Dialysis Amyloid Presenting as Acute Arthritis

D.		Sethi
E.R.		Maker
N.R.B.		Cary

Departments of Medicine and Pathology, Charing Cross Hospital, London, UK

Dr. D. Sethi, Department of Medicine, Charing Cross Hospital, Fulham Palace Road, London W6 8RF (UK)

Dear Sir,

Amyloid deposition is recognised as an important complication of long-term haemodialysis. Dialysis amyloid has been associated with chronic arthropathy, bone cysts and recurrent carpal tunnel syndrome [1]. The arthropathy typically presents as bilateral pain and stiffness in both large and small joints without signs of acute inflammation. We report two cases with an atypical presentation, i.e. acute painful swelling of the sternoclavicular joint.

Case Reports and Biopsy Findings

Case 1: a 45-year-old West Indian man with chronic renal failure due to glomerulonephritis had been on twice-weekly haemodialysis using cuprophane dialysers for 15 years; during this time he required three carpal tunnel release operations. He then received a cadaveric renal allograft but was restarted on maintenance haemodialysis after 9 months because of chronic graft rejection. Two weeks later he complained of a painful swelling over his right sternoclavicular joint. On examination he was pyrexial at 37.5°C and there was an acute inflammatory swelling over the right sternoclavicular joint. A radiography showed a cystic lesion in the medial aspect of the right clavicle. The serum β_2 -microglobulin level was 57 mg/l (normal < 2.4 mg/l; Pharmacia β_2 M RIA). Serum protein electrophoresis was normal and there was no evidence of current hyperparathyroidism. Parathyroidectomy had been performed 8 years previously. He was initially treated with intravenous antibiotics for a suspected septic arthritis; however, when there had been no response to treatment after 9 days, a biopsy was performed (see below). After the biopsy, the inflammation slowly resolved, but the swelling remained.

Case 2: this 40-year-old Indian man with chronic glomerulonephritis had been on maintenance dialysis with cuprophane dialysers for 10 years when he developed a painful swelling over his right sternoclavicular joint. Examination revealed a warm, tender, firm lobulated swelling arising from the sternoclavicular joint with anterior subluxation of the clavicle. In view of the history of miliary tuberculosis 5 years previously, a biopsy was performed to exclude tuberculoma. This revealed a 1.5-cm cyst filled with amorphous material (see below). He has since required two carpal tunnel release operations at 2 and 5 years later. The serum β_2 -microglobulin level was 35 mg/l. Serum protein electrophoresis was normal and there was no evidence of hyperparathyroidism.

Congo red sections of both biopsies showed large masses of amyloid. Congo red positivity was resistant to potassium permanganate pretreatment [2]. The amyloid was further characterised by demonstrating positive staining using an antibody to β_2 -microglobulin by an immunoperoxidase method. There was no reaction with antibodies to κ and λ immunoglobulin light chain, and to

serum amyloid A protein. Neither biopsy showed evidence of infection and no crystalline material was demonstrated.

Comment

The two cases represent a new aspect of dialysis amyloid: painful swelling around the sternoclavicular joint, simulating an acute arthritis. Biopsies were taken to exclude bacterial or tuberculous infection and revealed the presence of juxta-articular cysts containing amyloid derived from β_2 -microglobulin [3]. Haemodialysis patients are known to have very high levels of β_2 -microglobulin which accumulates over a number of years [4]. As far as we are aware, involvement of the sternoclavicular joint has not previously been described with dialysis amyloid although it is a feature of AL amyloidosis [5]. Further the arthritis associated with AL amyloidosis can simulate an inflammatory arthritis [6]. Our findings demonstrate that dialysis amyloid should also be considered as a cause of an acutely tender, swollen joint in patients on long-term haemodialysis.

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