February 2019 Tracings

Tracing 1
Tracing 1 Answer
Tracing 2
Tracing 2 Answer
Tracing 3
Tracing 3 Answer

Tracing 4
Tracing 4 Answer
Tracing 5
Tracing 5 Answer
Tracing 6
Tracing 6 Answer

Questions?
Contact Dr. Nelson
wpan747@gmail.com

Visit the web site!
www.nelsonsekgsite.com
February 2019

68 Year Old Man

Tracing 1

WHAT IS HAPPENING??
(Clue = 2 wrongs sometimes - etc.)

CONTINUOUS LEAD V_{3R}
Tracing 1: Answer

WHAT IS HAPPENING??
(Clue = 2 wrongs sometimes - etc.)

The cartoon below completes the clue provided -- “two wrongs, sometimes make a right”. The ladder diagram provides a solution. There are repetitive distortions of the T waves in the rhythm strip indicating hidden P waves. The mechanism, thus, is sinus rhythm, with 2:1 A-V block and “downstream” LBBB. In the bottom strip, an interesting thing occurs. The second QRS complex is normal in duration and morphology and the subsequent three beats show changing QRS configurations. An explanation for this is diagrammed.

In (A) normal ventricular activation is depicted. In (B) the electrical spread due to the LBBB is diagrammed. Drawing (C) provides the explanation for the “normal beat”. There is a competing ventricular pacemaker in the left ventricle, below the level of LBBB, which awakes to compete with the sinus impulse. The coincidence of the two results in a variety of fusion complexes (F). Thus, “two wrongs” (LBBB and a competing LV focus) -- may combine to make a “right”. 

68 Year Old Man

February 2019
February
2019
63 Year Old Man
Inferior M.I. 6 weeks prior
with Congestive heart failure.

Tracing 2

Rx: Digoxin 0.25 mg/day
+ Diuretic.
Your observations please:

Home
This interesting tracing makes a number of points. The persisting ST segment elevation is lead II 6 weeks post-infarction suggests that a ventricular aneurysm has developed. The biphasic P waves in lead II and the prominent terminal P wave trough in lead V1 signify left atrial abnormality. The rhythm shows an atrial mechanism, regular at 120/min with recurrent episodes of 3:2 Wenckebach A-V block. Linked to the post-pause sinus beats are fixed-coupled VPC’s. Their configuration in leads V1 and V6 (“like LBBB”) indicates that their origin is in the right ventricle or right side of the septum. Although in the tracing they appear as single VPCs, he had the ability to repetitively trigger himself into brief or sustained bursts of ventricular tachycardia -- as shown in the rhythm strip. As suspected, excess digitalis was in part responsible for his problem. Despite the “small dose” of digoxin, the plasma level was 4.4ng/ml.
28 Year Old Man.

Tracing 3

Familial Cardiomyopathy.
Your observations please:
My friend and mentor, Dr. Alan Lindsay took delight in providing me “zingers”. This “teaser” is provided as an example to prove: “things are not always what they seem to be.”

The routine use of lead II as a monitor lead explains this possible trap. The large deflections could easily be misinterpreted as the “QRS complexes”, and the following small negative deflections as “negative P waves.”

This could prompt the diagnosis of junctional, or ventricular rhythm with retrograde atrial excitation, and lead to concern that a significant arrhythmia was present. When the precordial electrodes were changed in position, it became obvious that the patient had “only sinus rhythm.”
83 Year old woman.

Your analysis should suggest a cause.
This interesting tracing was provided by a long time club member (Dr. John Dugall - Georgetown, Texas). I have altered his diagnoses slightly, but basically we agree. Clearly there is disturbed “impulse formation” with laggardly and unpredictable sinus node activity, although three obvious sinus conducted beats are present. The wide QRS complex (arrow) is a ventricular escape focus and identifies beats of the same morphology as being ventricular in origin. Interestingly, fixed coupled VPCs occur with both the escape ventricular beats and sinus impulses. The presence of the ventricular fusion complex (F) helps prove that the origin of the wide beats is from a ventricular focus. Note that one sinus stimulus (double arrow) samples refractoriness after the VPC resulting in a long P-R interval. This combination of abnormalities is consistent with digitalis excess. Her plasma level was 4.4!!
The top tracing shows sinus rhythm with prolonged PR interval and left axis deviation of (-) 45° consistent with LAFB. The point of interest however, is the P wave. Note in lead II that it is “bifid” with initial and later portions separated by at least 60 milliseconds. This has been termed interatrial conduction block (“delay”), and reflects slow conduction over the interatrial pathway (Bachman’s bundle). The lack of appropriate atrial synchrony sets the stage for atrial arrhythmias -- particularly atrial fibrillation.

In the bottom EKG, there is even more separation of the P wave components--now at least 120 milliseconds. Right bundle branch block has appeared and there is now bifascicular block. R waves previously present in V1-V4 are now gone, indicating an interval anteroseptal M.I.
February 2019

46 Year old man

Tracing 6

The cause of low voltage in V4-V6?
Obesity? Left pneumothorax?
Left pleural effusion?
Misplaced electrodes?
The cause of the low voltage in the lateral precordial leads could be due to any of the choices provided. Sometimes a little history helps! This fellow weighed in at 300 pounds and knowing this, the correct choice is number 1. The marked increase in surface tissue under the leads has served to insulate the heart’s electrical activity.