Left Ventriculography Following Mitral Valve Replacement

A Case Report

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THIS REPORT illustrates the use of left ventriculography in clarifying the cause of a systolic murmur present following prosthetic replacement of the mitral valve in a 32-year-old housewife with chronic rheumatic mitral insufficiency. As reported in detail elsewhere,1 a good functional result followed surgery performed on January 2, 1961. Eleven months postoperatively, however, the presence of a systolic murmur led to suspicion that partial dislocation of the cage-ball prosthesis might have occurred. On November 21, 1961, percutaneous retrograde arterial catheterization of the left ventricle2 was done, an injection of sodium iothalamate, 80 per cent, was made, and the radiographs shown in figure 1 were obtained. While the films disclosed no trace of regurgitation through or around the early model Starr-Edwards mitral valve, its cage partly extended into the outflow tract of the left ventricle. In the light of these findings, it was concluded that the systolic murmur was an “innocent” consequence of turbulence and required no further action. Except for occasional episodes of atrial fibrillation the patient has to date remained free from the severe functional limitations that led to mitral valve replacement over 2 years ago. She was the fifth in the University of Oregon Medical School’s series of 74 people who (as of March 21, 1963) have had implantation of the caged-ball artificial mitral or aortic heart valves developed at this institution.* As a result of experience gained in this early case subsequent valves were redesigned, the cage being shortened to prevent a similar occurrence.

Discussion

Retrograde arterial catheterization of the left ventricle provides valuable information in connection with the selection and preoperative evaluation of candidates for prosthetic replacement of heart valves. It offers the most sensitive available technic for demonstrating minimal regurgitation and a means for gauging the degree of backflow. To a limited extent, left ventriculography and cineangiography allow an assessment of anatomic mitral valvular deformity. Results can be materially bettered by angiography and manometry following left atrial catheterization by the transseptal route3 or retrograde transmitral passage of the left ventricular catheter.4 Retrograde arterial catheterization has been of practical value in the preoperative appraisal of coexisting coronary artery and aortic valve disease. It not only gives added data on the possible need for bivalvular surgery but also aids through its unique ability to reveal minimal aortic regurgitation, which though functionally trivial, may assume catastrophic significance during open-heart surgical procedures.5 Following commissurotomy or valvuloplasty it can serve to protect against unwarranted optimism as to the outcome and permit more prompt recognition of instances in which eventual valvular replacement is

*Co-developer and manufacturer, Mr. Lowell Edwards, Edwards Laboratories, Inc., 13191 Sandhurst Avenue, Santa Ana, California.
Figure 1

Left ventriculography following mitral valve replacement with Starr-Edwards Prosthesis. Percutaneous retrograde catheterization A-D. Four consecutive films exposed in left lateral projection at indicated times following beginning of 1-second injection into the left ventricle of 35 ml of sodium iothalamate 80 per cent. There is no regurgitation across the normally functioning artificial mitral valve. The left ventricular wall is thickened. A. Arrows point to right and left aortic valve leaflets. B. Noncoronary sinus is visible between and below other cusps. C. End of cage projects to the anterior outflow tract of the left ventricle. D. Entire valve cage visible. In all views radiolucent silastic ball is invisible.
likely to be needed. Regardless of the nature of the procedure or prosthesis employed, postoperative contrast visualization offers cardiac surgeons informative, objective, publishable means for comparing the results of their investigative or clinical efforts.

References

Grecian Medicine

It is well known that Greek medicine reached its highest level under the Alexandrine School in the 3d century B.C. under the leadership of Herophilus in anatomy and Erasistratus in physiology. In the second century B.C. physicians of that discipline began to invade Rome taking their Greek terminology with them. The effect of this vocabulary on our present day terminology has been enormous and it has been said that 75 per cent of present-day medical terms can be traced back to the Greek of Hippocrates or of the following Alexandrine period.

The Greek invaders largely conquered the native Latin Medical terms but as is so often the fate of conquerors, they were absorbed and changed in the process. The Greek hemi-cranion, half the head, became hemieranium in Latin; in France the same process made it demieraine, then migraine, and when it crossed the channel after William the Conqueror, it was anglicized to “the megrims.” In Rome, the foreign Greek sounded more learned, just as today an ophthalmologist sounds far superior to an oculist. One can visualize the Greek physicians “putting it over” on the local doctors with a Greek diagnosis of nephritis, but not bothering in anatomy to Hellenize the Latin term ren, the kidney. We still use many Latin words for anatomical structures, but when one considers the names of the diseases of these structures one finds a predominance of Greek roots—the portal vein from the Latin porta, a gate or door; but pylephlebitis from the Greek pyle meaning a gate or door, phlebs, a vein, and -itis, inflammation.—O. H. Perry Pepper, M.D. Opuscula Medica. (Reprinted from Transactions & Studies of the College of Physicians of Philadelphia, 4 Ser., 18: 30, April, 1950).
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