

**SUCCESSFUL TREATMENT OF A PARAHISIAN WOLFF-PARKINSON-WHITE CASE WITH CRYOABLATION**

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A 27-year-old patient with Parahisian Wolff-Parkinson-White Syndrome (WPW), who had very frequent tachycardia attacks and pre-syncope complaints, could not be cured with the RF ablation method previously. Since RF ablation may necessitate a permanent cardiac pacemaker, cryoablation was decided to be performed in another session. Herein, we report a successful treatment of a WPW case via cryoablation.

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**Key words:** Parahisian Wolff-Parkinson-White Syndrome, treatment, cryoablation.

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WPW — Wolff-Parkinson-White Syndrome.

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**УСПЕШНОЕ ЛЕЧЕНИЕ СЛУЧАЯ ПАРАГИСИАЛЬНОГО СИНДРОМА ВОЛЬФА-ПАРКИНСОНА-УАЙТА КРИОДЕСТРУКЦИЕЙ**

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27-летний пациент с парагиссиальным синдромом Вольфа-Паркинсона-Уайта (WPW), у которого были очень частые приступы тахикардии и пресинкопе, ранее не мог быть вылечен методом радиочастотной абляции. Поскольку радиочастотная абляция может вызвать необходимость постоянной кардиостимуляции, было решено в этот раз выполнить криодеструкцию. В данном сообщении мы говорим об успешном лечении WPW с помощью криодеструкции.

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**Ключевые слова:** парагиссиальный синдром Вольфа-Паркинсона-Уайта, лечение, криодеструкции.

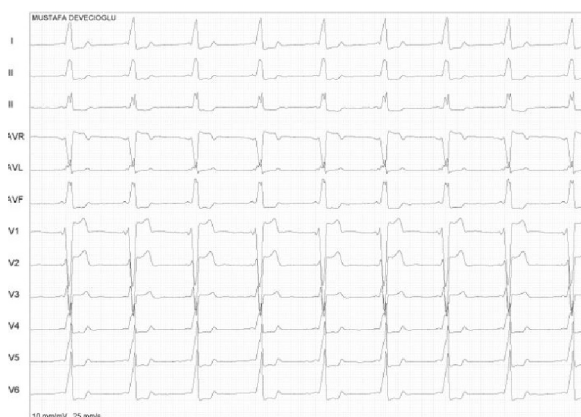
**Introduction**

The recent developments in ablation treatment have revealed the possibility of transmitting the cryoenergy by the guidance of a catheter [1]. The first percutaneous cryoablation procedure was performed in 1999, and the cumulative results were reported in 2001 [2]. In 2003, FDA (Food and Drug Administration) approved the use of the cryoablation method, and subsequently the studies concerning the issue have gained acceleration. Cryoablation is also used in AVNRT cases with parahisian localization, where the RF ablation method has failed to succeed. Occasionally, when there is a close proximity to his bundle in patients with WPW syndrome where RF ablation is risky, cryoablation is used in order to prevent a possible cardiac pacemaker-dependence. Herein, we have reported the successful treatment of a case of parahisian wolff-parkinson-white with cryoablation.

**Case Report**

A 27-year-old male patient presented to our clinics due to frequent tachycardia attacks. Following the ECG (Fig. 1) monitoring and clinical evaluation, electrophysiological examination was planned due to suspicion of Wolff-Parkinson-White syndrome. The patient was taken into the electrophysiology laboratory after he had signed the informed consent. Diagnostic catheters were placed into superior right atrium, apex of the right ventricle, His bundle region and the coronary sinus. Following the electrophysiological study, a radiofrequency ablation procedure was planned. The site of ablation was decided according to

the fluoroscopic and intracardiac activation mapping. Radiofrequency energy was applied onto the region adjacent to the His bundle. Meanwhile, it was observed that the temperature was as high as 51 °C. Despite the radiofrequency ablation procedure, the short PR and the delta wave of the patient did not disappear. Cryoablation was planned in another session due to the close proximity to his bundle, where there was a risk of permanent cardiac pacemaker installation. Following the arrangements, the patient was taken into the electrophysiology laboratory in another session, and a quadripolar electrophysiology catheter was placed through the right femoral vein into the superior right atrium, coronary sinus and his bundle. Following the mapping with a cryoablation catheter at –30 °C



**Figure 1.** The ECG of a Parahisian Wolff-Parkinson-White case with 12 derivations (very short PR and intertwined delta waves).



**Figure 2.** Parahisian-located accessory pathway during mapping with ablation catheter.



**Figure 3.** The successful disappearance of the delta wave and extension of the PR interval during cryoablation at  $-80^{\circ}\text{C}$  (ECG with 12 derivations).

(Fig. 2), cryoablations of 300 seconds at  $-80^{\circ}\text{C}$  were performed 3 times to the accessory pathway with close proximity to the his bundle. The accessory pathway was observed to be ablated. The delta waves in the ECG disappeared and the QRS interval was shortened (Fig. 3). The patient, who was seen to have no problems on the follow-up, was discharged and asked to return for a later control.

### Conclusion

The theory of generating transmural heart lesions via cryoenergy was first attempted by Hass and Taylor [2] in

1948. Later, Lister and Hoffman [3] defined the generation of a reversible transmission block in the atrio-ventricular node, which is now known as cryo-mapping. Although there is no difference between the depths of the lesions generated by both the radiofrequency ablation and cryoablation, it has been claimed that the damage in regions where cryoablation was performed were to a lower extent with an intact tissue structure [4, 5]. In this case report, we have suggested that the cryoablation treatment can safely be used in Wolff-Parkinson-White cases with an accessory pathway of parahisian localization, where radiofrequency ablation is risky.

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