Utility of combined early meets late and high definition coloring propagation map for the detection of ablation gaps during catheter ablation of atrial fibrillation

Fusae Doi
Shingo Maeda
Tomokazu Chijimi
Yasuhide Tsuda
Hirofumi Suda
Mihoko Kawabata
Hirotsugu Atarashi
Kenzo Hirao

Introduction: To achieve pulmonary vein isolation (PVI), detection of ablation gaps is very important for complete the treatment of atrial fibrillation (AF). High definition (HD) Coloring (CARTO 3, Biosense Webster, Diamond Bar, CA), allows for high quality display of the EAM. In addition to the conventional early meets late (EML) it also highlights areas of potential conduction block, providing a better interpretation of the local activation time and propagation map.

Methods: N/A

Result: A 79 year-old man with symptomatic drug refractory AF was referred for catheter ablation of AF. After transseptal puncture, a PENTARAY high-density mapping catheter (Biosense Webster) was advanced to the left atrium. A high-resolution 3D electronatomic map (EAM) of the left atrium was created with the PENTARAY catheter, which was used for HD Coloring. RF lesions were given via an open-irrigated ablation catheter (ThermoCool SmartTouch® STSF, Biosense Webster) for targeting of ablation index 500. PV potentials persisted after first pass around the left PVs (Figure A). With repeat mapping, ablation gaps could not be visualized using Ripple mapping (Figure B), EML highlighted conduction block line (Figure C, arrows), and propagation mapping helped to detect ablation gaps clearly (Figure D). PVI was completed after ablation at the gaps (Figure E).

Conclusion: Combined EML and HD coloring propagation map can be useful for the detection of ablation gaps during catheter ablation of AF.