


## EP CASE REPORT

# Transient coronary artery occlusion during coronary sinus lead extraction: a possible cause of ischaemia and hypotension

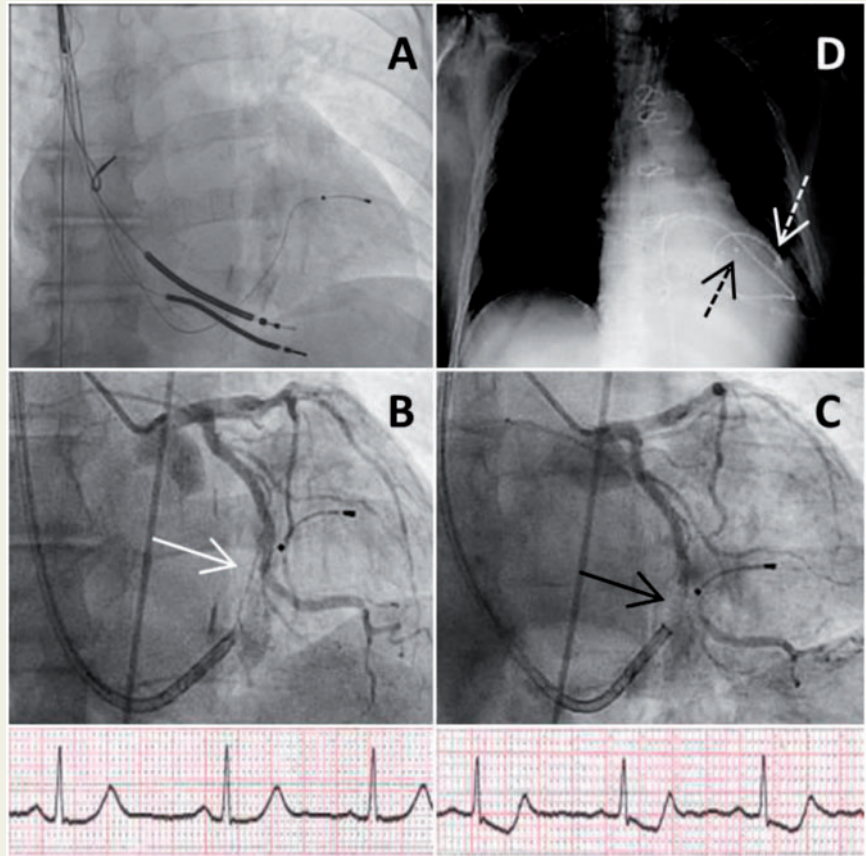
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The number of coronary sinus (CS) lead implantation is steadily increasing. Thus, the demand for extraction is rising. Manual traction or mechanical dilatation are usually effective and the overall success rate is close to 100% without significant complications.<sup>1</sup> We report the case of a 79-year-old man implanted in year 2006 with a passive fixation atrial lead and a dual coil passive fixation Sprint Fidelis (Medtronic, MN, USA). For defibrillation lead malfunction in 2014 a new active fixation single coil Sprint Quattro (Medtronic, MN, USA) and a bipolar Attain Ability (Medtronic, MN, USA) for the CS were added (Figure 1A). In 2019, he was referred for extraction because of leads infection. The procedure was performed through superior approach under conscious sedation with onsite cardiac surgery. Atrial and right ventricular leads were removed using locking stylets and excimer laser sheaths (Spectranetics Corporation) to vaporize fibrotic adherences. For left lead removal manual traction with the aid of a locking stylet was unsuccessful so a laser sheath (Spectranetics Corporation) was advanced until the CS ostium. Even though

venography revealed CS occlusion the sheath reached the proximity of the tributary vein. From that moment, every advancement attempt caused marked ST-segment depression (Figure 1C) and severe hypotension which receded reducing the tension on the lead. A coronary angiography ruled out injuries to coronary arteries but revealed that the CS tributary vein hosting the lead crossed over a large left marginal artery (Figure 1B, white arrow). In the latter, during traction, the flow was severely impaired (Figure 1C, black arrow). Releasing the tension promptly reversed the stenosis with haemodynamic improvement. The transvenous procedure was stopped and switched to open chest surgery. Only a small terminal lead fragment was retained in the tributary vein (Figure 1D, dotted black arrow) and an epicardial pacing lead was implanted in the left ventricular lateral wall (Figure 1D, dotted white arrow).



**Figure 1** Chest X-ray before (Panel A) and after the extraction (Panel D); angiography showing the relationship between the coronary sinus tributary vein and the left marginal artery (Panel B white arrow) and the occlusion of the latter during lead traction (Panel C black arrow).

In conclusion, CS leads extraction may require complicated techniques when fibrotic adherences are distributed inside the CS and tributary veins.<sup>3</sup> We report for the first time the case of a patient in whom intermittent coronary artery occlusion triggered by lead extraction prevented the completion of the procedure. The dynamic compression of the coronary artery should be suspected when a reversible haemodynamic impairment occurs and other causes of hypotension had been ruled out. The prompt recognition of this complication is crucial because open chest surgical extraction becomes mandatory.

**Conflict of interest:** none declared.

## References

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