

PATHOLOGICAL CONDITIONS OF THE HEART AND AORTA.

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THE ten specimens of hearts which I bring before the Academy this evening have been selected from cases which came under my notice in hospital for the past five years, and some of them illustrate pathological conditions which are of sufficient rarity to be of interest. Two of them are taken from children with chorea and endocarditis; one from a case of rheumatic endo-pericarditis in a child. One case shows an extreme degree of mitral stenosis; another illustrates aortic valve disease; there are two specimens of aortic aneurysms, and one of extreme calcification of the arch of the aorta; and the last two specimens show (*a*) rupture and (*b*) aneurysm of the heart. Of the five last cases I have no clinical notes, as they occurred in patients who died suddenly, and were dead on admission to hospital.

(1.) *Endocarditis; Chorea*.—The first heart which I show is from a girl, aged eleven years, who was admitted to Jervis-street Hospital under my care on 4th January, 1894, suffering from chorea gravis. The onset of the disease was attributed to a fright, a dog having attacked the child ten days before. Her brother had rheumatic fever. On admission she had incessant violent choreic movements, which interfered with sleeping and eating. She was much wasted, and she had an organic mitral systolic murmur. Arsenic, chloral, and bromides were ineffectual in checking the movements, and chloroform sparingly administered had only a transient

beneficial effect. She died of exhaustion on the eleventh day after admission, and on the fifteenth day of the disease. The heart shows recent vegetations on the auricular surface of the mitral valve.

(2.) *Endocarditis; Chorea*.—The second case is that of a boy, aged eight years, who was admitted to the Children's Hospital on 26th November, 1896, with moderately severe chorea. He had old-standing mitral regurgitation, with considerable hypertrophy of left ventricle. His sister has mitral regurgitation (following rheumatic fever), an uncle is epileptic, and an aunt insane. His condition improved until 15th December, when his temperature, hitherto normal, ran up to 103° F., and he suffered from diarrhoea and vomiting. Next day his pulse was 160, temperature 102·4°, and respiration 64. He evidently had a fresh attack of endocarditis, from which he died on 19th December. His heart, which I exhibit, is much enlarged for a child of eight years, particularly the left side. The mitral orifice admits two fingers readily, and shows recent vegetations, whilst *the apex is bifurcated*, the apex of the left ventricle being more than one centimetre below that of the right, and separated from it by a groove.

(3.) *Endo-pericarditis (Rheumatic)*.—The third case is from a boy, aged four years, who was admitted to the Children's Hospital on 14th November last in a semi-comatose condition. He was in good health until four days previously, when he complained of pains in his joints, and suffered from vomiting and convulsions. On admission his temperature was 105°, pulse 144, respirations 60 and laboured, face cyanosed, sweating profusely. Both knees and the right elbow-joint were tender. Loud râles and rhonchi all over thorax rendered auscultation of his heart almost impossible, except during the respiratory pause accompanying the act of swallowing, when a pericardial friction-sound was heard. He died in two days.

The heart is not enlarged; both visceral and parietal layers of pericardium are covered with soft, shaggy, easily detachable, lymph, and there is some cohesion of and vegetations on cusps of mitral valve.

(4.) *Mitral Stenosis*.—The next case is one of extreme mitral stenosis in a girl, aged nineteen, who was under my care in the Whitworth Hospital. She had suffered from paroxysms of palpitation, dyspnœa, cough, and hæmoptysis at intervals for the last two years. She never had rheumatism. She presented typical signs of mitral stenosis—viz., presystolic thrill over mitral area, long, rough, presystolic murmur terminated by a sharp first sound, with scarcely audible second sound at apex, whilst at the base of the heart the pulmonary second sound was much accentuated—sometimes doubled—and the aortic second sound was very weak. She died suddenly. At the autopsy hæmorrhagic infarcts were found in the lower lobe of each lung. The heart shows extreme stenosis of the mitral orifice, which is funnel-shaped, the apex of the funnel protruding into the ventricle. The communication between auricle and ventricle is reduced to a slit, which would only admit the edge of a threepenny bit. The left auricle is much hypertrophied, left ventricle about normal size, right ventricle hypertrophied, and right auricle dilated.

(5.) *Aortic Valve Disease*.—The fifth specimen is from a man, aged fifty-six, a labourer, who died of phthisis. He had the usual physical signs of aortic stenosis and patency. His heart shows dilatation and hypertrophy of the left ventricle, and the aortic valves are represented by sclerotic masses and calcareous nodules.

(6.) *Small Sacculated Aneurysm of Aorta*.—The sixth specimen is taken from a man, aged fifty-five, who was dead on admission to hospital. The pericardium was distended with blood, which came from the rupture of a small sacculated

aneurysm situated below the junction of the ascending and transverse parts of the arch of the aorta on the anterior aspect. The aneurysm is seen to be a localised pouching-out of the aortic walls, no larger than half a cherry.

(7.) *Aneurysmal Dilatation of Arch of Aorta*.—The next specimen is from a man, aged sixty, who dropped dead in the street. It shows general aneurysmal dilatation of the arch of the aorta, with sclerosis of the aortic valves.

(8.) *Calcification of Arch of Aorta*.—The eighth specimen is one of extreme atheroma of the arch of the aorta. It occurred in a man, aged sixty-three, who was stated to have suffered from attacks of an anginal character. The police found him on a doorstep almost unconscious, and he was dead on admission to hospital. The entire inner surface of the aortic arch is seen to be lined with thin calcareous plates varying in diameter from a quarter of an inch to an inch. Some of them are attached to the aorta by one edge, the rest of the mass floating free in the lumen of the vessel. The coronary arteries can be felt to be of stony hardness, and the muscular coat of the heart shows fatty degeneration.

(9.) *Rupture of Heart*.—Another specimen is from a man, aged sixty-six, who was dead on admission to hospital. The pericardium was distended with blood. The heart shows a rupture near the apex of the left ventricle. On the pericardial surface of the organ there is a rent about half an inch in length, and on the corresponding endocardial surface there is ulcerative destruction, involving the endocardium and subjacent strata of muscular tissue. Some of the branches of the coronary artery are affected with endarteritis obliterans, and the cardiac muscle has undergone considerable fatty degeneration.

(10.) *Aneurysm of Heart*.—The last specimen was obtained from a labourer, aged twenty-eight, who, whilst engaged in severe work on the quays, dropped dead. The men who

brought him to hospital stated that previously he had made no complaint. The pericardium was distended with blood, and the cause of death was a ruptured aneurysm of the left ventricle somewhat bigger than a walnut, and situated near the apex of the ventricle. The external wall of the aneurysm is seen to be composed of pouched-out pericardium, the cavity invaded the thickened myocardium, and a small opening from the ventricle near the apex led into the sac of the aneurysm. Microscopic examination revealed fibroid myocarditis.

Remarks.—Sudden death occurred in six of the cases above described—in case 4, mitral stenosis; 6, aneurysm of aorta; 7, do.; 8, calcification of aorta; 9, rupture; and 10, aneurysm of heart.

At the autopsy the pericardium was found distended with blood in three cases—aneurysm of aorta, rupture of heart, and aneurysm of heart.

It is worthy of note that among the above ten fatal cases of heart disease there is only one—that of a boy aged four years—in which the ætiological influence of rheumatism was apparent.

In reference to the two fatal cases of chorea, I may mention that they occurred among a total number of 91 cases treated by me in hospital. It will be noted that both had endocarditis, thus further exemplifying the almost invariable association of cardiac lesions with fatal cases of chorea.

DR. BENNETT remarked that these cases of spontaneous rupture of the heart accorded with the opinion expressed by Dr. Stokes in former days, that when spontaneous rupture of the heart occurred it took place at the apex of the left ventricle.

DR. FRASER said two points deserving of elucidation arose in these last-mentioned cases. One was as to the cause of the aneurysmal dilatation—why it should occur in the strong muscular covering of the heart. Was it the result of ulceration, or of

degeneration of the tissue, or of an abscess? It had been noticed that when blood escaped slowly from small aneurysmal rents, the action of the heart continued, the result being an accumulation of blood and slowly-occurring death of the subject. Professor Haughton had given an account of a case of that kind of slow death resulting from blood coagulated round the heart. As to the bifurcated heart, it must be looked on as a case of congenital malformation.

DR. SYMES asked whether any great dilatation of the heart, without valvular disease, was observed in the cases of the children who died of chorea. Dilatation of the heart pure and simple was one of the commonest affections of children. It was said that chorea was created by rheumatic poison; and there was no doubt that the heart did dilate enormously in such diseases in young children. He had seen hearts of young children in which he would have pronounced the mitral valve to be diseased, but more experienced men had told him that the appearances were healthy.

DR. MCWEENEY said he had examined a large number of hearts, but had never seen anything like the heart with the double apex which had been exhibited. Occasionally a slight depression between the right and the left sides of the apex was met with; but a left apex fully an inch below one on the right side, with a deep groove running between them, was a matter of considerable rarity.

DR. BENNETT said he had never seen a bifurcated heart like the one exhibited.

MR. F. A. NIXON said a good many of these pathological conditions of the heart were due to some form of strain happening to men who pursued laborious occupations, and to soldiers and sailors. The late Sir William Aitkin put forward the theory that such strains or injuries resulted in some form of inflammation. Patients who were brought dead to his hospital were nearly always men who had been employed in lifting heavy weights, such as corn and quay porters. The specimen of cardiac aneurysm now shown was a rarity.

DR. COLEMAN (in reply) said that in cases of chorea in children he had noticed dilatation of the heart, but not very commonly. There was no doubt as to there being vegetation of the valves in the hearts he had shown as exhibiting that feature, although it was more distinctly visible when the specimens were fresh, for there was then obvious inflammation of the valves.