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射频消融治疗心外膜旁道的临床研究

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摘 要:目的 探讨射频消融治疗心外膜旁道的有效性及安全性。**方法** 选择 8 例经心内膜途径标测和消融失败者,经冠状静脉窦内或心中静脉内标测到 A-V 融合处,应用温控电极进行射频消融。**结果** 8 例患者均在冠状静脉窦或心中静脉内消融成功,无并发症发生。**结论** 经冠状静脉窦及心中静脉内行心外膜旁道射频消融是安全和有效的。

关键词:冠状静脉窦;心中静脉;心外膜旁道;射频消融
中图分类号:R541.7 **文献标识码:**A **文章编号:**1671-8348(2014)26-3443-02

Clinical research on radiofrequency catheter ablation for treating epicardial accessory pathway

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Abstract: Objective To investigate the efficacy and safety of radiofrequency catheter ablation for treating epicardial accessory pathway. **Methods** 8 patients with unsuccessful endocardial ablation of accessory pathway were mapped within coronary venous sinus or middle cardiac vein and the radiofrequency catheter ablation was performed by the temperature control electrode. **Results** Ablation in 8 cases was successfully performed within coronary sinus or middle cardiac vein. There were no complications in all patients. **Conclusion** Radiofrequency catheter ablation of epicardial accessory pathway within coronary sinus and middle cardiac vein is safe and effective.

Key words: coronary sinus; middle cardiac vein; epicardium accessory pathway; radiofrequency catheter ablation

旁道是连接心房与心室肌组成的肌束,它具有电传导功能,大部分位于房室瓣环的根部,很靠近心内膜,这部分旁道经心内膜消融成功率高,小部分位于心外膜,于冠状静脉窦内及分支旁道(常见的为心中静脉)内可以消融成功[1-3],由于其位置特殊,手术风险相对比较高。2012 年 1 月至 2013 年 7 月,本研究对本院 8 例经冠状静脉窦内或心中静脉内消融成功的心外膜旁道患者报道如下。

1 资料与方法

1.1 一般资料 收集本院消融成功的心外膜旁道患者 8 例,其中男 5 例,女 3 例;年龄 25~56 岁,平均(40±11)岁。阵发性心动过速病史 1~8 年。入院后完善十二导联同步心电图、超声心动图和 X 线胸部检查。

1.2 心腔内电生理检查和射频消融术 常规消毒铺巾,局部麻醉后经股静脉及锁骨下静脉途径放置标测电极至右心室、冠状静脉窦和希氏束部位。经右侧股静脉将消融导管放入三尖瓣环处或经左侧股动脉途径将消融导管放入二尖瓣环处行心内膜标测,如果经仔细的心内膜标测无理想靶点,A-V/V-A 融合不好,在 V 波或 A 波最早激动点多次消融均不能成功,则将消融导管送至冠状静脉窦或心中静脉内标测,标测到 A-V/V-A 融合处,且 V 或 A 波较心内膜标测明显提前即为靶点。设置温度为 40~55 ℃,功率 5~10 W 试消融,放电 5~10 s,室房分离、体表心电图预激波消失为有效消融,然后巩固放电 60~90 s。消融成功标准为显性预激消失,心室 S1S1 刺激室房分离,重复术前诱发条件无房室折返性心动过速发作。

1.3 造影检查 术后用左冠状动脉造影延迟显影冠状静脉窦血管,显示冠状静脉窦及其分支结构,排除血管破裂等并发症,明确冠状动脉有无狭窄。

2 结 果

2.1 冠状静脉窦内旁道体表心电图特点 8 例患者中 7 例为预激综合征,有 1 例为隐匿性旁道,7 例预激综合征中 6 例 V1 导联预激波向上(图 1),有 1 例为正负双向;AVL 导联预激波均正向;Ⅱ导联均负向。1 例房室折返性心动过速 P 波方向:V1 导联 P 波负向。术后心电图见图 2。

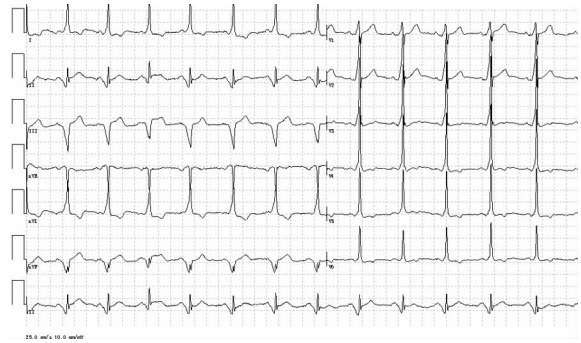

图 1 术前心电图

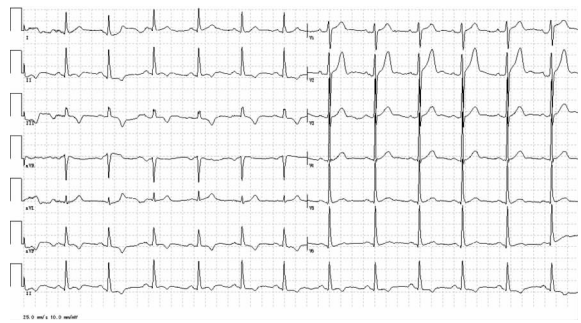

图 2 术后心电图

2.2 冠状静脉窦内标测与射频消融 所有患者均经常规心内膜反复消融不能成功,然后在冠状静脉窦内(图 3)或心中静脉内(图 4)可标测到靶点 A-V 融合处,且 V 或 A 波较心内膜标测

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明显提前。4 例患者在冠状动脉窦内消融成功，4 例患者在心中静脉内消融成功。所有患者均使用温控，将温度升至 40～55 ℃，电能 10 W，持续 5 s，消融成功后巩固 60～90 s，由于患者疼痛感明显且阻抗高，本研究在消融中采用间断放电，能量为 5～10 W，消融过程中对不能耐受疼痛者可予以镇痛药物。平均导管消融时间(110±30)min，X 线曝光时间(40±10)min，放电时间：1～3 min。无心包填塞、房室传导阻滞等手术并发症发生。

图 3　冠状静脉窦内靶点图

图 4　心中静脉内消融靶点图

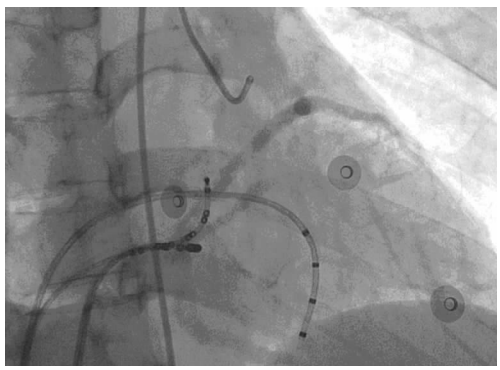

图 5　冠状静脉窦内

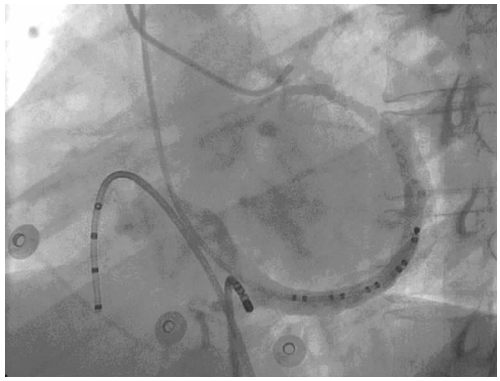

图 6　心中静脉内

2.3　冠状静脉窦造影　左冠状动脉未见狭窄，冠状静脉窦未发生血管破裂，4 例患者消融靶点位于冠状静脉窦类(图 5)，4 例患者消融靶点位于心中静脉内(图 6)。

2.4　术后随访　所有患者术后平均随访(6±3)个月，未见复发。

3　讨　论

临床上对心内膜反复标测无理想靶点图，或虽能标测到提前的 QRS 波，但 A-V 不够融合，或反复于心内膜消融无效的患者应想到心外膜旁道的可能，它从组织胚胎发育到旁道特点与心内膜旁道均完全不同，它的心房端是冠状窦口，与左右心房都有广泛的连接。它的心室侧是冠状静脉的分支及其与心室相连的异常肌组织。它的最佳消融点是在冠状窦口内、心中静脉中记录到 AV 融合的部位[4]，这与本文中所选择的消融部位相符。

心外膜旁道最常见位于后间隔部位，少部分可位于左心房[5]、右心房[6]、前间隔[7-8]和冠状动脉[9]；Sun 等[10]综合影像学、解剖学研究和电生理检查结果提出心外膜旁道是冠状窦及其分支参与的旁道。冠状静脉窦表面有冠状静脉肌袖，如果这些肌袖在发育过程中与邻近的心室肌心外膜面相连，就产生了临床上的心外膜旁道。后间隔部位的心外膜旁道体表心电图有一些体征，如Ⅱ、Ⅲ、avF 导联预激波负向，avR 导联预激波正向，本文 7 例预激综合征患者中，有 6 例为后间隔旁道，心电图与之相符合。临床上遇到这类心电图患者，若经常规消融无效，应想到心外膜旁道的可能。

结合国内外及本院心外膜旁道消融的特点[11-12]：在冠状静脉窦或心中静脉内消融应注意几个问题：(1)冠状静脉窦壁薄，且走形变异大，消融中导管操作要轻柔，应选用温控导管以提高安全性，温度控制在 40～55 ℃，避免发生心包填塞等并发症；(2)消融中患者疼痛感明显时，应停止放电，必要时可给予镇痛药物；(3)冠状静脉窦类血流缓慢，同时消融导管进入冠状静脉窦分支后消融阻抗容易升高，用常规消融导管不容易放电，可采用间断放电，必要时可用冷盐水灌注导管；(4)消融中功率应从 5～10 W 开始，增加患者的耐受性；(5)冠状静脉窦与左冠状动脉邻近，术后应行冠状动脉造影明确有无冠状动脉狭窄，若存在冠状动脉狭窄，应予以硝酸甘油排除是否为冠状动脉痉挛所致。

心外膜旁道临床发生率虽然不高，但却是造成射频消融失败的主要原因，因此，临床上对射频消融不成功或复发的患者，或消融时间很长才有效的患者应想到心外膜旁道的可能，应在冠状静脉窦或心中静脉内标测和消融，从而提高射频消融的成功率，减少患者的痛苦。

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