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On Permanent Patency of the Mouth of the Aorta, or Inadequacy of the Aortic Valves

By DOMINIC JOHN CORRIGAN, M.D.

One of the Physicians to the Charitable Infirmary, Jervis Street, Dublin; Lecturer on the Theory and Practice of Medicine; Consulting Physician to St. Patrick's College, Maynooth.

... With a knowledge of the signs afforded by the disease, no one of even moderate acquaintance with the stethoscope can confound it with asthma; without a knowledge of the stethoscope it will, however, be impossible in very many instances to distinguish between the two diseases. General symptoms will give no information on which the slightest reliance can be placed.

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prothrombin times in the therapeutic range during more than 80 per cent of the time they were under treatment (adjustment periods excluded). One third of the cases were marked by hemorrhagic complications, which included major bleeding complications in 10 per cent of the total. The incidence of bleeding complications, and especially the major bleeding complications, was associated with either an increased incidence of arterial hypertension or increased age. Three patients died as a result of a hemorrhagic complication that occurred during long-term anticoagulant therapy. Sixty-nine per cent of the bleeding episodes occurred when the prothrombin activity was within the therapeutic range (10 to 30 per cent of normal).

Sixteen per cent of the patients discontinued anticoagulant therapy although the indications for its use were still present. Eleven (17 per cent) of the 64 patients who stopped anticoagulant therapy and could be traced had recurrent vascular or thromboembolic episodes within 2 months. Three of these 11 patients died.

Surgery was performed in 20 cases during long-term anticoagulant therapy. The patients' prothrombin activities were at various levels, though for major operations all were near normal. The only complication was a minor cerebral infarction in a patient whose prothrombin activity had been brought to normal for surgery.

In view of the limitations in the practical management of patients on long-term anticoagulant therapy, plus the inconvenience, expense, and risks involved, the physician is compelled to appraise carefully the indications for such treatment in each patient before undertaking its use.

References

To have striven, to have made an effort, to have been true to certain ideals—this alone is worth the struggle.—SIR WILLIAM OSLER. Aphorisms From His Bedside Teachings and Writings. New York, Henry Schuman, Inc., 1950, p. 89.
SPLITTING SECOND HEART SOUND


The Early History of Instrumental Precision in Medicine

The true rate of advance in medicine is, however, not to be tested by the work of single men, but by the practical capacity of the mass. The truer test of national medical progress is what the country doctor is. How useful, how simple, it seemed to count the pulse and respiration, or to put a thermometer under the tongue, and yet it took in the one case a century, and in another far more, before the mass of the profession learned to profit by the wisdom of the few.—S. Weir Mitchell, M.D., Transactions of the Congress of American Physicians and Surgeons held at Washington, D.C., 1891. New Haven, The Congress, 1892, p. 180.
monary and supravalvular aortic stenosis in another. The two remaining patients, those with corrected transposition of the great arteries, had complicated lesions including a single ventricle in one and small ventricular septal defect in the other.

Attempts at surgical correction were unsuccessful in all cases.

References
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If it is beyond question that the veins of the neck are bilaterally congested and it is equally beyond doubt that the liver is not enlarged, an obstruction of the superior cava must be considered. Its diagnosis will rest upon the discovery of anastomotic veins and upon failure to induce the veins of the neck to pulsate. A second reason for the same discrepancy is atrophic cirrhosis of the liver in a congested patient; the diagnosis of the liver condition will then turn upon the degree of hardness, and perhaps irregularity, of the liver margin.

There is the reverse case: an engorgement of the liver has been present for a long time and the venous spaces within have become permanently dilated and its substance a little or much fibrosed. In such, even if the signs of increased pressure in the veins greatly decline, the size of the liver may not decrease much or proportionately. It is a discrepancy which previous knowledge of the course of the malady explains.—Sir Thomas Lewis. Diseases of the Heart. New York, The MacMillan Company, 1933, p. 17.
occur closest to the S-wave peak, or if the baseline crossing and the derivative occur within 0.016 second (10 samples) of each other. The S-wave end is located at the point where the derivative is less than 1.875 millivolts/second (1 unit) if this point occurs closest to the S-wave peak and if the baseline crossing and the point where the derivative is less than one are not within 0.016 second (10 samples) of each other.

The S-wave onset is determined as the baseline crossing point between the R- and S-wave peaks, if R waves are present in the electrocardiogram. The S-wave onset is also the R-wave end. If no R waves are present, or if no S waves are present, then the S-wave start or R-wave end is found in the same manner as the S-wave end.

The end of the T and P waves and the start of the Q wave are located at the point closest to the peak of each wave where the electrocardiogram crosses the baseline or where the derivative becomes less than 1.875 millivolts/second (1 unit) and remains less than this value for 0.016 second. If Q waves are present, the baseline crossing point between the Q-wave peak and the R-wave peak is the Q-wave end, and also the R-wave start. If no Q waves are present the start of the R wave is found by the method used for the S-wave end. The T start is located by searching 0.032 second (20 samples) before the T-wave peak for a baseline crossing or the point where the derivative is less than 1.875 millivolts/second and remains less than this for 0.016 second, whichever occurs first. However, if no baseline crossing or a point where the derivative is less than 1.875 millivolts/second is found, then the T-wave start is located at the same point as the S-wave end or at the end of the R wave if no S waves are present. The amplitude at the onset of the T wave is defined as the amplitude at the end of the ST segment. To further describe the ST segment the amplitude at the point midway between the end of the wave and the beginning of the T wave is also determined. The point of maximum amplitude between the end of the T wave in the second beat and the start of the P wave in the third beat is defined as the location of the U-wave peak.

The amplitudes and durations of all parameters are finally calculated by use of the previously determined points. The computer measurements obtained by this technic simulate those that an electrocardiographer obtains with conventional tracings. The more precise measurement allowed by electronic techniques suggests that more exacting clinical definitions of the baseline and onset and termination of waveforms are desirable. Studies to determine better definitions for incorporation into the computer program are in progress.

Counterproof

Proof that a given condition always precedes or accompanies a phenomenon does not warrant concluding with certainty that a given condition is the immediate cause of that phenomenon. It must still be established that, when this condition is removed, the phenomenon will no longer appear. If we limited ourselves to the proof of presence alone, we might fall into error at any moment and believe in relations of cause and effect where there was nothing but simple coincidence. As we shall later see, coincidences form one of the most dangerous stumbling blocks encountered by experimental scientists in complex sciences like biology. It is the post hoc, ergo propter hoc of the doctors, into which we may very easily let ourselves be led, especially if the result of an experiment or an observation supports a preconceived idea.

Counterproof, then, is a necessary and essential characteristic of the conclusion of experimental reasoning. It is the expression of philosophic doubt carried as far as possible. Counterproof decides whether the relation of cause to effect, which we seek in phenomena, has been found. To do this, it removes the accepted cause, to see if the effect persists.—CLAUDE BERNARD. An Introduction to the Study of Experimental Medicine. New York, The MacMillan Company, 1927, p. 34.

The fitness of the environment is one part of a reciprocal relationship of which the fitness of the organism is the other. This relationship is completely and perfectly reciprocal; the one fitness is not less important than the other, nor less invariably a constituent of a particular case of biological fitness; it is not less frequently evident in the characteristics of water, carbonic acid, and the compounds of carbon, hydrogen, and oxygen than is fitness from adaptation in the characteristics of the organism.—Lawrence J. Henderson. The Fitness of the Environment, New York, The Macmillan Co., 1924, p. 271.
As to your method of work, I have a single bit of advice, which I give with the earnest conviction of its paramount influence in any success which may have attended my efforts in life—Take no thought for the morrow. Live neither in the past nor in the future, but let each day's work absorb your entire energies, and satisfy your widest ambition. That was a singular but very wise answer which Cromwell gave to Bellevue—"No one rises so high as he who knows not whither he is going," and there is much truth in it. The student who is worrying about his future, anxious over the examinations, doubting his fitness for the profession, is certain not to do so well as the man who cares for nothing but the matter in hand, and who knows not whither he is going!—Sir William Osler. *Aphorisms From His Bedside Teachings and Writings.* Edited by William Bennett Bean, M.D. New York, Henry Schuman, Inc., 1950, p. 71.

Thomas Sydenham
1624–1689

Sydenham stands as the representative of the clinical or bedside approach to the problems of disease, just as his immortal contemporary and fellow townsman William Harvey stands as the prototype of the experimental investigator. He is entitled to a perpetual place in Medicine's Hall of Fame.—David Riesman, M.D. Thomas Sydenham, Clinician. New York, Paul B. Hoeber, Inc., 1926, Preface, pp. 7 and 9.
scribed an altered relationship between the papillary muscles and valve leaflets when left ventricular enlargement occurs as a result of mitral insufficiency. This tends to augment insufficiency resulting from loss of valve substance. Thus, "mitral insufficiency begets mitral insufficiency." Such a mechanism may be a secondary etiologic factor in this case.

Summary

A case of congenital mitral insufficiency in a 2-year-old infant is reported. No other intracardiac defect was found, although pressure studies suggested an area of supravalvular aortic stenosis.

Diagnostic studies included combined right and left heart catheterization. Dye-dilution curves confirmed the presence of mitral insufficiency.

The anatomic defect, a cleft posterior leaflet of the mitral valve, was repaired by direct suture of the valve leaflet.

During 18 months of postoperative observation, the child has shown symptomatic improvement and decrease in the size of the left ventricle, although a systolic mitral murmur and left atrial enlargement persist. Residual insufficiency is probably due to short chordae that restrict mobility of the posterior leaflet.

References


Text and Footnote

The first time I heard Professor Sarton expound his doctrine privately, he was in his most optimistic mood. I, as a young man, understood him—or perhaps misunderstood him—to say that the future historian of science would write the history of a century solely in cultural terms and largely in terms of the labors of the scientists and scholars. The kings and queens, the politicians, and especially the military campaigns were to be reserved for footnotes, a strong contrast to the usual custom of historians, Sarton pointed out. Orthodox historians might at best insert a footnote to the political history of Great Britain in the eighteenth century to the effect that one Sir Isaac Newton, the Master of the Mint under William III, enunciated his laws of motion and "explained" the workings of the solar system. He, Sarton, proposed to reverse the scheme!—James B. Conant. History in the Education of Scientists. American Scientist 48: 530, 1960.

An underlying philosophy, when it can be found, is invaluable in practice, not only because it quickens and maintains interest, but because it forms a stable guide to action when experience fails, as it often will in face of the unusual, to give precise or particular direction.—SIR THOMAS LEWIS. Diseases of the Heart. New York, The MacMillan Company, 1933, p. vi.