

Transfemoral cardiac resynchronization in a multi-comorbid patient

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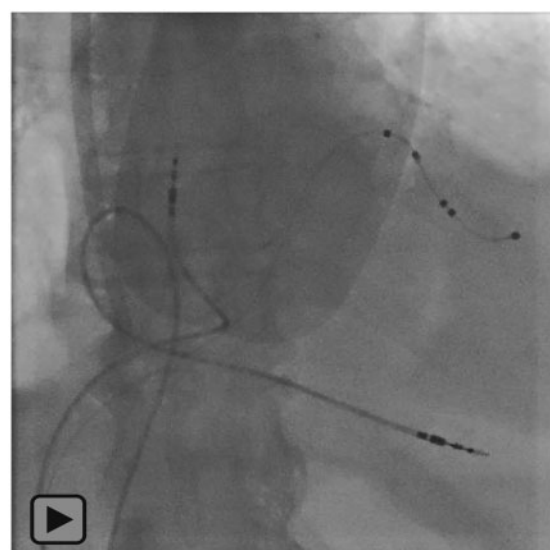
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An 89-year-old female with severely impaired left ventricular function (ejection fraction biplane 27%) due to coronary artery disease, diabetes, and end-stage renal failure on haemodialysis, experienced repeated hospitalization due to heart failure decompensation. Electrocardiogram (Supplementary Figure 1) demonstrated sinus rhythm with broad left bundle branch block (QRS duration 158 ms). Biventricular pacing was considered, but conventional approach via upper limb veins was unsuitable as she was on haemodialysis via a combination of left-sided fistula and right-sided tunnelled line. She was initially managed conservatively, as it was felt her comorbidities and vascular access concerns meant exposing her to the risks of complex device insertion was not in the patient's best interest.

Symptoms became intolerable and, after further hospitalization, she was admitted for implant of biventricular pacemaker via the iliofemoral route. Access was achieved using the right femoral vein. Active-fixation leads were positioned in the right atrial appendage and right ventricular apex with good stability. Coronary sinus venogram demonstrated suitable lateral and posterior veins (Panel A, [Movie 1](#)). A quadpole active-fixation left ventricular lead was placed in mid-lateral position with good threshold and stability. The generator was placed in a right lower quadrant pre-rectus pocket. Fluoroscopy (Panel B, [Movie 2](#)) and chest/abdominal radiograph post-procedure demonstrated stable position of the leads (Panels C and D). The



Movie 1 Coronary sinus venogram.



Movie 2 Fluoroscopy of pacing system.

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patient noticed a dramatic improvement in her symptoms and remains free of heart failure hospitalization over 18 months later.

Older age, multi-morbidity, and limited venous access need not mean patients should not be offered complex procedures. This is the first published report describing the use of an active-fixation quad-pole left ventricular lead in this context, which undoubtedly aided in achieving a good outcome.

Consent: The authors confirm that written consent for submission and publication of this case report including images and associated text has been obtained from the patient in line with COPE guidance.

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