Blocks in The Left Bundle Branch—
"A Law of Science Fulfilled"

To the Editor:

I am interested in commenting on the article entitled, "Alternating and Co-Existing Block in the Divisions of the Left Bundle Branch," by Drs. Castellanos, Maytin, Arcebal, and Lemberg, that appeared in the August, 1969, edition of Diseases of the Chest. I have written to a number of journals in the past objecting to articles that point out the ability to pinpoint the precise place in the conducting mechanism where a lesion has taken place in a living person. In the past I have pointed out that it just can't be done. Authors such as these never seem to take in consideration that similar conduction delay patterns may result from disease of the free wall of the ventricle, and similar conduction delay contours may result from the summation of multiple lesions within the conducting mechanism.

My main point of objection to this article, however, is that the authors have dared to localize a conduction defect when the origin of the impulse does not go through normal pathways. It is ludicrous to try to localize any type of bundle branch block when an impulse obviously originates in the ventricle itself. In Figure 3 and Figure 6 of this article there is electrocardiographic evidence of intermittent advanced AV block where the impulses intermittently arise from a subsidiary pacemaker, most likely in the ventricle. The authors have tried to localize a conduction defect in these ventricular beats. Since these beats originate from an ectopic ventricular focus, they will have a degree of aberrant ventricular conduction that is commonly expected. We can no more localize any type of bundle branch block by looking at the ventricular complexes of an AV block than we can localize a bundle branch block by analyzing the contour of a premature ventricular contraction. In other words, no statement can be made regarding conduction delay contour of any beat that originates in an ectopic ventricular focus.

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Response from the Authors

To the Editor:

Dr. Breall is correct in stating that in the past it had been very difficult "to point the precise place in the conducting system where a lesion was taking place in a living person." As stated in our article, the diagnosis of block in the divisions of the left branch, although suspected for several decades could not be reasonably proved in the human heart until recently. For instance, Watt et al have shown that the discrepancies between human and experimental findings no longer existed if primates were used instead of dogs. Moreover, Rosenbaum et al, Grant, Pryor and Blount, and Cohen et al have conclusively proved the feasibility...
of diagnosing blocks in the divisions of the left branch in man. Moreover, the catheter technique of Scherlag et al has been most useful to determine the site(s) where conduction defect occurs in the specialized conduction tissue in the human heart. Hence, a law of science was fulfilled: scientific research determined that objections which were valid in the past no longer hold in the present.

Dr. Breall was not correct in the interpretation of our article since we were not trying to determine the site of origin of ectopic ventricular beats. Our aim was to trace the pathway that the supraventricular impulse was following in its journey toward the ventricles.

The following case is an example of how an ingenious electrophysiologic technique gives relevance to the deductive method of interpreting clinical electrocardiograms. Figure 1 shows 3:1 A-V block. Complete right bundle branch block can be diagnosed by the presence of a slurred R wave in V1 and aVR and a delayed S wave in V6. Block in the superior division of the left branch is also present (see criteria in our article). In this patient the only remaining pathway to the ventricles, below the His bundle, is the inferior division of the left branch. Figure 2 is a His bundle recording of the same patient during complete A-V block. Disregarding the site of origin of the idioventricular complexes which is irrelevant for this discussion it can be observed that the P waves are invariably followed by His bundle deflections. The latter, however, are unable to be propagated to the ventricles. In other words, the P waves are blocked below the His bundle. Since we knew from Figure 1 that both, the right branch and the superior division of the left branch were completely and permanently blocked it is logical to assume that A-V block occurred whenever conduction failed through the inferior division of the left branch. Hence, in Figure 1, there was permanent CRBBB and block in the superior division of the left branch and 3:1 block in the inferior division of the left branch. In Figure 2 there is a conclusive example of complete trifascicular block. These tracings are a valid proof that "trifascicular" blocks do occur in the human heart, as postulated in our article based on the work of the previously mentioned authors.

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