

Massive coronary artery calcification in a young adult with end-stage renal disease undergoing hemodialysis

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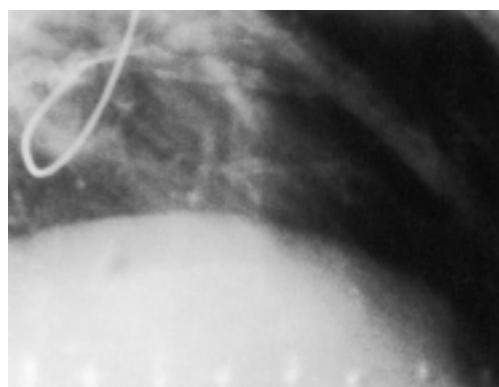
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The high prevalence of coronary artery calcification had been previously shown in patients with end-stage renal disease (ESRD) undergoing dialysis¹. Recently, a similar pattern of coronary calcification has been non-invasively observed at computed tomography, even in young adults with ESRD and dialysis treatment^{2,3}. Coronary artery calcification occurs in this population more frequently than in both normal subjects of the same age and sex as well as in older adults with a normal renal function^{2,3}, and appears to be related, along with the presence of risk factors for atherosclerosis, to the mismanagement of the calcium and phosphorus balance^{2,3}. In addition, the duration of dialysis appears to be related to the development of coronary calcification in these patients², who also suffer from a several-fold increase in cardiovascular morbidity and mortality^{2,3}.

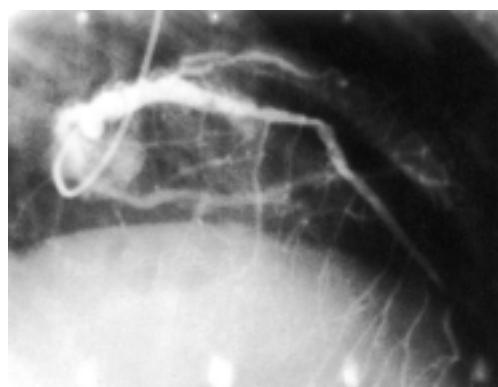
The coronary angiography shown here was taken in a 33-year-old male patient

with ESRD secondary to childhood-onset glomerulonephritis and undergoing hemodialysis since the age of 9. This patient was admitted to our hospital due to a non-ST segment elevation acute coronary syndrome with increased troponin I serum levels. Direct X-ray imaging shows severe and widespread calcification of the arterial wall of both the left and right coronary arteries (Figs. 1A and 2A). Widespread luminal narrowing, along with critical and calcified stenoses of the mid- and distal left anterior descending (Fig. 1B) and distal right coronary arteries (Fig. 2B) was apparent after contrast medium injection.

Percutaneous coronary intervention on the left anterior descending artery was attempted unsuccessfully, and coronary artery bypass grafting was refused by the heart surgeon. Therefore, following clinical stabilization the patient was discharged on maximal medical treatment with anti-ischemic, antithrombotic and hypolipemic drugs.



A



B

Figure 1. Right anterior oblique view with a cranial angulation of the left coronary artery showing: widespread calcification of the arterial wall at direct X-ray examination (A); widespread luminal narrowing and critical stenoses at the mid and distal portions of the vessel after contrast medium injection (B).

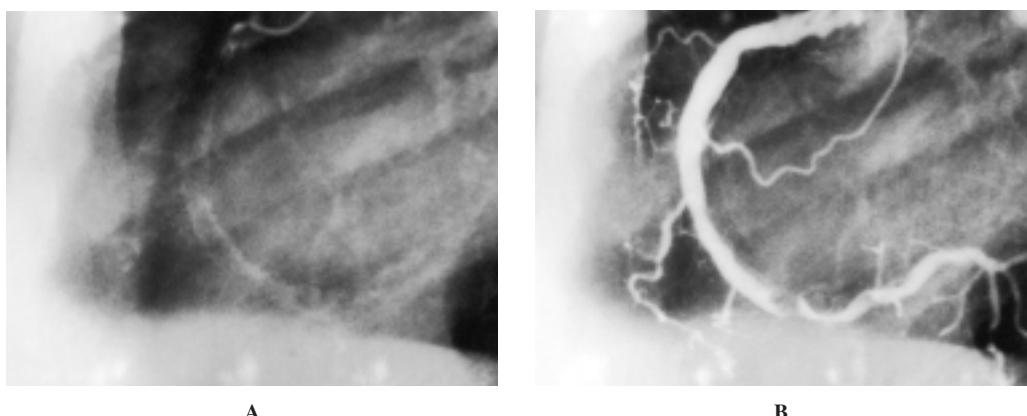


Figure 2. Left anterior oblique view of the right coronary artery showing: widespread calcification of the arterial wall at direct X-ray examination (A); widespread luminal narrowing and a critical stenosis at the distal segment after contrast medium injection (B).

References

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2. Goodman WG, Goldin J, Kuizon BD, et al. Coronary-artery calcification in young adults with end-stage renal disease who are undergoing dialysis. N Engl J Med 2000; 342: 1478-83.
3. Oh J, Wunsch R, Turzer M, et al. Advanced coronary and carotid arteriopathy in young adults with childhood-onset chronic renal failure. Circulation 2002; 106: 100-5.