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DIALYSIS RELATED AMYLOID ARTHROPATHY ON ^{18}FDG PET-CT

Editor,

A 60 year-old male patient with end stage kidney disease secondary to Alport syndrome presented with worsening swelling and pain in both shoulders. He had been on regular haemodialysis for 20 years, having had two failed renal transplants previously and had renal amyloidosis confirmed on renal biopsy. Radiographs of the shoulders showed evidence of an erosive arthropathy affecting the glenohumeral and acromioclavicular joints without significant degenerative change (Figure 1). In view of advanced renal failure and contraindication to MRI, a PET-CT scan was performed with 18-fluorodeoxyglucose (^{18}FDG) to assess for amyloid involvement in the shoulders. This demonstrated periarticular radiotracer uptake in both shoulder joints with greater involvement on the left, compatible with bilateral amyloid arthropathy in the shoulder joints (Figure 2).

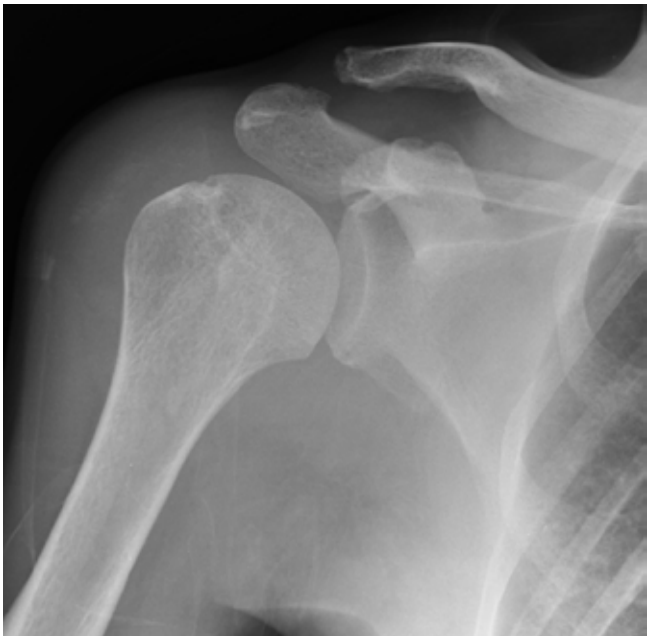

Fig 1. Anteroposterior radiograph of the right shoulder showing erosions affecting the coracoid process, humeral head and acromioclavicular joints. The glenohumeral joint space is preserved with no subchondral cystic change present.

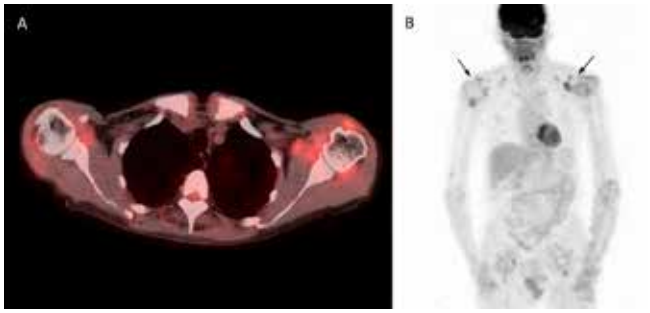

Fig 2. (A) Fused axial 18FDG-PET/CT image demonstrating periarticular radiotracer uptake in both shoulder joints with greater involvement on the left. (B) Coronal maximum-intensity projection 18FDG-PET/CT attenuation corrected image demonstrating FDG uptake in the periarticular regions (arrows) consistent with amyloid arthropathy.

Amyloidosis is characterised by extracellular deposition of protein and protein derivatives. The disease becomes clinically significant when its diffuse form affects organ function or when local deposition creates a mass. Our patient had dialysis-related amyloidosis (DRA) which is a well recognized complication in patients on long-term dialysis.[1, 2] Amyloid deposition with β2-microglobulin has high affinity for collagen and predominantly affects the osteoarticular system.[3, 4] DRA is clinically manifested by an erosive and destructive osteoarthropathy particularly in the form of scapulohumeral periarthritis, carpal tunnel syndrome, bone cysts, spondyloarthropathy and pathologic fractures.[1] As histopathological confirmation is not always possible and because increased serum β2-microglobulin levels are not diagnostic, the diagnosis is often made by imaging. Diagnosis is essential to prevent more serious complications such as pathologic fractures.

Plain radiography may demonstrate advanced DRA findings such as bone erosions and cystic lesions, but it is not sensitive in the demonstration of early changes and can also underestimate the extent of the disease. Ultrasound can be helpful in the detection of amyloid deposition in the periarticular soft tissues. CT and MRI are useful for the detection of lesions especially in the non-axial skeleton.[1, 3] On MRI, amyloid arthropathy typically demonstrates homogenous low-to-intermediate signal intensity on both T1 and T2-weighted images, and there can be high T2 signal in areas of cystic change. Periarticular amyloid may

enhance mildly after gadolinium administration.[5, 6] However, the administration of gadolinium has been linked to the development of nephrogenic systemic fibrosis in patients with advanced renal failure, in particular patients on dialysis and is contraindicated in this patient group.

PET-CT with ^{18}FDG has been reported to be a useful imaging modality to demonstrate areas of systemic amyloid deposition. Cases of amyloid arthropathy in patients with multiple myeloma and light-chain amyloidosis diagnosed with ^{18}FDG PET-CT have been described.[7, 8] Our case complements these reports in showing the utility of ^{18}FDG PET-CT in the diagnosis of amyloid arthropathy secondary to DRA, which is particularly useful in this patient population due to the contraindication to gadolinium which renders MRI evaluation suboptimal. ^{18}FDG PET-CT represents a non-invasive imaging modality which can be of value when conventional radiographs are not helpful in establishing the diagnosis or when disease extent is underestimated in patients with suspected amyloid arthropathy.

The authors have no conflicts of interest

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"NO TIME FOR TEACHING AT OUR TEACHING HOSPITALS."

Editor,

Depending on the speciality choice you have made you may spend anywhere between zero and one hundred percent of your direct clinical contact time in an outpatient setting. The UK Patient charter, now designated the NHS Constitution, sets out the standards of care that patients can expect including the maximum waiting time for a routine outpatient appointment which currently stands at 18 weeks in the United Kingdom[1]. Within Otorhinolaryngology outpatient referrals have increased year on year. With increasing referral numbers and fixed waiting times outpatient clinics are at risk of being overloaded with decreasing time available for patients to spend with their doctor and potential decreases in the quality of care that they may obtain.

ENT UK have drawn up guidelines for safe patient numbers at clinics for consultants, registrars, SAS and junior trainees[2]. No such guidelines are present for other specialities. Mention is made in the ENT UK guidelines with regards to reducing clinic numbers for consultants supervising trainees , however no mention is made with regards to medical student teaching for either consultant or registrar grades.

In 1845 the number of students studying medicine at Queens University was 55, while today the number of full-time students is approximately 1200[3]. This is a substantial increase and is common across all Universities in the UK. Interestingly a review into admission rates to Medical and Dental Schools in the UK has shown that admissions have exceeded recommendations for at least the past five years and the government have recommended a 2 per cent reduction in intakes from next year[4].

This increasing number of medical students will all engage in clinical tuition to some extent throughout their undergraduate career with a proportion of this occurring in the outpatient setting. A study in 1999 suggested that medical student satisfaction is higher when they have the opportunity to both sit in on consultations and get an opportunity to take histories and certainly this is a key aspect of medical training[5]. The slow erosion of supporting profession activities (SPA) sessions is resulting in the relocation of medical student teaching from non clinical sessions into clinical time. Unfortunately this places additional demands on the supervising doctors in these clinics to provide both high quality patient care and tuition and one would question whether this well versed form of teaching is sustainable. In addition medical school admissions are increasingly competitive as are foundation job placements which has led to increased student expectations and demand for a greater duration of higher quality teaching.

Increasingly teaching is being diluted in our teaching hospitals to allow the prioritization of service provision. In an era of increasing litigation, time pressure and patient demand we need to ensure that our clinics are productive, safe, sustainable and provide adequate learning opportunities for medical students and junior doctors. This may mean that patients numbers at outpatient clinics need to be reduced to ensure successive doctors remain competent to treat them.

The authors have no conflict of interest.