with obstructive ASH has just been completed. In summary, in our experience, outflow obstruction has been invariably abolished by ventricular myotomy and myectomy, the obstruction has not recurred over prolonged follow-up periods (up to 14 years) and most importantly, symptomatic improvement occurs uniformly and is long-lasting. Although we cannot account for the disappointing operative results cited by Dr. Oakley, the prolonged relief of the obstruction and symptomatic benefit we have observed in patients operated upon at our institution (as well as the good results reported from other centers) suggest an important role for operation in patients with obstructive ASH whose symptoms are inadequately controlled by medical therapy.

STEPHEN E. EPSTEIN, M.D.
WALTER L. HENRY, M.D.
CHESTER E. CLARK, M.D.
BARRY MARON, M.D.
DAVID R. REDWOOD, M.D.
ANDREW G. MOWHOR, M.D.
National Heart and Lung Institute
Bethesda, Maryland 20014

References
1. HENRY WL, CLARK CE, GRYTHJ JM, EPSTEIN SE: The mechanism of left ventricular outflow obstruction in patients with obstructive ASH (IHSS). Am J Cardiol, in press
2. MOWHOR AG, RIEDEL BA, EPSTEIN SE, HENRY WL, CONSALE DM, ITMOTZ SB, REDWOOD DR: Operative treatment in hypertrophic subaortic stenosis: Techniques, and the results of pre- and postoperative assessments in 83 patients. Circulation, in press

Concealed Retrograde Conduction in A-V Block

To the Editor:

The article entitled "Concealed retrograde conduction in complete atrioventricular block" by Cohen et al. (Circulation 50: 496, 1974) fails to mention an alternative explanation for the described phenomenon, which was alluded to by Gupta and Haft and by Scherf and Cohen. In the absence of demonstrable retrograde conduction, namely His spikes following the ventricular complexes, concealed conduction is only an inference. It is quite possible that the mechanical contraction of the ventricle, induced by the pacing spike, alters A-H conduction time in a manner inversely proportional to the E-A interval. Such a mechanism has been implicated in so-called ventriculographic sinus arrhythmia and probably has nothing at all to do with retrograde concealed conduction, but may in some way be related to phasic coronary blood flow or clearance of metabolites. While the four cases presented lend credence to the concept of retrograde concealed conduction, they cannot be regarded as "proof."

DAVID SHANDER, M.D.
General Rose Memorial Hospital
Denver, Colorado 80220

References

To the Editor:

In their paper entitled "Concealed retrograde conduction in complete atrioventricular block" (Circulation 50: 496, 1974), Cohen et al. have shown that in complete heart block with the site of block distal to the His potential, right ventricular pacing may produce delay in antegrade transmission and even Wenckebach type block proximal to the site of block. They have interpreted these observations to mean that retrograde conduction can occur, albeit concealed, despite antegrade block.

Clearly, they have demonstrated that conduction proximal to the site of block can be affected by electrophysiological phenomena occurring distal to the block. However, this paper does not, by itself, support the notion of unidirectional conduction in complete heart block. If by conduction one means the actual propagation of an action potential from one site to another, then mere slowing of antegrade transmission by downstream depolarizing currents would not be sufficient evidence for retrograde conduction. Whereas true retrograde conduction, through or bypassing the site of block, would explain the phenomena demonstrated, the electrotonic spread of current alone without actually producing a regenerative spike, could also explain these findings.

If it were possible to record in man the electrophysiologic changes distal to the site of block, one might observe, perhaps, local currents produced by the anegate impulse distal to the block despite failure of conduction. These local currents might even impede retrograde conduction below the site of block. Following the same line of reasoning as used by Cohen and coworkers, such an effect could be construed as "concealed antegrade conduction."

Thus, without actual recordings at the site of block or demonstration of propagation by recording retrograde atrial depolarization, the contention that retrograde conduction has occurred cannot be considered established.

HOWARD S. FRIEDMAN, M.D.
Bronx V. A. Hospital
Bronx, New York 10468

Reference

The author replies:

To the Editor:

The data which appeared in the article entitled "Concealed retrograde conduction in complete atrioventricular block" were collected by standard techniques and