory response surrounding the vessel (11). However, since no skin, muscle or neurological involvement was present in our case, we could not perform a biopsy. In such cases, the most valuable investigative procedure is known to be renal and hepatic ± mesenteric angiographies that reveal aneurysms, segmental narrowing of arteries and pruning of the peripheral vascular tree (12-14). Although MR angiography can demonstrate large renal aneurysms and stenoses/occlusions of the renal arteries, it usually fails to detect microaneurysms (15). Conventional angiography should therefore be performed even if MR angiography is negative for cPAN when PAN is clinically strongly suggested.

In conclusion, kidney biopsy may reveal non-specific immune-deposits and fibrinoid necrosis of arterioles mimicking lupus nephritis and mPA in cPAN. cPAN should be carefully differentiated from these entities.

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