HEMORRHAGIC NECROSIS


NEW MANUSCRIPTS

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Howard B. Burchell, M.D.
CIRCULATION
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SUBCLAVIAN STEAL SYNDROME


Realdus Columbus and Michael Servetus

The question of priority between Realdus Columbus and Michael Servetus regarding the true passage of blood through the lungs and the change in color which takes place there has been discussed at great length. On this subject Bainton has wisely written: "Here, as so often in the history of Science, independent investigators came upon the same truth almost coincidentally. There can be no rivalry between Servetus and Columbus, the other contestant, for it has been established that neither knew the discovery of the other. Insofar as the announcement, there is no problem at all." Indeed, Servetus' text dates back to 1553, whereas Columbus' De re anatomica was published six years later. Furthermore, with regard to the time of the observation, Bainton in a short and searching paper has given convincing proof that a manuscript of Servetus in the Bibliothèque Nationale in Paris containing a statement on the pulmonary passage of blood is probably a faithful copy of an earlier draft sent in 1546, to Calvin, who never returned it.—ANDRÉ COURNAND, M.D. Circulation of the Blood. Edited by Alfred P. Fishman, M.D., and Dickinson W. Richards, M.D. New York, Oxford University Press, 1964, p. 24.


Discovery of the Pulmonary Alveoli and Capillaries—Marcello Malpighi—1628-1694

While holding the chair of Theoretical Medicine at Pisa, Marcello Malpighi (1628-94) addressed two memorable letters, De pulmonibus, to his close friend Borelli, a mathematician who was interested in physiology as a branch of physics. These letters, translated into English by James Young, contain, among other things, observations on the pulmonary alveoli and capillaries seen with the help of a compound microscope. With humility Malpighi announced "a few little observations that might increase the things found out about the lungs." These little observations were no less than the first description of the air sacs in the lungs of a dog, and of the pulmonary capillaries of the tortoise and frogs, "the whole race" of the latter, he claimed jokingly to "have almost destroyed." We may well admire the technical ability and the ingenuity which he displayed in observing the movement of blood in the capillary network of the lungs of a living frog while the heart was beating, and in examining, after ligature of the pulmonary veins, its lungs, turgid with blood and dried in that state:

"It is clear to sense that the blood flows away through the tortuous vessels, that it is not poured into spaces but always works through tubules and is dispersed by the multiple winding of the vessels."—André Cournand, M.D. Circulation of the Blood. Edited by Alfred P. Fishman, M.D., and Dickinson W. Richards, M.D. New York, Oxford University Press, 1964, p. 28.


**Stephen Hales 1677-1761**

In Vol. II of *Statical Essays*, Stephen Hales reported measurements made by direct observation of the rate of flow in the lung capillaries of frogs, and he stated that the blood must traverse the lungs with "vastly greater rapidity than through other parts of the body."—ANDRÉ COURNAND, M.D. *Circulation of the Blood*. Edited by Alfred P. Fishman, M.D., and Dickinson W. Richards, M.D. New York, Oxford University Press, 1964, p. 38.


Adolf Fick—1829-1901

This was his achievement in the simple Fick principle for calculation of cardiac output: that the total oxygen absorbed per minute, divided by the uptake of oxygen into the blood per unit of blood flowing, i.e., the arteriovenous oxygen difference, gives the total blood flow through the lungs. A similar equation obviously obtains for CO₂ output and CO₂ arteriovenous differences.

This simple relation has more in it than would appear at first glance. It was the first physiological synthesis of the notion of blood flow and the notion of respiratory gas transport. In another relationship it was essentially the expression of the dilution principle for blood flow measurement: the faster the blood flow the less oxygen taken up per unit of blood flowing. The dilution principle is really the basis of most of the accepted methods of measuring the cardiac output and the flow of blood to organs and regions. Among these are foreign gas and injection (indicator dilution) methods, including clearance techniques for measuring blood flow through liver and kidney. It is hard to exaggerate the importance and widespread influence of the ideas which have evolved in close relation to the principle exemplified in the calculation which has since become known as the Fick principle.

Summary

Recently, a junctional depression of small amplitude (less than equivocal result for the electrocardiographic exercise test if the QX/QT ratio was \( \geq 50 \) per cent or the QTr \( \geq 1.08 \).

In 150 normal, young students with no clinical evidence of heart disease, a junctional depression of the ST segment with a QX/QT ratio \( \geq 50 \) per cent or a QTr \( \geq 1.08 \) or both, was observed in 22 per cent.

These observations, supported by other published reports concerning the QX/QT ratio and the QTr, indicate that these criteria are not reliable for the determination of a positive electrocardiographic exercise test.

References


Cumulative Knowledge

Our debt to tradition through reading and conversation is so massive, our protest or private addition so rare and insignificant—and this commonly on the ground of other reading or hearing—that in a large sense, one would say there is no pure originality. All minds quote.—RALPH WALDO EMERSON.


John Snow

John Snow was in general practice throughout his professional life. Snow was the son of a Yorkshire farmer. Born in 1813, at an early age he determined to become a doctor. He was apprenticed to a doctor near Newcastle upon Tyne and quite early in his career had experience of a cholera epidemic at Killingworth colliery. . . .

Probably from observations made when at Killingworth, Snow had formed the idea that the infection of cholera could be conveyed by polluted water, and that the mode of infection was by drinking such infected water. Observation of an epidemic of cholera in Soho confirmed him in these views and in 1849 he published a pamphlet on the subject. Then, in 1854, there occurred another epidemic in South London which gave him an excellent opportunity to test his theory. There were two water companies which supplied the area in which the epidemic of cholera was rampant—the Lambeth Company and the Vauxhall Company. The Lambeth Company obtained its water from an upper reach of the Thames where there was no contamination; the Vauxhall Company got their water from a lower and badly contaminated part of the Thames. Snow followed up every case of cholera in the affected area and found that though both water supplies provided water to the same streets, nearly all the cases of cholera occurred in those houses supplied by the Vauxhall Company. A person drinking water supplied by the Vauxhall Company had fourteen times greater probability of suffering from cholera than those who drank the water supplied by the Lambeth Company. This investigation has always been taken as a perfect example of field epidemiology and I can do no better than quote the words of Bradfield Hill—

"To those who hold that statistics are dull I commend that simple comparison; to those who hold that the statistical approach is barren and unprofitable I commend Snow on cholera. "This disease," Snow concluded, "may be rendered extremely rare, if indeed it may not be altogether banished from civilized countries." How right he was. In close on a hundred years we have been free in this country from epidemic cholera and it is a freedom which basically we owe to the logical thinking, acute observation and simple sums of John Snow."—ZACHARY COPE, Kr. Some Famous General Practitioners and other Medical Historical Essays. London, Pitman Medical Publishing Co., Ltd.. 1961, p. 12.
right ventricle in a 20-year-old girl. Only selective angiocardiology allows a correct diagnosis of intracardiac space-occupying lesion. It should be employed whenever a cardiac tumor is suspected.

Summary
A case of fibroma of the right ventricle in a child of 16 months is reported. The clinical and hemodynamic findings were those of severe tricuspid stenosis. Angiocardiography proved the obstruction to be due to a cardiac neoplasm, localized within the right ventricle. An attempt at surgical removal failed because the tumor, almost completely filling the cavity of the right ventricle, was too extensive and could not be distinctly delineated from the healthy myocardium.

References

The Courage We Bring to Bear
I am more and more convinced that our happiness or unhappiness depends far more on the way we meet the events of life than on the nature of those events themselves.—KARL VON HUMBOLDT.
References