

# Palpitations in a 50 year old female on digoxin

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## Citation

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## Abstract

### CASE PRESENTATION

50 year old female with past medical history of hypertension, chronic kidney disease receiving dialysis three times a week and congestive heart failure reported to the emergency room with chief complaints of palpitations for almost half an hour. She also complained of chest discomfort and mild shortness of breath. She was receiving lisinopril, amlodipine digoxin, darbopietin and calcium acetate. Her examination revealed a regular heart rate of 150 beats per min, respiratory rate of 18, and blood pressure of 160/95 mm Hg. She had an AV fistula in left arm. Her chest examination revealed few crackles in the bases. Cardiovascular examination revealed normal S1 and S2. She had a grade II/VI murmur at the base. Abdominal and neurology examination was normal. An ECG was done in the ER (Figure 1). She was ruled out for an acute coronary syndrome with three negative sets of cardiac enzymes. After reading the ECG we decided to check her digoxin level, which was 2.4 ng/ml.

1) What is the diagnosis of an arrhythmia seen in the EKG in Fig 1?

2) In what conditions do you see such arrhythmias?

### Figure 1

Figure 1: ECG showing wide QRS tachycardia with alternating axis with each beat.



### ANSWER

The diagnosis of this tachyarrhythmia seen in this ECG is Bidirectional Ventricular Tachycardia. Bidirectional Ventricular Tachycardia is an unusual form of ventricular tachycardia seen in digoxin toxicity<sup>1</sup>. The rhythm is regular but every other beat has a different axis. In most cases this arrhythmia has a right bundle branch block pattern, however alternating right and left bundle branch pattern is also seen. R-R intervals are usually regular in contrast to ventricular bigeminy, since all of the beats come from a same focus<sup>2,3</sup>. Another condition in which this form of ventricular tachycardia is also seen is familial catecholaminergic polymorphic ventricular tachycardia<sup>3</sup>.

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