ARRHYTHMIA OF THE MONTH

Section Editor: Fred Morady, M.D.

# An Electrocardiogram That Demonstrates Grouped Beating: What is the Rhythm?

FRED MORADY, M.D.

From the Cardiology Division, Department of Internal Medicine, University of Michigan Medical Center, Ann Arbor, Michigan

## Case Presentation

An ECG was recorded in a 65-year-old man who complained of irregular palpitations (Fig. 1). The phenomenon of grouped beating was present. What is the rhythm?

## Commentary

QRS complexes with a right bundle branch block configuration occur in groups of two or three beats, and the cycle length between groups is always less than twice the RR

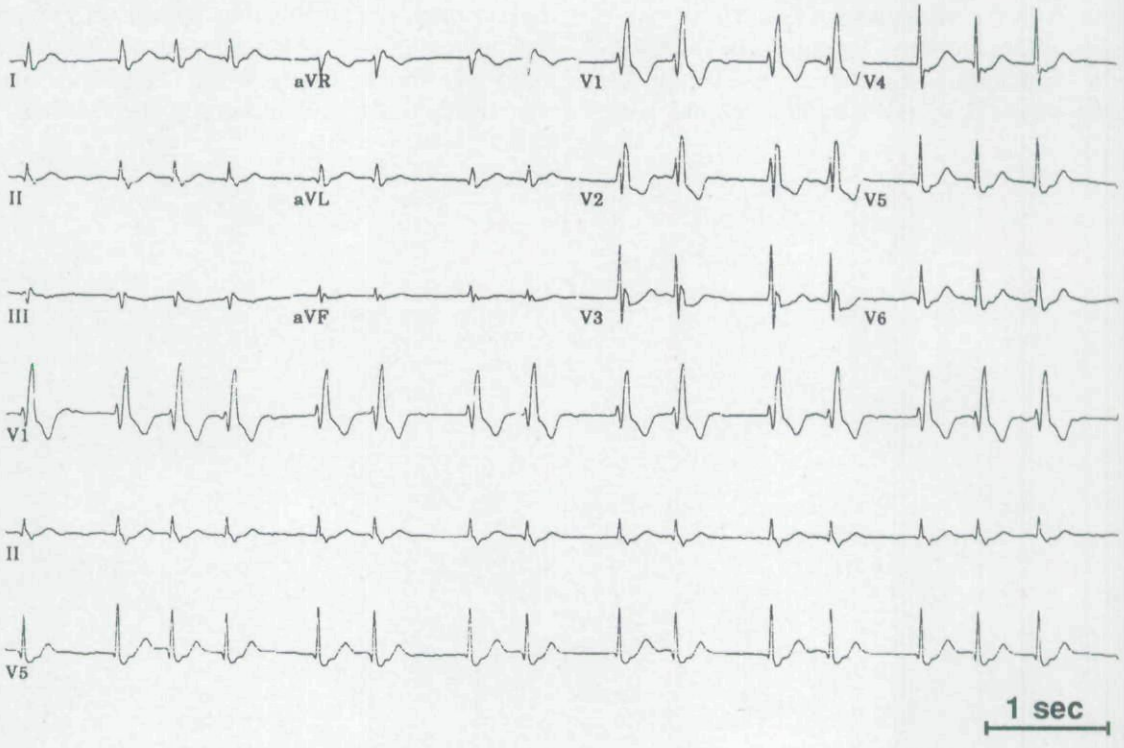


**Figure 1.** *A 12-lead ECG that demonstrates grouped beating.*

J Cardiovasc Electrophysiol, Vol. 7, pp. 581-582, June 1996.

Address for correspondence: Fred Morady, M.D., Cardiology Division, Department of Internal Medicine, University of Michigan Medical Center, 1500 East Medical Center Drive, B1-F245, Ann Arbor, MI 48109-0022. Fax: 313-936-7026.

Manuscript received 11 March 1996; Accepted for publication 13 March 1996.

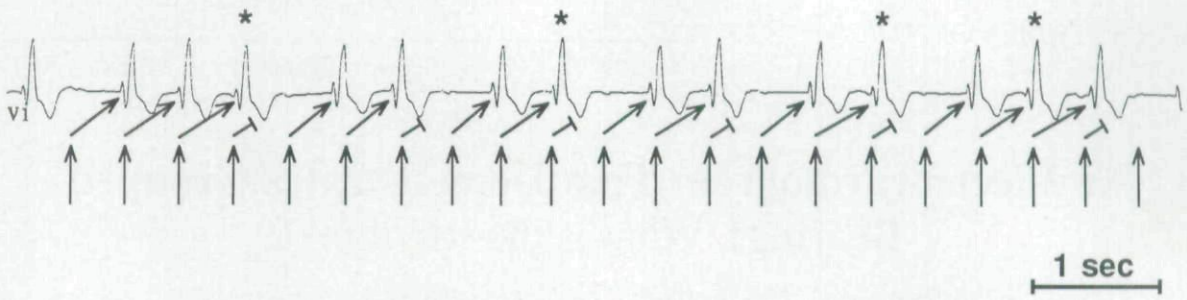


**Figure 2.** *The V1 rhythm recording of the ECG in Figure 1. The vertical arrows point to the visible and hidden P waves, and the slanted arrows depict the pattern of AV conduction. The asterisks mark the QRS complexes that have a pseudo-Q wave attributable to a P wave.*

cycle length within the groups. As most readily apparent in the V1 rhythm strip, the first beat of every group of QRS complexes is preceded by a P wave, with the PR interval being 360 msec. The fixed PR interval that precedes the first QRS complex in every group, along with the triphasic rSR′ configuration in V1, indicate that the QRS complexes are supraventricular in origin.

Although the pattern of grouped beating suggests a Wenckebach pattern of AV block, far fewer P waves than QRS complexes are seen. One might wonder if this is sinus rhythm with first-degree AV block and frequent premature junctional depolarizations.

In fact, the atrial rate is actually 136 beats/min, and there is an atrial tachycardia with a Wenckebach pattern of AV block (Fig. 2). The key to the correct diagnosis of this rhythm is the identification of P waves that are not readily apparent and that masquerade as Q waves (Fig. 2). This ECG reminds us of two of the golden rules of electrocardiography: (1) find the P waves; and (2) grouped beating is usually due to a Wenckebach phenomenon.