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An unusual course of a pacemaker lead in congenitally corrected transposition of the great arteries

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A 56-year-old female with congenitally corrected transposition of the great arteries (ccTGA), mechanical systemic atrio-ventricular valve, dual chamber pacemaker for complete heart block and severe subaortic (morphological right) ventricular dysfunction was referred for upgrade to a biventricular pacemaker. She also had multiple nonfunctioning pacemaker leads from previous procedures. Her current functioning transvenous pacemaker system (implanted via the right subclavian vein ten years ago) included an active

fixation lead in the sub-pulmonic ventricle (according to operation note). All parameters were satisfactory throughout follow-up.

Review of the chest X-ray (Panels A and B) showed multiple pacemaker leads with the functioning ventricular lead (marked as ★) taking a relatively posterior course. Computed tomography imaging after maximum intensity projection reconstruction (Panels C and D) delineates its course clearly, traversing posteriorly through the coronary sinus (CS) into a ventricular branch vein (overlying the subaortic ventricle). The patient received a new lead in the sub-pulmonic ventricle for biventricular pacing. At six months follow-up, she reported an improvement in her exercise capacity.

This case illustrates the utility of CT imaging in evaluating pacing lead location in patients with complex congenital heart disease (CHD) especially in the presence of multiple pre-existing leads. The role of CT imaging in identifying cardiac perforation by pacing leads is well established [1]. But there is limited data highlighting its role in identifying lead placement in complex CHD [2]. To the best of our knowledge, this is the first reported case demonstrating this utility of CT in patients with ccTGA, who frequently require pacing for complete heart block. Fig. 1.

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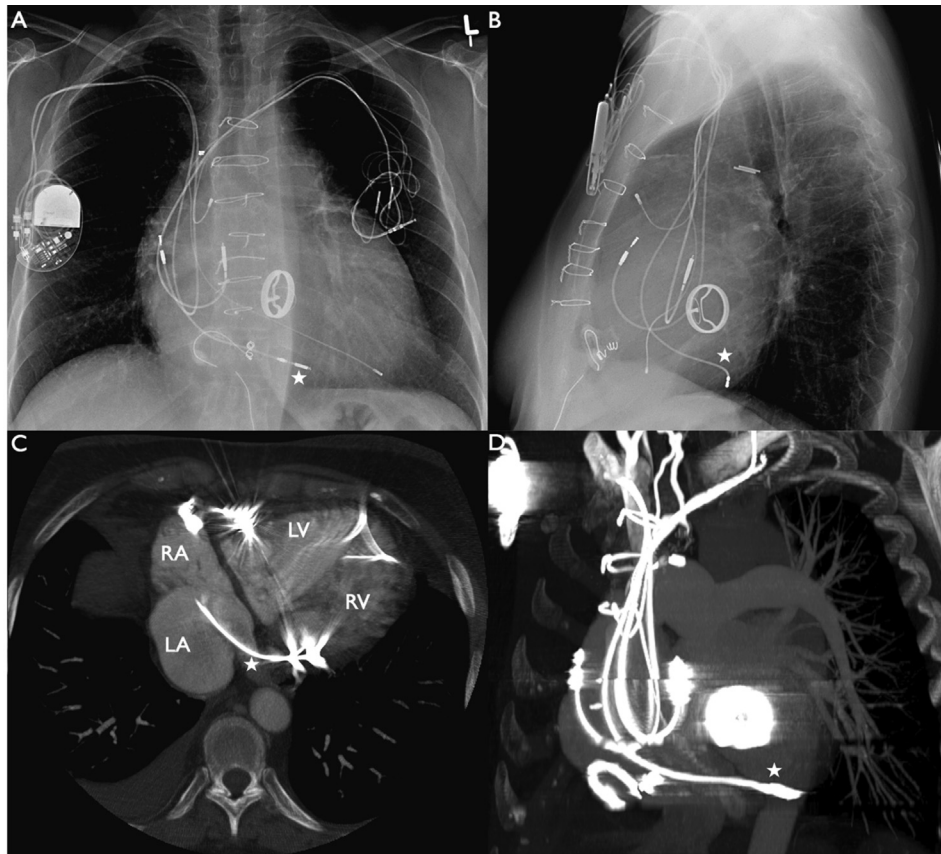


Figure labels: LA= left atrium, RA= right atrium, LV= morphological left ventricle, RV= morphological right ventricle

Fig. 1 – Pacemaker lead inadvertently deployed in the coronary sinus demonstrated on chest X-ray (panels A and B) and computed tomography (panels C and D).

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