

Systemic amyloidosis masquerading as polymyositis

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Amyloidosis is not an uncommon disease. Amyloidosis can mimic many systemic diseases and has many forms of manifestation, but it uncommonly presents as a myopathy, and even rarely masquerades as an inflammatory myositis. A dozen cases or lesser have hitherto been reported worldwide. We, therefore, report a case primary AL amyloidosis presented with nephrotic syndrome and progressive proximal muscle weakness.

Keywords : *Amyloid myopathy, Polymyositis, Nephrotic syndrome.*

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เถลิงศักดิ์ กาญจนบุษย์, ณัฐรุณี ไทวนำชัย, วิภาวี กิตติโกวิท, นี้อต เตชะวัฒนวรรณ, ยิ่งยศ อวิหิงสานนท์, เกื้อเกียรติ ประดิษฐ์พรศิลา, พงษ์ศักดิ์ วรรณไกรโรจน์, เกรียง ตั้งสง่า, สมชาย เอี่ยมอ่อง. รายงานผู้ป่วยอมายลอยโดซิสที่มาด้วยอาการคล้ายกับภาวะโพลีไมยโอไซติส. จุฬาลงกรณ์เวชสาร 2550 ก.ค. - ส.ค; 51(7): 343 - 8

รายงานผู้ป่วย amyloidosis ที่มาด้วยอาการกล้ามเนื้อต้นแขนและต้นขาอ่อนแรง ร่วมกับตรวจพบผื่นได้ตาลักษณะคล้ายกับที่พบในรอยโรค dermatomyositis ซึ่งพบได้ไม่บ่อย พบได้เพียง 7 รายทั่วโลก ผู้ป่วยรายนี้มาพบแพทย์ด้วยรอยโรคที่เกี่ยวข้องหลายอวัยวะได้แก่ nephrotic syndrome, organomegaly, retinopathy, angiopathy และ myopathy ได้ทำการยืนยันการวินิจฉัยโดยการพิสูจน์ทางขึ้นเนื้อของไต กล้ามเนื้อ และผิวหนัง ซึ่งมีลักษณะทางพยาธิสภาพร่วมกัน คือตรวจพบการสะสมของสาร amyloid ที่มีคุณสมบัติย้อมติดสี congo red ในอวัยวะเหล่านั้น

คำสำคัญ : Amyloid myopathy, Polymyositis, Nephrotic syndrome.

Case Report

A 52-year-old truck driver presented with one-year course of lower leg swelling and increased waist circumference. Seven months later, he had itchy, reddish rash on both periorbital areas. Nephrotic syndrome was diagnosed and high dose prednisolone was started at a private clinic. Subsequently, he developed right eye blindness, malaise, decreased appetite, and myalgia. He particularly had difficulty in getting up from sitting position and combing hair. Physical examinations revealed blood pressure of 80/60 mmHg, pulse rate of 90 beats per minute. Peri-orbital ecchymosis and macroglossia were observed (Figure 1). An examination of the cranial nerves was normal. The proximal muscle strength in the lower and upper limbs was grade II-III, and the distal muscle strength was grade V/V. Mild atrophy of the deltoid muscles and decreased deep tendon reflex (grade 1+) were detected.

Urinalysis revealed pyuria, microscopic hematuria, and proteinuria. The pyuria and hematuria became negative shortly after oral quinolone had started. Salmonella-group D was found in the culture of urine. However, proteinuria persisted. Urine protein-

creatinine ratio was 621.5/165, and 24-hour urine protein was 5.54 gm. BUN and creatinine were 48 and 3.2 mg/dL, respectively. The serum albumin was 1.2 gm/dL, total cholesterol was 224 mg/dL, and creatine kinase (CK) was 1,430 IU/L (normal value < 109 U/L at 30°C). Electrolytes were normal. A complete blood count revealed hemoglobin of 10.6 g/dl, WBC of 9180/ μ L, and platelet count of 326,000/ μ L. His liver function test was normal. ANA, anti-HIV-1/2, viral hepatitis profiles, ANCA, cryoglobulin, ASO, and anti-DNAse B were negative. Thyroid function test, calcium/phosphate level, and complement level were also normal. Chest radiography revealed cardiomegaly with pulmonary congestion. No osteolytic lesions were observed. EKG showed generalized low voltage in the limb leads. Echocardiogram demonstrated concentric hypertrophy of the ventricles with bright speckled appearance of the myocardium with left ventricular ejection fraction of 55 %. Serum and urine immunoelectrophoresis showed no M-protein spike. There was no evidence of plasma cell neoplasm by bone marrow aspiration and biopsy. After supportive treatments with diuretic and albumin infusion his BUN and creatinine subsequently returned to normal level.



Figure 1. (A) Ecchymosis are observed around his eyes. (B) teeth-imprint representing macroglossia.

Skin biopsy was performed at the area of purpura below the left eye. The section showed amorphous eosinophilic material in dermal papillae and around blood vessels and positive-stained Congo red. Electromyograph revealed short duration, low amplitude, and polyphasic motor unit potentials together with increased insertional activity potentials in all muscles examined. The nerve conduction velocity was normal. The findings were compatible with inflammatory myopathic pattern. Muscle biopsy demonstrated variations of myofiber size and shape, together with focal areas of necrotic muscle fibers and chronic inflammatory cell infiltration (Figure 2). Congo red staining of muscle tissues revealed amyloid deposits mainly at the perineurium and perimysium, and small intramuscular vessels (Figure 4C). Focal areas of deposition were also observed in the endomysium.

Kidney biopsy revealed irregular expansion of mesangial area with segmental nodular lesion. The

mesangial nodules were composed of acellular eosinophilic amorphous substance. The glomerular capillary loops were irregularly thickened (Figure 3). Congo red staining was positive (Figure 4A and 4B). Immunofluorescence staining revealed moderate segmental glomerular staining of lambda. After incubate renal tissue with permanganate, Congo red remained positive. Electron microscopic findings demonstrated segmental deposition of fibrillary material expanding the mesangial area and the glomerular capillary loops. There were diffuse effacement of the podocyte foot processes with normal glomerular cellularity.

He was treated with melphalan and prednisolone. The motor power was much improved to grade IV. A month later, he was re-admitted because of multiple episodes of upper gastrointestinal bleeding due to amyloid vasculopathy. He, subsequently developed septicemia, multiple organ failure, and died.

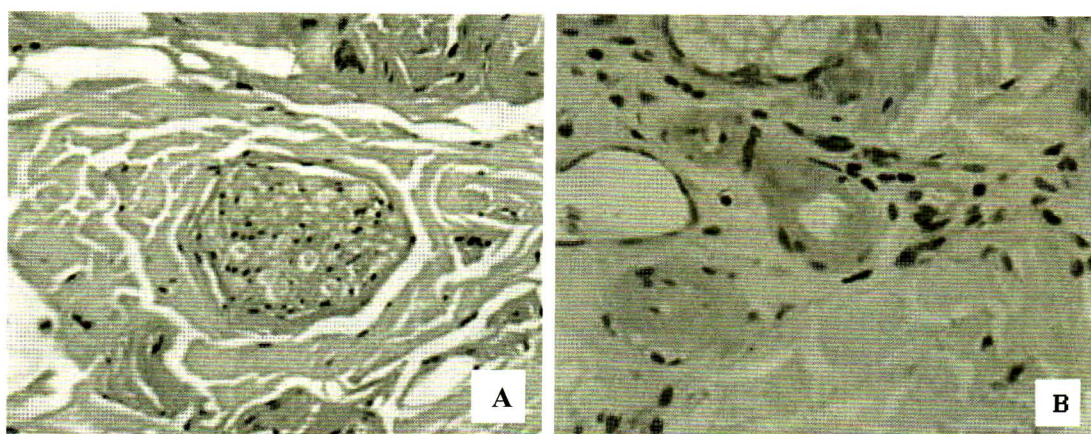


Figure 2. Depositions of pale amorphous eosinophilic materials surround perineurium (A, H&E x200) and intradermal arterioles (B, Congo red staining x 200).

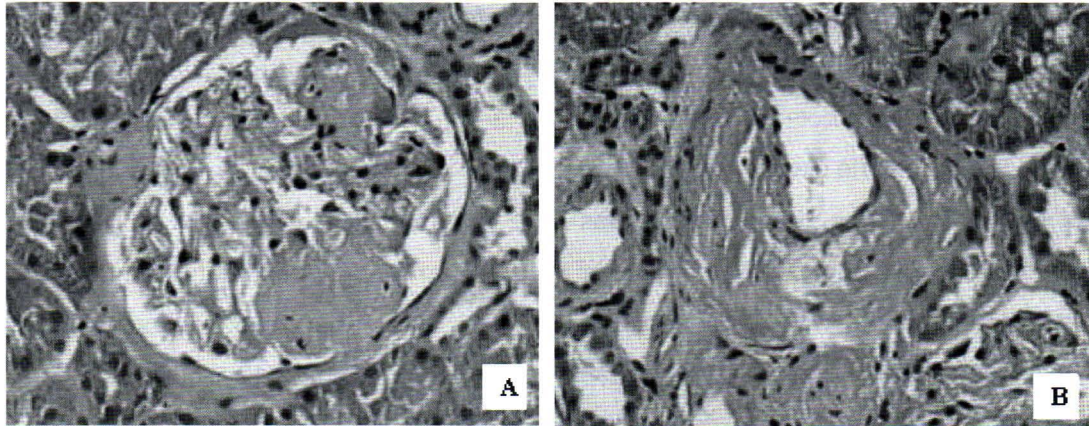


Figure 3. Kidney biopsy (A) reveals nodular sclerosis and GBM thickening (B) demonstrates pale amorphous hyaline material deposits around arteriole (H&E x 400).

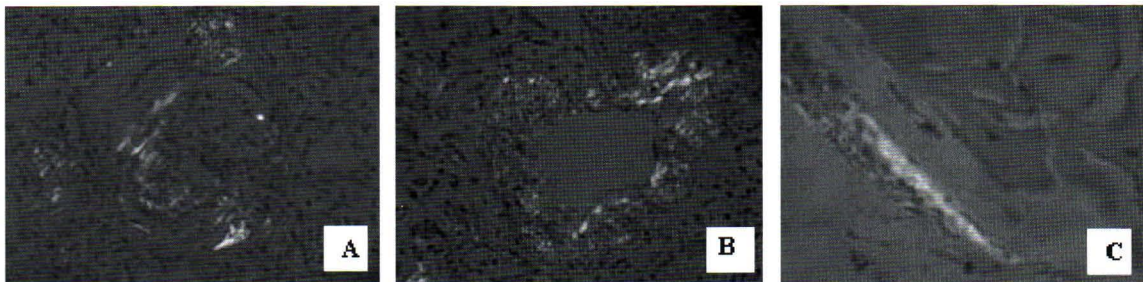


Figure 4. Congo red staining of kidney tissues (A and B) and muscle (C). Apple green birefringence is observed in the glomerulus, perivascular regions, and perimysium.

Discussion

Primary amyloidosis is a rare disease caused by organ deposition of insoluble amyloid fibrils. In the renal biopsy registry from Chulalongkorn University from 1996 to 2006, six out of 1,163 patients were diagnosed as renal amyloid. Only the patient out of those 6 cases had polymyositis. Amyloid myopathy was first reported by Lubarsch in 1929.⁽¹⁾ Since then, over one hundred cases have been accumulating in the literatures.^(2,3) However, manifestation mimicking polymyositis has been scantily reported.^(4,5) Recently, Chapin JE⁽²⁾ reviewed 79 cases of amyloidosis with myopathy. Only 5 cases had clinical and laboratory findings in concordance with polymyositis. None of

them had retinopathy as did in our patient. One of them had a very high level of serum CK reaching 10,000 U/L. Although the findings of electromyograph were similar to those commonly seen in chronic inflammatory myopathies, only five patients had inflammatory cells infiltration, which is a fundamental pathologic finding in polymyositis, along with congophilic material accumulation in the tissue.

Myopathy is one of the presenting symptoms (nephrotic syndrome, vasculopathy, retinopathy, and organomegaly) in our patients. At presentation, the signs and symptoms mimic those of dermatomyositis (rising of serum CK, inflammatory myositis obtaining from muscle biopsy, and periorbital ecchymosis).

Despite positive Congo red staining on skin, muscle, bone marrow, and kidney tissue, we were unable to identify monoclonal protein in both serum and urine, and also failed to demonstrate plasma cell abnormal in the bone marrow. The diagnosis of primary AL was noted since the renal tissue remained positive for congo red after incubating with permanganate. Although treatment with prednisolone and melphalan should have been effective as muscle power the state of and well-being were improved; the patient's symptoms were worsening after many episodes of gastrointestinal bleeding. Finally, the patient died from severe infection.

Conclusion

Amyloidosis myopathy can mimic polymyositis. Muscle weakness may be the only symptom of the patient for a long time. Some patients do not have any clinical clues or any laboratory data to guide for the diagnosis. High degree of suspicion and in prompt to muscle biopsy may be the only way to make the diagnosis.

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