Is Chiari Network a Benign Structure in Routine Pacemaker Implantation?

Shingo Watanabe, Makoto Noda, Tasuku Murakami, Mieko Tamura, Akiko Oyama, Hironori Tashiro, Yasuhiito Yamamoto, Michio Usui, Kenichiro Ichikawa

Department of Cardiology, Social Insurance Chuo General Hospital, Tokyo, Japan

**Background:** Chiari network (CN) is the developmental remnants with fine filamentous membrane, and thought to be benign components in electrophysiology. We report a CN patient (pt) with incapable lead manipulation during dual-chamber pacemaker implantation (PMI) and reviewed lead-trouble cases systematically. Case Presentation: A 61-year-old male pt with complete AV block underwent PMI. Anomalous venous drainage was not found and pacemaker leads were inserted into right ventricle (RV) and right atrium (RA) through left axillary vein. The manipulation of both leads was restricted tightly at the tined tips on the postero-inferior RA. Both tips of the leads were entangled with the intra-cavitary structures. Flexing force with deflectable electrophysiology 6Fr-catheter, snare catheter and large-tip (7Fr) ablation catheter did not remove the entangled structures. The myocardial bioprobe removed successfully the leads from RA. Histological examination of the entangled tissue at the tined tip of the extirpated RV lead showed normal endomyocardial structures consistent with CN.

**Discussion and Conclusion:** CN had been detected in RA on the preoperative ultrasound echocardiogram (UCG). We have performed 133 pacemaker implantations from January, 2006 to December, 2010 and found RA lead trapping in 3 cases (2.3%). We consider that current complication is not very rare. Careful pre-operative UCG evaluation may provide the further information and awareness on CN-related pacemaker lead trouble.

**Keywords:** pacemaker lead, lead extraction, chiari network