Interesting Electrocardiogram

IATROGENIC COMPLETE AV BLOCK

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This 32-year-old man was discovered to have Hodgkins disease in 1969 when he was 15 years old. He was given extensive radiation therapy to his thorax for this condition in addition to drug therapies, and in 1975 had the first of three syncopal attacks. Electrocardiograms revealed that he had developed right bundle branch block and left anterior fascicular block. This bifascicular block was shortly followed by complete AV block, and a pacemaker was installed. He also had a pericardectomy for radiation fibrosis with effusion. He was 21 years old at the time the pacemaker was installed, and therefore, the left upper abdominal quadrant was selected for the implantation of the battery pack, and epicardial wires were placed on the left ventricular outer wall. This arrangement is preferred in young adults to protect the wires and battery from trauma in very active young people. One year later the battery was changed. He has remained asymptomatic for the past 11 years, playing tennis and running. His current electrocardiogram (Figure) shows the pacemaker firing at 68/min. and P waves (marked with arrows) are present at an atrial rate of 86/min. — clearly AV dissociation due to complete AV block.¹

This is a somewhat rare case of iatrogenic complete heart block secondary to radiation therapy. This specialized conduction tissues of the heart (His bundle and its branches and the AV, and even the SA, node) are much more radiosensitive than cardiac muscle, and hence can selectively fibrose following heavy radiation, leaving the myocardium functioning well. The effects of chemotherapy are thought to enhance the noxious radiation effect.

The insurance problem here is to establish that his battery is being checked regularly. If he has frequent check-ups to determine the need for battery replacement, he has no more risk than an applicant with chronic complete heart block of other etiologies who has long-term satisfactory pacemaker function.

Reference
