
The investigation described was prompted by the difficulty experienced in diagnosing hypertension in older subjects when the blood pressure has fallen for any reason—following cardiac infarction, for example. Routine renal efficiency tests at the London Hospital had shown that in patients with essential hypertension the excretion of phenolsulphonphthalein (PSP) in 2 hours was appreciably lower than in healthy subjects, although the results of other renal function tests were normal, and it was thought that this finding might be utilized to indicate whether a patient whose blood pressure was normal at the time of examination had previously suffered from hypertension. To test this hypothesis 4 groups of subjects were studied: (1) 25 patients with essential hypertension but no evidence of heart failure; (2) 21 patients with essential hypertension complicated by heart failure; (3) 16 patients suffering from heart failure without hypertension; and (4) 33 subjects, either healthy or with no renal or cardiovascular disease, to serve as controls.

It was found that patients with essential hypertension, whether accompanied by cardiac failure or not, had a significantly lower excretion of PSP than either of the other two groups. Aging caused a slight but significant reduction in PSP excretion over 2 hours, as also did the presence of cardiac failure, but sex appeared to have no effect on the amount excreted.

The author concludes that the PSP excretion test has definite value in diagnosing antecedent hypertension, whether or not heart failure is present, provided the latter is not severe.

G. S. Crockett


This paper is based on the clinical and post-mortem findings in 7 cases of massive, slowly developing thrombosis of the pulmonary arteries admitted to the Western Reserve University Hospital, Cleveland, Ohio. Right heart failure with electrocardiographic evidence of severe right ventricular stress was a constant finding, and a pulmonary diastolic murmur was heard in 2 cases. Every patient presented with a history of dyspnoea for several weeks, one developed gross clubbing of the fingers, but only one patient was cyanosed and none had conspicuous polycythaemia. The radiological appearances, which were considered to be characteristic, showed the pulmonary arteries as unduly prominent and tapered at the lower extremity so as to be comma-shaped; while pulsation tended to be small or absent. Beyond the heavy shadows of the main vessels the lung fields were unduly translucent, suggesting peripheral ischaemia; in some cases this was marked on only one side or even in only one segment. The pulmonary arterial shadows might be confused with those due to hilar-node enlargement, and a hilar mass with peripheral translucency might give an appearance suggestive of neoplasm with segmental collapse. All the patients died. At necropsy massive thromboses, sometimes of varying age, in the main pulmonary vessels and right ventricular enlargement were found. Pulmonary arterial disease [variously called arterial sclerosis or arteritis] was thought to be the primary lesion in 5 of the cases, and possibly tuberculous arteritis from an infected adjacent hilar node in the 6th; in 3 of these cases thrombi were present in the right heart cavities. In the 7th case it was clear that the condition was a sequel to acute postoperative pulmonary embolism. It was noted that in only one case were the veins of the leg free of thrombi.

The clinical aspects of these cases are well recorded, but the pathological basis of the pulmonary arterial thromboses is less clear.

D. W. Barritt


At Crumpsall Hospital (University of Manchester), a study was undertaken of the natural history and clinical features of chronic pulmonary disease associated with right ventricular hypertrophy (R.V.H.) in a series of 50 cases, in all of which necropsy was ultimately performed. The pathological criteria adopted in diagnosis were: (1) the presence of bilateral chronic pulmonary disease; (2) the absence of congenital, valvular, and ischaemic heart disease; and (3) the presence of right and absence of left ventricular hypertrophy, the ventricular portion of the heart being divided post mortem into two parts—the free wall of the right ventricle, and the left ventricle plus the septum—and the diagnosis being based on the absolute weight of the left part and the ratio between that weight and that of the right.

Of the 50 patients, all but 4 were men. Chronic bronchitis was present in 42 patients, bronchiectasis in 7, and tuberculosis in 1 patient. No specific industrial hazard was encountered, but all patients had been exposed to the atmosphere of North Manchester, where humidity and atmospheric pollution are high and fogs are common.

The course of the disease could be divided into three stages: (1) a stage of good exercise tolerance lasting 15 to 20 years, during which cough with sputum was the only symptom; (2) a stage of limited activity lasting 2 to 5
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years, during which dyspnea and disability steadily increased; and (3) a terminal stage lasting up to 2 years. Here three distinct clinical pictures were found: (a) Congestive heart failure occurred in 20 cases. Sinus tachycardia was the basic rhythm. Cardiac enlargement was demonstrated clinically in only two cases. Ten patients had gallop rhythm, best heard at the left sternal border, and of these 9 died within 5 months. A systolic murmur over the lower sternalum was associated with signs suggesting tricuspid incompetence in 6 cases. Hydrothorax occurred once only. Radiological evidence of R.V.H. appeared only late in the disease process, but electrocardiographic evidence was present in 14 of the 20 patients, and complete right bundle-branch block in 2. Treatment with a combination of penicillin and mercurial diuretics appeared to be the most effective in this group; oxygen and digitalis were of little help. Of these 20 patients, 9 died in their first attack of congestive failure and none survived longer than 18 months. (b) Acute broncho-pulmonary infection was the immediate cause of death in 16 cases. The diagnosis of this type of case is very important since immediate treatment with antibiotics may be effective. Terminal acute infection in a patient with chronic bronchitis may easily be overlooked; in 9 of the present series of cases there was no fever, and if congestive failure and gallop rhythm are also present a diagnosis of pure heart failure may be made. (c) Anoxia appeared to be the cause of death in 10 patients who had minimal congestive failure and no acute infection. Mental symptoms frequently occurred, and the clinical picture often resembled uraemia.

The "congestive" and "anoxic" types of case are contrasted, and it is suggested that the absence of congestive failure in the latter group may be due to the more rapid rate of progress of the lung disease, death occurring before heart failure has had time to develop. Great stress is laid by the author on the importance of early treatment of acute broncho-pulmonary infection with antibiotics at all stages of this condition. Atmospheric pollution is considered to be an important aggravating factor.

Keith Ball


The claim that vitamin E (α-tocopherol) is of benefit in the treatment of peripheral arterial disease has been investigated in controlled clinical trials at St. Mary's Hospital, London, and the Royal Infirmary, Sheffield, on 41 patients, all of whom had typical intermittent claudication of the calf muscles due to occlusive arterial disease. The patients were divided into treatment and control groups by the method of random selection. After an observation period of at least one month the patients in the treatment group were given capsules containing natural vitamin E in a dose of 450 units daily for 12 weeks; the control group received indistinguishable but inert capsules. Neither the subjects nor the investigators knew which patients were receiving vitamin E. The treatment and control groups were comparable in respect of age and of the duration and severity of the disease. The results of treatment were assessed from the patients' own impressions, by clinical examination of the limbs, and by the response to a standard exercise tolerance test in which the number of circuits over a pair of 18-inch (46-cm.) steps which the patient was able to perform before the onset of pain, and the subsequent duration of this pain, were measured. The observations were repeated at various times during the treatment and in the following 3 months.

The patients' own assessment revealed no significant difference between the groups, although 8 of the 20 patients who received vitamin E claimed to be improved, and clinical examination showed no change in either group. There was no significant difference between the treatment and control groups in the average number of circuits walked before the onset of pain. There was a slight reduction in the duration of pain after cessation of exercise in the treatment group, and a slight prolongation in the control group, but this difference was not significant.

The authors claim that other investigators, who have reported benefit from vitamin E in comparable cases, have used less strictly controlled experimental methods, and that their own results indicate clearly that vitamin E is of no appreciable benefit to patients with intermittent claudication.

This study illustrated admirably the proper use of statistical methods, tempered with common sense, in the evaluation of clinical data. Bernard Isaacs


This book is not meant to be a textbook of electrocardiography; it is a reference volume based on the author's experience and on ten thousand papers published from 1933 to 1950 indexed at the end of the book. These include almost everything written on electrocardiography except for the arrhythmias which will be dealt with in a second volume. The book contains a wealth of information, even on subjects as far apart as the frequency response of the various machines, the electric resistance of the human tissues, and the electrocardiograms of animals from the chicken-embryo to the elephant.

One-third of the book deals with the physical basis of electrocardiography and the normal human electrocardiogram. It begins with a useful chapter on artifacts and their prevention. Further chapters include a detailed description of vector analysis and the membrane and dipole theories of muscle activity. These first chapters on theory, so summarily treated in practical textbooks, are most informative, though the author's style does not make the difficult subject any easier. The second third of the book deals in great detail with the influence of physiological factors, the physical, chemical, pharmacological, and toxic agents, vitamins and hormones. Only the last third of the book is concerned with the pathological electrocardiograph.

Such an encyclopaedic work is written more with the
intention of being consulted than of being read. The author's ambition of perfection in reporting without directing the reader's opinion is often confusing, for opposite opinions may be referred to in the same paragraph. Descriptions are given without figures, or reference is made to figures published elsewhere. Too much insistence on minutiae tires the reader: for example the five types of right, and the four types of left bundle branch block are again subdivided. Figures are few and below standard. Many of them are not original and most are composite; Fig. 49 contains as many as 53 double channel electrocardiograms in small print and can only be read with a magnifying lens.

The great merits of this exceptional work will be best appreciated by the research worker; he will be grateful to Dr. Lepeschkin whose diligence and infinite patience will save him tedious hours of library work. C. Papp


In this paper from the Surgical Service of Professor Leriche, Paris, the aetiology, signs and symptoms, and treatment of thrombosis of the terminal aorta are discussed and 35 cases described.

It is pointed out that the causes of aortic thrombosis are arteriosclerosis, inflammatory arteritis, thromboangiitis obliterans, syphilis, and trauma; in some cases perivascular inflammation affects adjacent veins, lymph nodes, and nerves. The early symptoms are usually fatigue of the legs, an ache in the foot, calf, or thigh, or in the entire lower limb, low back pain, and inability to maintain an erection; there is also loss of arterial pulsation in both legs. Trophic changes in the skin or nails are seldom seen, and when present are only slight. In the late stages of the disease all the manifestations of obliterative arterial disease are observed. The onset in aortic thrombosis is insidious, in contrast to the sudden onset of symptoms due to a saddle embolus.

Without treatment the patient usually loses both legs; as thrombosis spreads upward the renal arteries become blocked, leading to uremia. Treatment consists in bilateral lumbar sympathectomy, resection of the thrombosed segment of the aorta and iliac vessels, and amputation of dead tissue of the lower limb. Arterial resection should be undertaken unless there is severe calcification of the aorta or the periarterial inflammation binds the main vessel to adjacent tissues. The purpose of the operation is to prevent the thrombosis extending and to relieve the back pain. J. E. Richardson


It is generally considered that shock occurring soon after the onset of cardiac infarction is due to myocardial weakness and should not be treated directly. However, 32 patients in whom shock was profound, as judged by a systolic pressure below 100 mm. Hg and the presence of cyanosis with a cold, clammy skin, were given “neo-
sympathic” (phenylephrine) intravenously or intramuscularly in doses of 2 to 7 mg. at intervals varying from 15 minutes to 1 hour; 250 to 1500 ml. of plasma or whole blood was administered in addition unless the lungs were oedematous. Of the 32 patients, 14 recovered, some of those who died having been in shock for 8 hours or more when treatment was started. Since the prognosis is notoriously bad, the authors consider that this method represents a therapeutic advance. C. W. C. Bain


This is a useful, well balanced review of the present-day conceptions of congenital cardiovascular disease. The author adopts Maude Abbott's classification and outlines their basic morphological and physiological characteristics, rightly emphasizing the commoner disorders of clinical practice. Few original opinions are expressed in this monograph but it contains some helpful generalizations about prognosis and treatment and on the management of these patients during pregnancy, infections and surgical treatment. Its main value will be as a fairly comprehensive reference book, for it is supported by an ample bibliography. The text could be improved by the more liberal use of illustrations, but the production is otherwise excellent. J. L. Lovibond


In 7 out of 9 successive cases of bacterial endocarditis examined post mortem emboli were found in the coronary arteries, being multiple in 4 cases. Changes in the myocardium were found in all cases, taking the form of ischaemic necrosis in various stages of organization, abscess formation, or calcified areas which were regarded as healed abscesses. The coronary arteries showed no evidence of atheroma, and the material in the lumina of the blocked vessels was similar to that on the affected valves.

The author concludes that coronary embolism is of common occurrence in bacterial endocarditis and suggests that this is due to the location of the orifices of the coronary arteries, the mechanics of the blood flow past them, and the manner of opening of the aortic valve cusps.

R. H. Hepinstall

An investigation was carried out to assess the validity of the view held by some workers that the erythrocyte sedimentation rate (E.S.R.) is normal in heart failure. Patients with arteriosclerotic, hypertensive, or syphilitic heart disease were studied, and all those with conditions known to lead to elevation of the E.S.R. were excluded from the series.

Of 38 patients with acute cardiac failure the initial E.S.R. was normal in approximately one-third; a moderate rise was observed in rather fewer than one-third, and a distinct rise in the remainder. After treatment, the E.S.R. was raised in nearly all the patients, though in some the rate was lower than it was initially. Of 13 patients with chronic failure 5 had a normal E.S.R. throughout their stay in hospital, and it is significant that 4 of these died, as did one of the remainder whose E.S.R. fell to normal while he was in hospital.

It is suggested that in patients with prolonged intractable failure a normal E.S.R. may be due to a fibrinopenia resulting from hepatic damage. Clearly the E.S.R. does not aid in ruling out infarction, infection, or other complications in patients with heart failure.

E. G. Rees


Since the successful development of mitral valvotomy the attention of the cardiac surgeon has been directed towards the aortic valve, but progress in this field has been slower for technical reasons.

The most suitable type of aortic valvar lesion for surgical treatment is the acquired rheumatic form, the congenital and degenerative types not being likely to give satisfactory results. The authors’ aim in treatment is to split the commissures joining the valve cusps fused by the disease process, and this cannot be done blindly for fear of rupturing the cusps with consequent regurgitation. They therefore developed a tri-fin expanding dilator on a swivel head which would adjust itself so that the blades lay in the remaining gaps between the fused cusps. Out of the 42 cases in which aortic commissurotomy has been performed, mitral valvotomy was also carried out in 23. It is not always easy to decide which valve should be dealt with first; there are points in favour on both sides. The authors prefer on the whole to operate on the mitral valve first, unless there is severe aortic stenosis and mitral regurgitation, in which case the regurgitation may in part be due to the aortic obstruction.

The chief contraindications to operation are congestive failure which does not respond to treatment and great enlargement of the heart, which indicates advanced myocardial degeneration. Recent rheumatic fever and age over 50 are additional factors that make operation inadvisable.

The operation has been performed in 13 cases of isolated aortic valvular disease—7 with stenosis only and 6 with both stenosis and regurgitation—and in 29 cases of multivalvar lesions, of which there were 25 in which definite mitral stenosis was present; in 23 of these mitral commissurotomy was also performed. Of the 42 patients 7 died from various causes, including embolism and haemorrhage. Great improvement was noted in most of the survivors.

T. Holmes Sellors


An enlargement of the cardiac shadow to the left may be entirely due to an enlarged right ventricle, but in persistent ductus arteriosus and interatrial septal defect the configuration of the heart may be similar although the latter condition overloads only the right ventricle, while the former overloads both ventricles. The two conditions can be differentiated, however, by catheterization of the heart with a radio-opaque catheter. The same method also allows differentiation between mitral stenosis and mitral insufficiency. This is important in view of the benefit to be obtained from operation in cases of pure mitral stenosis and the lack of such benefit in cases of mitral incompetence.

The radiographic differentiation between the two conditions is described in detail. One point in the procedure is particularly stressed: whenever the catheter is used it is essential to direct its tip on to the left wall of the ventricle, thus enabling the size of the ventricle to be estimated. Antero-posterior, oblique, and lateral films are taken, for reasons that are explained. An inadvertent penetration of the tip of the catheter into the coronary sinus can be recognized from measurement of pressure and from gas analysis of the blood withdrawn.

[The thirteen radiographs reproduced, showing the position of the catheter in the various conditions analyzed, adequately demonstrate the usefulness of the method.]

A. Orley

Criteria for the selection of patients for mitral valvotomy and a plan of management during the operation period are described. The authors' observations and conclusions are based on a series of 74 cases in which mitral commissurotomy was performed before May, 1952, at the Los Angeles County Hospital (University of California). There were 8 deaths in the first 35 cases of the series but none in the subsequent 39. A further 52 operations have been performed since this report, with only one death.

The criteria for operation are the generally accepted ones. They regard a history of recent systemic embolism as an indication for operation, amputation of the left auricular appendix and an improved cardiac output lessening the risk of thrombosis within the auricle and of further embolism.

During the operation rapid auricular fibrillation is controlled with ouabain and venricular extra-stylothes with procain amide, both given intravenously. A long-acting heparin is given by intramuscular injection periodically in the immediate postoperative period if clots are found in the auricle. No attempt is made to convert auricular fibrillation to normal rhythm until one or two months after operation.

J. A. Cosh


During the past 2½ years 200 patients with pure or predominant mitral stenosis have undergone valvotomy at the Western General Hospital, Edinburgh, one medical unit being responsible for 130 of these. The present paper is principally concerned with the first 100 of the 130 patients, 17 of whom were males and 83 females.

Dyspnœa is a frequent complaint in mitral stenosis and, if progressive, is an indication for operation, as also is the occurrence of attacks of paroxysmal dyspnœa or of pulmonary edema. Paroxysmal dyspnœa occurred in 27% of cases. Care must be taken to distinguish these dyspnœic attacks from the recurrent attacks of acute bronchitis which are common features of mitral stenosis. Hæmoptysis (47%) is the result of pulmonary hyper-tension, and may be indicative of pulmonary infarction (6%); it is dangerous if recurrent, and should be regarded as a strong indication for surgery. Pain in the region of the left breast (26%) is not as common as a sense of oppression under the sternum (36%), but true anginal pain (2%) is unusual. On auscultation, the characteristic slapping first sound is one of the most important indications that mitral stenosis is the predominant lesion, although it may be absent in cases of light stenosis with rigid or calcified cusps (13%). The second sound is usually accentuated in the pulmonary area, presumably as a result of raised pulmonary pressure, but the degree of accentuation is not correlated with the pressure. A systolic murmur at the apex may indicate incompetence, but in the absence of other evidence a fine, high-pitched, systolic noise can probably be ignored, though other causes of a loud apical systolic murmur, such as aortic or tricuspid disease, should also be considered. When mitral incompetence is present, its degree cannot be judged from the quality of the systolic murmur. The presence or absence of a thrill is of no material significance. The onset of auricular fibrillation in the absence of acute carditis may be regarded as an indication for operation since it is evidence of progression of the disease; when it is fully established it is not necessarily a contraindication in itself.

While the decision as to suitability for surgery can often be made by ordinary clinical methods, an exact knowledge of the pulmonary arterial pressure sometimes materially influences that decision, an increase in the pressure, particularly on exertion, suggesting that surgery should be undertaken. The authors have not found that a very high pulmonary pressure is a contraindication to operation, and such cases, when valvotomy has been performed, have shown a steady if slow improvement. In 26 cases regurgitation of blood from the ventricle was felt before valvotomy, and in none of these was the reflex abolished by freeing the valve. Embolism was the most important complication of the operation. Calcification of the valve was recorded in 27 cases, but this did not prevent commissurotomy.

There were 7 deaths as a result of the operation, 2 following embolism and 5 in patients who were severely ill before surgery was undertaken; 2 more patients died some time after the operation. The improvement following valvotomy, having largely to be assessed on a subjective basis, was most notable in those patients who had been most severely disabled. In general there was considerable improvement in exercise tolerance and in cough. The physical signs did not always show dramatic change, and the diastolic murmur often persisted.

T. Holmes Sellors


In a comparative study of vectorcardiographic and electrocardiographic findings in over 600 cases of myocardial infarction, the vectorcardiogram indicated infarction of the posterior wall of the left ventricle in 104 cases. In 9 of these cases, in which the vectorcardiogram appeared to indicate a lesion confined to the upper part of the posterior wall of the left ventricle and the clinical picture was characteristic of infarction, the electrocardiogram provided no confirmation, even on extensive exploration of the thorax and oesophagus with unipolar leads. Further investigations were therefore undertaken to elucidate this discrepancy.

In an unselected series of 86 cases in which posterior myocardial infarction had been found post mortem a critical comparison was made between necropsy findings and the electrocardiographic diagnosis, with special reference to the position of the lesion in the posterior

The authors report the results of an investigation at the Postgraduate Medical School of London into the effect of hexamethonium bromide and of posture in hypertensive patients.

A dose of 10 to 100 mg. of hexamethonium bromide was given to 4 patients through the cardiac catheter; a substantial fall in systemic blood pressure occurred within a few minutes, and a fall in pulmonary-arterial pressure, but changes in cardiac output were small. A further depression in systemic and pulmonary-arterial pressure was produced when the patient was tilted slightly (7 degrees) towards the feet. This postural effect was judged to be "too profound", and further studies were carried out in 10 patients after subcutaneous administration of hexamethonium bromide. The dose required by individual patients for a satisfactory response was determined by preliminary tests, and ranged from 70 to 450 mg. Before administration of the drug, tilting of the patient towards the feet produced only slight changes in blood pressure and circulation time, but in 9 of the 10 patients there was a fall in cardiac output. The cardiac-pulmonary blood volume was therefore diminished in the feet-down position in proportion to the fall in cardiac output. Thirty minutes after a subcutaneous dose of hexamethonium bromide the systemic blood pressure fell, but there was no change in circulation time. The cardiac output increased, or remained constant, and the cardiac-pulmonary blood volume increased in all but one of the patients. When the patient was tilted towards the feet there was a rapid fall in systemic pressure with prolongation of circulation time; the cardiac output was unchanged and therefore the increased circulation time must have resulted from an increase in cardiac-pulmonary blood volume. All the experiments were discontinued before the fall in blood pressure became too profound.

The authors conclude that hexamethonium bromide causes systemic arteriolar dilatation and prevents the compensatory vasoconstriction that normally occurs in the feet-down position. The drug also interferes with similar compensatory vasoconstriction in the pulmonary vessels, and it seems that the autonomic nerve supply to these vessels plays an important part in postural circulatory changes.

L. G. Goodwin


The observations described in this paper were made in the Auvergne district of France where heavy consumption of alcohol in the form of wine is common, up to 10 litres a day being not rare among viniculturists and 3 litres almost the rule. The effect on the heart as found clinically, radiologically, and electrocardiographically is described and illustrated by short case-histories of 11 patients. The association with alcoholic cirrhosis is briefly discussed, and it is pointed out that neurological lesions are rarer than in those addicted to spirits. Pathologically interstitial edema of the myocardium is considered the essential lesion, confirming the opinion of Marchal.

The various stages of the breakdown of alcohol are restated, and the importance of pyruvic acid and acetaldehyde as toxic substances is emphasized. The similarities and differences between the cardiac conditions produced by alcohol and by aneurin deficiency are discussed. The vitamin deficiency in patients with alcoholic myocarditis is considered to be more complex than that in beri-beri. It is stressed that all the constituents of the vitamin-B complex should be used in the treatment of patients with cardiac lesions due to alcohol, but even so the results are less satisfactory and more transient than those achieved in cases of beri-beri.

A. Schott


At the Beth Israel and Peter Bent Brigham Hospitals (Harvard Medical School), Boston, 7 patients with rheumatic heart disease and one with cor pulmonale, who had been treated by total thyroidectomy for severe congestive failure, were studied post mortem. These patients had been maintained in a myxedematous state with a basal metabolic rate of about –20% for an average of 7-4 years, and in 6 cases for 6 to 13 years. Their ages at operation ranged from 22 to 63 years, with an average of 44. None of the patients had any disease predisposing to atherosclerosis.

The serum cholesterol level in these patients, which before operation averaged 170 mg. per 100 ml., increased after operation by an average of 125 mg. per 100 ml., values of over 400 mg. per 100 ml. being present for many months in some cases, yet the degree of atherosclerosis found in the coronary, systemic, and pulmonary vessels at necropsy was certainly no more, and probably less, than that to be expected in comparable subjects with normal thyroid function.

Peter Harvey