**Utility of HD grid mapping catheter for atrial fibrillation ablation**

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**Introduction**: HD grid mapping catheter, which has 16 equidistant electrodes enable to acquire multiple local electrogram simultaneously and to create high resolution mapping rapidly with EnSite Precision mapping system.

**Methods**: We report two cases that HD grid mapping catheter was useful for atrial fibrillation (AF) ablation.

**Result**: Case 1: 63-year-old male presented with clinical recurrences of AF 4 months following prior pulmonary vein isolation for persistent AF. In the 2nd session, sinus rhythm was restored by electric cardioversion at first, and creation of block line of lateral mitral isthmus (LMI) was attempt after confirmation of bidirectional blocks of cavo-tricuspid isthmus and LA roof line. The LMI was incomplete block line after the first time ablation between the mitral annulus and the bottom of the left inferior pulmonary vein. The conduction gap of the incomplete mitral isthmus line was confirmed using HD grid mapping catheter. The gap passing through the lower left atrial ridge to the posterior wall was visualized with Sparkle map. A single RF application for this gap point resulted in bidirectional block of the LMI. Case 2: 70-year-old female presented with recurrences of AF following PVI and LA roof linear ablation performed 6 month ago. CFAE ablation was planned as the strategy of 2nd session for recurrent persistent AF. Fractionation maps of RA and LA were rapidly constructed instead of classical CFAE map using HD grid catheter in about 15 minutes. High fractionation areas were recognized in LA posterior wall, LAA ridge to inferolateral wall, and septum. AF was terminated and not inducible after RF application for these high fractionation areas. Total procedure time was 115 min.

**Conclusion**: HD grid mapping catheter is useful for AF ablation, which enable to construct various high resolution maps rapidly and precisely.