Mirror Image Dextrocardia and The Wolff-Parkinson-White Syndrome

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Mirror image dextrocardia is found in approximately 0.01 percent of physical examinations. The Wolff-Parkinson-White syndrome is estimated to be present in 0.01 to 0.31 percent of the population. From these figures it becomes obvious that the combination of mirror-image dextrocardia and pre-excitation must be rare. The electrocardiogram described is an example of this combination.

CASE REPORT

The electrocardiogram was recorded in a 25-year-old healthy man. He was told when he was ten years old that his heart was “on the right side.” The Wolff-Parkinson-White syndrome was discovered a few months prior to the electrocardiogram described when he was exercised as part of the evaluation of his training status as a soccer player. He denied ever having had palpitations. Physical examination revealed complete situs inversus without accompanying cardiac abnormalities.

The electrocardiogram shown in Figure 1 showed a supraventricular rhythm with atrial activation in a left-to-right and cranio-caudal direction. The P wave was followed after 0.08 sec by a widened QRS complex (0.12 sec) initiated by a delta wave. The recording of right precordial leads symmetrical to the conventional leftsided ones revealed that ventricular activation over the accessory pathway started left laterally. Following the administration of 30 mg ajmaline intravenously, complete antegrade block occurred in the accessory pathway (Fig 2). The electrocardiogram then showed the typical configuration of mirror image dextrocardia.

![Electrocardiogram](image-url)
FIGURE 2. Electrocardiogram recorded shortly after Figure 1 following the intravenous administration of 30 mg ajmaline, showing the typical features of mirror-image dextrocardia.

**DISCUSSION**

Reported examples of the combination of mirror image dextrocardia and pre-excitation are rare. In fact, we could find only the description by Bartholomew and Burchell. Our patient was totally asymptomatic, the finding being the consequence of routine electrocardiographic monitoring during an exercise training program. Based upon the electrocardiographic findings shown in Figure 1, a lateral connection between the left sided (anatomic right) atrium and the left (anatomic right) ventricle seems most likely. Antegrade conduction over the accessory pathway could easily be blocked by the intravenous administration of ajmaline indicating a relatively long antegrade refractory period of the accessory pathway. This finding excludes the possibility of high ventricular rates due to conduction over the accessory pathway in case of atrial fibrillation. The reaction to ajmaline and the absence of complaints of tachycardia made us decide not to perform a stimulation study in our patient.

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**REFERENCES**