The paroxysm was twice induced by an extrasystole (ES in leads II and V3); in one instance (lead V1) no extrasystole preceded the sudden appearance of "F" waves.

The patient, leading a normal life, did not return for a re-examination, although so advised. Paroxysmal atrial flutter initiated by atrial extrasystoles is not rare, but rather seldom recorded. Thus, the main reason for presenting this case is the interesting background of the "palpitations" proved electrocardiographically in an otherwise healthy person.

The Effect of Digitalis on the Exercise Electrocardiogram

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It is known that interpretation of the exercise electrocardiogram in the presence of ischemic heart disease is almost impossible when the patient is being treated with digitalis, but this fact is often not emphasized in textbooks.

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Figure 1. Standard leads of electrocardiogram when the patient was under treatment with digitalis. Left: at rest. Right: immediately after exercise. The exercise was performed on a bicycle ergometer, the work load—also in the following test—was 400 Kpm/min for one minute, followed by 600 Kpm/min for two minutes and then by 800 Kpm/min for two minutes (paper speed 50 mm/sec).

Figure 2. Precordial leads of electrocardiogram obtained at the same time as Fig 1. Left: at rest. Right: immediately after exercise (paper speed 50 mm/sec).
In this department, we recently encountered a striking example of the influence of digitalis on the exercise electrocardiogram.

Case Report: A 52-year-old woman was admitted for evaluation of heart disease. For some years she had suffered from dyspnea on exertion, palpitations and pains in the chest, back and neck; she also complained of headache, and dizziness. Because of the dyspnea, she had been treated with digitalis leaf (0.1 gm daily) and diuretics for several months, and slight diabetes mellitus was treated with an oral antidiabetic.

On physical examination, she appeared tired-looking, and was slightly obese. Blood pressure was 140/95 mm Hg. There were no signs of cardiac failure, and auscultation of the heart and lungs was entirely within normal limits, as was the remainder of the examination.

The roentgenogram of the chest showed her heart to be normal and the electrocardiogram at rest (Fig 1 and 2) was also considered normal except for the presence of an S-T depression caused by digitalis. The exercise electrocardiogram showed significant S-T and T changes in leads 2, 3, V4-V6 (Fig 1 and 2).

The basal metabolic rate, serum creatinine and serum electrolytes were within normal limits. Her diabetes mellitus was adequately controlled.

In order to evaluate the condition of the heart, the treatment with digitalis and diuretics was discontinued.

One month later, the patient felt improved, and the exercise electrocardiogram was repeated (Fig 3 and 4).

**DISCUSSION**

The diagnosis of myocardial ischemia may be difficult, and the condition is by no means excluded even if exercise tests are within normal limits. On the other hand, a false positive test may be caused by digitalis, as in this patient.

During the time she was treated with digitalis, the changes in the electrocardiogram after exercise were indistinguishable from those provoked by myocardial ischemia. One month after the discontinuation of the treatment with digitalis, the electrocardiogram was normal, even after exercise.

**REFERENCES**


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