

Intermittent Complete Right Bundle Branch Block

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This 41-year-old man applied for a large amount of life insurance.

The applicant gave a history of atypical chest pain for which he had had a diagnostic hospital admission. A cardiologist had stated he had a complete right bundle branch block (CRBBB) "which was not present before." His workup, designed to evaluate a pre-test impression of ischemic coronary artery disease, revealed completely normal coronaries by angiograms and mitral valve prolapse without regurgitation by echocardiogram. There was perfectly normal left ventricular function.

This man's application was handled as a new onset of CRBBB and chest pain, raising the spectre of a possible recent myocardial infarction. Had the electrocardiogram seen here (Figure 1) been evaluated in terms of *rate-related* CRBBB, the problem could have become easier to solve. Note that in this ECG when the heart rate was below 65/min. there was no BBB. When this rate of 65 occurred — during sinus arrhythmia which varies between 60 and 65/min. — CRBBB is seen (see first four beats in lead I).

When rate slows the BBB is gone (see lead I, beats 5-8). Leads II and III show no BBB at rates of 58-60/min., while aVR again shows CRBBB at rate 65. The intermittency is also well seen in lead V2.

Intermittent CRBB that is rate-related is an unimportant finding and usually carries no rating. On the other hand, the appearance of fixed (i.e., non-rate-related) CRBBB is treated as a possible recent myocardial infarction. Since the chest pain in this case is explained by the mitral prolapse and the coronaries and left ventricular function are normal, the problems are reduced to evaluating for mitral prolapse only. If ECGs in which the rates were lower than 65 had been available the solution would have been clear. With faster rates which would show CRBBB, a misconception, namely the possibility of a recent myocardial event, was inevitable. Actually this man has probably had a rate-related CRBBB all his life. Heart rates during the recording of ECGs are usually above 65/min. due to the mild anxiety associated with the test. Hence the chance of uncovering the rate-related nature of this CRBBB during routine electrocardiogram is small.

