

**The First Documentation Of Direct Contact Force Measurement In Catheter- induced Trauma During Ablation Of Atrial Tachycardia In Young Boy - Case Report**

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Introduction: Catheter induced trauma (CIT) phenomenon is one of the causes of disappearing of arrhythmia due to mechanical block that may be used as mapping technique or may result in procedure failure. The new method of contact force measurement has been used to evaluate direct mechanical force of catheter on the cardiac tissue during radiofrequency ablation and mapping. There is no data of the direct measurement of contact force required for occurrence of mechanical trauma. We describe the case of 16-year boy with atrial tachycardia who was referred for RF ablation. Clinical, persistent arrhythmia was reproducibly induced several times during EP study and after infusion of isoproterenol with earliest activation located in right inferior right atrium and tricuspid annulus. Immediately after positioning of ablation catheter on inferior aspect of tricuspid annulus below coronary ostium the "bump" phenomenon occurred. Contact force measurement confirmed consistent 20 g pattern of contact without inducibility of arrhythmia for next 3 minutes while catheter was in stable position. Then, the catheter was repositioned into right atrium and within 30 seconds arrhythmia became re-inducible. Than catheter was placed again in the same location and "bump" phenomenon appeared again with a very similar contact force pattern and no inducibility of arrhythmia for the next 5 minutes. Afterwards, CIT was recognized and RF application was delivered with total time of 104 seconds. Then ablation catheter was repositioned into right ventricle and during 15 minutes observation period arrhythmia was no longer inducible with repeated infusions of isoproterenol and aggressive pacing protocols. C-MRI performed immediately and 6 weeks after procedure showed intermittent 8 mm tissue oedema in the target site of tricuspid annulus and no complications. The long-term (24 months) follow-up of the patient showed complete remission of arrhythmia. The case presents interesting phenomenon associated with CIT and the first documentation of direct CF measurement required for CIT occurrence. Further studies are required to evaluate CIT phenomenon in various arrhythmias and location in various group of children and adults.