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Catheter entrapment in Chiari network: Extraction with radiofrequency

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ABSTRACT

We report a challenging case of a duodecapolar mapping catheter entrapment in Chiari network and its release by radiofrequency energy application with an ablation catheter.

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1. Case report

We describe the case of a 42-year-old male patient with atrial flutter who was referred for ablation. While placing duodecapolar mapping catheter around the tricuspid valve annulus (7 French, Halo, Biosense Webster Inc.), its tip got trapped at the right atrium junction with inferior vena cava, in the Chiari network region (Fig. 1A). Transthoracic echocardiography confirmed the diagnosis. Initially we attempted traction and rotation movements of the catheter without success. The patient presented severe right hypochondrium pain during traction of the catheter. We introduced a sheath (Agilis, St. Jude Medical, 8Fr) over the catheter to aid removal, also unsuccessfully; contrast injection through sheath was realized to confirm location (Fig. 1B). Then we performed radiofrequency energy application at entrapment site (Fig. 1C) with a therapeutic catheter (7 French, curve D, tip 4mm, Biosense Webster Inc.) for 10 seconds, power of 30 watts, temperature of 50 °C, with catheter release (Fig. 1D). Echocardiogram after procedure did not demonstrate complications.

Chiari network is considered as embryologic remnants of right

valve of the sinus venosus and septum spurium, consisting of fenestrated membranes at the junction of the right atrium and venae cavae, with a prevalence of approximately 2%. In 1897, Hans Chiari described the intricate fenestrated reticulum containing multiple threads inserting on the anterior surface of Eustachian valve, the posterior wall of the ostial inferior vena cava, crista terminalis, and the intervenous tubercle.

Many reports have since been published concerning Chiari network, describing its attachment to multiple intracardiac devices [1]. Literature reports show use of traction and rotation movements, laser sheath, snare catheter, endomyocardial biopsy forceps, radiofrequency energy delivery and cardiac surgery for release. Shimoike et al. related the release of a guide wire entangled by Chiari network with 4 seconds of radiofrequency delivery in the proximal end of the guide wire [2,3].

To the best of our knowledge, our report is the first case of radiofrequency catheter ablation to release another catheter trapped in the Chiari network. We believe that cautious radiofrequency delivery is an efficient and safe approach to release devices from Chiari network.

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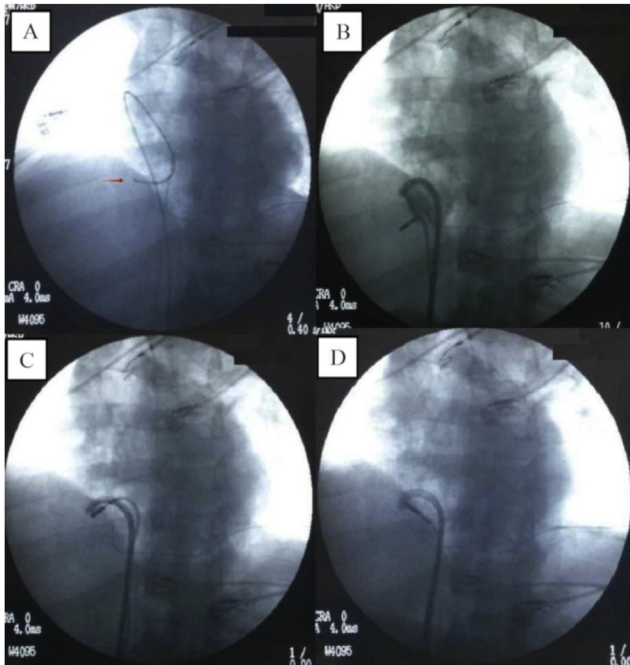


Fig. 1. Fluoroscopic images (30° left anterior oblique view). a) Halo catheter tip trapped in the Chiari network region (arrow). b) Introduction of sheath over Halo catheter and contrast injection. c) Radiofrequency application. d) Removal of catheter through sheath.

Conflicts of interest

None declared.

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