

## Unusual mechanism of post-operative pacemaker lead dislodgement

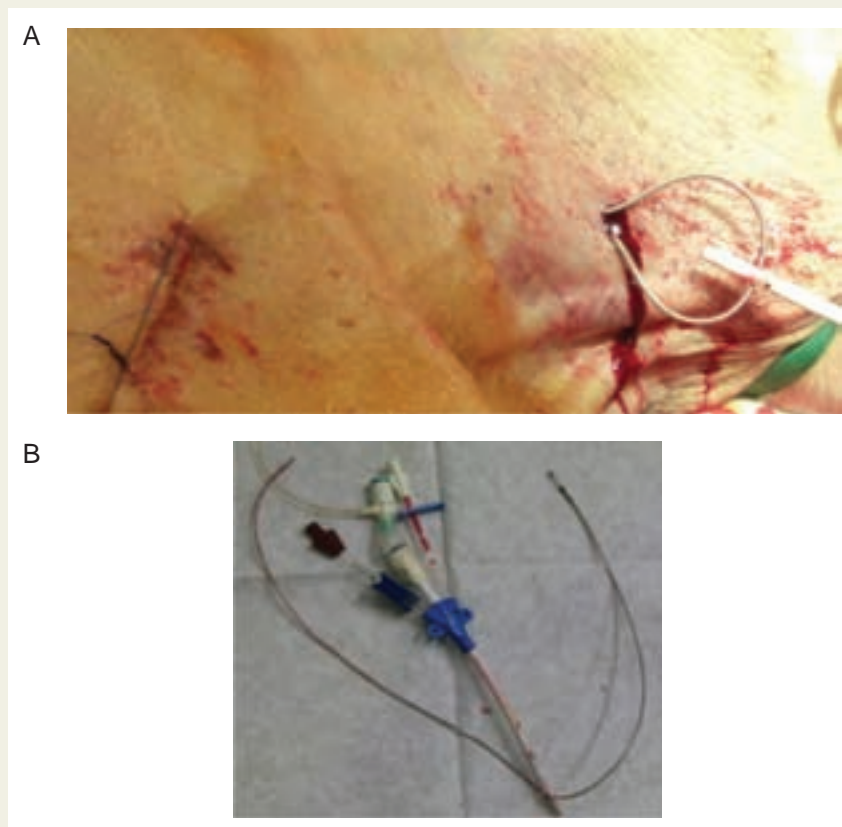
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A permanent single-chamber pacemaker was implanted due to complete heart block after transapical aortic valve implantation. After pocket closure, the temporary lead was extracted under fluoroscopy. During sheath removal the patient developed bradycardia while the transvenous lead came through the cervical skin. Obviously, the permanent lead had been placed via Seldinger's technique through the sheath which contained the temporary lead.

An 80-year-old male patient presented with acute heart failure (New York Heart Association class IV) due to severe calcified aortic valve stenosis and rapidly conducting atrial fibrillation. Due to porcelain aorta and severe calcified peripheral vessels, the patient underwent transapical aortic valve implantation. After an uneventful intra- and post-operative course, the patient developed symptomatic complete heart block and was scheduled for a transvenous permanent single-chamber pacemaker (VVI). Upon the procedure, the patient presented with a central venous catheter in the right jugular vein and a sheath with a temporary pacemaker lead in the left jugular vein. We decided for



**Figure 1** (A) Closed pocket and permanent pacemaker lead coming through the cervical skin during removal of the sheath. (B) Removed sheath containing the permanent pacemaker lead.

puncture of the left subclavian vein for lead implantation. Under local anaesthesia, the permanent single-chamber pacemaker was implanted. After showing good 'sensing' and 'pacing', the lead was connected to the generator and placed in the subcutaneous pocket. After pocket closure, the temporary lead was extracted under fluoroscopy without any problems. Prior to intensive care unit transport, the sheath was also removed. Immediately, the patient developed symptomatic bradyarrhythmia while the transvenous lead came through the cervical skin (*Figure 1*). Obviously, the permanent lead had been placed via Seldinger's technique through the sheath which contained the temporary lead. After pocket reopening and permanent lead removal through the skin, a new permanent lead was implanted uneventfully and the patient was discharged 4 days later.

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Possible ways to avoid this complication include the attempt to keep one subclavian vein free of catheters to avoid thrombosis and to allow safe pacemaker lead insertion, to use a cephalic vein access when possible (failed due to a very small vein in our patient), to pull back the temporary introducer sheath as much as possible to facilitate subclavian vein puncture (which was not done in our case for the risk of lead dislodgement in the pacemaker dependent patient), or to perform a cut and sew approach to the subclavian vein.

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