Importance of anchoring sleeve in pacemaker implantation

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DESCRIPTION

The greatest benefit of the cephalic approach is its margin of safety compared with that of the axillary/subclavian stick as there is almost no risk of pneumothorax or haemothorax.1 Permanent pacemaker was implanted in a 60-year-old man with sick sinus syndrome from right side by cephalic cut-down approach. On the next day, patient complained of one episode of syncope. Pacing interrogation revealed minimally elevated impedance with intermittent failure to capture. Fluoroscopic examination (figure 1A–C) showed partial lead transaction (concomitant conductor fracture and insulation defect). It occurred because of a very tight knot which was put directly over the vein to anchor the lead as there was no fixation sleeve between the lead and inner wall of cephalic vein causing direct mechanical trauma of lead. The lead was removed and replaced with another lead via subclavian route. Lead conductor fracture is associated with infinitely high lead impedance if the insulation remains intact. However, impedance may stay unexpectedly normal or little elevated in face of partial lead transaction (figure 2A–C) as the fluid in the vicinity may complete the circuit, thus allowing some amount of current to pass across the breach in the coil. As the current reaching the ventricle is less than normal, it will generate a pacing artefact but there will not be a capture as in our case.2

Learning points

► Anchoring sleeves should be used with all leads to distribute the tension created by suture. Failure to use the suture sleeve may result in damage to the lead’s insulation or the conductor coil.
► Do not tie the sutures around the suture sleeve too tightly as this may result in excessive stress applied to the lead body.
► Lead conductor fracture can manifest as early as within 24 hours with definitive treatment being replacement.


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REFERENCES
