

A Case of Type-A WPW Syndrome Complicated by Acute Anterior Myocardial Infarction. Special Reference to Intermittent Masking of Infarction Pattern

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ABSTRACT. A 63-year-old man with intermittent, type-A WPW syndrome, who suffered from acute anteroseptal myocardial infarction, is presented. The delta waves in V1-V4 masked the abnormal Q waves of anteroseptal MI, but reentrant tachycardia revealed the MI pattern. And also, when normal atrioventricular conduction was gained, the QS pattern due to MI was unmasked.

Key words : Intermittent type-A WPW syndrome —
Acute anteroseptal myocardial infarction

A case of intermittent Wolff-Parkinson-White (WPW) syndrome in association with paroxysmal supraventricular tachycardia complicated by anteroseptal myocardial infarction (MI) is presented. Abnormal Q-waves were completely masked at initial electrocardiogram after the acute MI, and unmasked in two occasions ; one when normal atrioventricular conduction was spontaneously gained, and another when supraventricular tachycardia was complicated.

CASE REPORT

A 62-year-old man with known intermittent, type-A WPW syndrome was admitted to a hospital in January 21, 1980 because of acute MI. He has had frequent bouts of palpitation caused by paroxysmal tachycardia for 20 years.

Figure shows serial electrocardiograms before and after the MI. The initial tracing (December 12, 1976) before the MI shows type-A WPW pattern with PR interval of 0.01 sec (A). Subsequent tracings (January 21, 1980 and January 25, 1980) in the acute phase of the MI revealed ST-segment elevation in leads V1 through V4 indicative of acute anteroseptal MI (B), and during paroxysmal supraventricular tachycardia (SVT) striking ST elevation and abnormal Q-waves in V1-V4 were first seen and right bundle-branch block pattern were also noted (C). On April 3, 1980 in the old phase of the MI, abnormal Q-waves were again unmasked during reentrant tachycardia (D). On June 30, 1980, delta wave, prominent T-wave inversion and ST-segment depression seen in V1-V5 was shown. Abnormal Q-waves, however, were masked by anterior force of type-A WPW pattern (E). The latest tracing taken on January 20, 1984, revealed the extensive anteroseptal MI pattern when normal atrio-

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ventricular conduction was resumed (F).

The patient underwent left ventricular cineangiography and coronary arteriogram on March 1980, which revealed complete occlusion of left anterior descending artery (#7 segment), and a large area of akinesis with apical aneurysm, respectively.

DISCUSSION

When the delta wave is directed anteriorly as usually seen in type-A WPW pattern, it results in positive deflections in the leads V1-V4.¹⁾ This may mask the abnormal Q waves of transmural anteroseptal MI in these leads.

In our case, the delta waves in V1-V4 masked the abnormal Q waves of anteroseptal MI, but reentrant tachycardia caused by antegrade conduction over the normal conducting system and retrograde conduction over the accessory pathway revealed the MI. And also, when normal atrioventricular conduction was spontaneously gained, the QS pattern due to MI was unmasked. Even if it could not be possible spontaneously gained, intensive maneuvers such as pharmacologic interventions might be successful for normalizing the QRS complex.²⁾

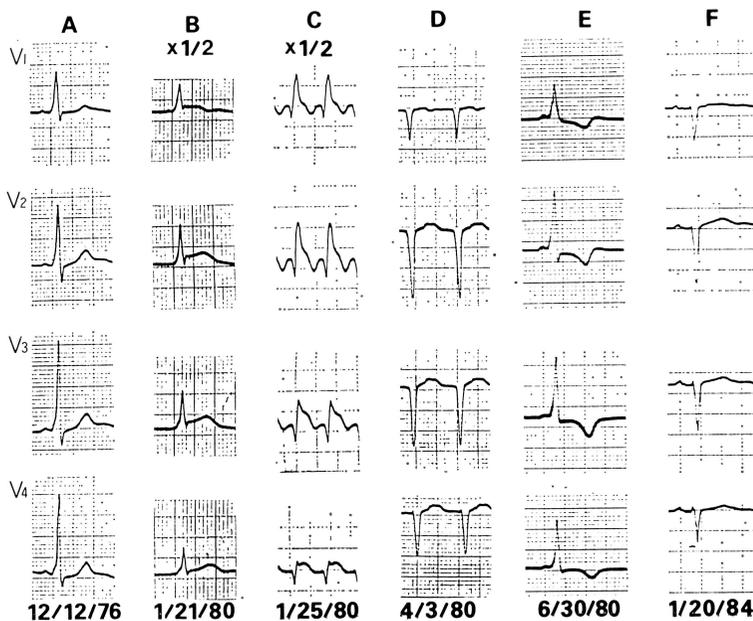


Figure. Serial electrocardiograms before (A), and after anteroseptal myocardial infarction (MI) (B,C,D,E,F). A: Tracing taken on December 12, 1976 before MI, showing type-A WPW pattern. B: Tracing on January 21, 1980, ten hours after the onset of chest pain, showing elevation of ST-segment in V1-V4 without any abnormal Q-waves. C: Tracing on January 25, 1980 during supraventricular tachycardia (SVT) marked ST-segment elevation and abnormal Q-waves in V1-V4, and right bundle-branch block pattern. D: Tracing on April 3, 1980 during SVT in the old phase, showing QS pattern in V1-V3. E: Tracing on June 30, 1980 showing prominent T-wave inversion and ST-segment depression, but delta wave masking the anteroseptal MI. F: The latest electrocardiogram recorded on January 20, 1984, when the normal atrioventricular conduction was spontaneously resumed, showing abnormal Q-waves in V1-V3.

Therefore, it is the most important to induce normal atrioventricular conduction before making a diagnosis of MI.

As seen in this patient, primary changes in the ST segment and T waves are only specific features for pre-excitation syndrome with MI during the acute phase, but ST-T changes may be nonspecific (secondary) during the old phase.³⁾

Since it has been demonstrated that any pre-excitation complex is a composite of the contributions of the tissue depolarized prematurely, and that depolarized through normal conduction pathways, the resulting ST configuration will reflect the degree of pre-excitation.⁴⁾ Therefore, sequential changes in the ST-T segment abnormalities can only unmask the presence of ischemia or infarction, and the intermittency of the WPW syndrome makes it possible to diagnose myocardial infarction during normal intraventricular conduction.

The patient has been well controlled with 160 mg of Verapamil for prevention of supraventricular tachycardia.

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