Fasciculoventricular Accessory Pathway Unmasked by a Pseudo Gap Phenomenon

Weizhuo Liu
Nanqing Xiong

Introduction: Fasciculoventricular bypass tracts (FVBT) are a rare form of preexcitation characterized by the fixed H-V interval with decremental conduction over atrioventricular node. Since FVBTs are not associated with supraventricular tachycardia or preexcited atrial fibrillation, it is always important to differentiate FVBTs from atrioventricular bypass tracts. Here we report an FVBT with long refractory period, which was diagnosed with the help of a “pseudo gap phenomenon”.

Methods: A 28 year old female with manifest preexcitation underwent electrophysiology study for multiple episodes of palpitation which had not ever been documented. Her baseline A-H and H-V interval was recorded. Programmed atrial extrastimuli were delivered from high right atrium.

Result: The delta wave of this patient had a left inferior axis with a highest amplitude of 1.7 mm in lead 2, and was almost isoelectric in lead V1-V3(Fig. 1A). Preexcitation was found to be intermittent. H-V interval was 14 ms with delta wave and 33 ms without preexcitation(Fig. 1B). V potential on His recording was earlier than CS and RVa. There was no ventriculo-atrial conduction during V pacing. An A1-A2 of 350 ms was associated with loss of delta wave and normalization of H-V interval, indicating the refractoriness of the accessory pathway (Fig. 2). Then A-H interval remained constant until A1-A2 was below 330 ms, after which gradual prolongation of A-H was observed, consistent with relative refractory period of AV node. When A1-A2 was decreased to 280 ms, an A-H interval jump from 173 ms to 390 ms was observed. Simultaneously, the delta wave appeared again with an H-V interval identical to that during sinus rhythm (Fig. 3).

Conclusion: Diagnosis of FVBT could be made based on the same H-V interval before the pathway was blocked and after it recovered. This was clearly an example of gap phenomenon using fasciculoventricular pathway for initial block, while AV node played the role of proximal site, where the conduction was delayed and thus sufficient time was given for recovery of FVBT (Fig. 4).