RUPTURE OF THE CORONARY ARTERY

REPORT OF TWO CASES

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At two recent necropsies at the Rainhill Mental Hospital, the condition of a ruptured coronary artery was found in two patients who had died suddenly, but who were known clinically to have had cardio-vascular degeneration. In each case the cause of death had been certified as cardiac failure and arterio-sclerosis. Though sclerosis of the coronary arteries is by no means uncommon, it is seldom that this condition proceeds to the extent of aneurysmal formation and rupture. In the post-mortem records of this hospital for the last twenty years, comprising nearly three thousand cases, no similar instance of this condition could be found. Its apparent rarity induced me to extend my investigations to a wider source.

In the standard textbooks on medicine and pathology very scanty reference to coronary aneurysms and rupture is made. Kaufman, in his monumental book on pathology, says "haemo-pericardium occurs quite rarely from aneurysms of the coronary artery." Recent references in the literature are practically non-existent, and one must go back thirty years to obtain satisfactory descriptions of this condition. Capps collected nineteen cases of aneurysms of the coronary arteries, and stated that in eleven of these cases death occurred from rupture into the pericardium. He adds, "I was very surprised in reading the literature to learn that, while aneurysms of the heart and of the root of the aorta are comparatively common, so very few instances of coronary aneurysms have been described." The usual site of the dilatation is very near the origin of the coronary artery from the aorta, in the loose cellular tissue described as the periaortic space. This is also a favourite place for interparietal aneurysm of the heart. T. Wardrop Griffith described eighteen cases in which death occurred from rupture into the pericardial sac in exactly one-half. He says: "Aneurysmal dilatations in the course of the coronary arteries of the heart are so uncommon that the experience which fell to my lot of seeing two examples in two successive post-mortems must be unique." With slight differences, history has repeated itself in relation to the two cases about to be described. These differences will be apparent on reading the following account.

CASE I.

W. B., aged 64, a patient in this hospital for many years, was a long-standing case of dementia praecox. Though exhibiting many of the characteristics of a chronic dement, he had been employed in rough routine work at the farm for many years. Periodical examination of his physical state revealed the fact that his arteries generally were thickened and tortuous, and his cardiac degeneration was shown by the altered character of his heart sounds. Despite this, he maintained his health and vigour, and was able to work regularly until January 7th, 1931, when he stayed in from his work on the plea that he did not feel well. The next morning he looked ill, and when interrogated replied that he did not feel very well, adding that he had a cold. He was put to bed in the sick ward, to await the medical officer's visit. He was found dead a short time afterwards—just a minute or two after the nurse had taken his temperature. Unfortunately his blood had never been examined for syphilis. At the necropsy the heart *in situ* appeared very large in all dimensions—a typical bullock heart.

As soon as the pericardial sac was opened a dense large coagulum of blood was seen to fill and distend the whole of the pericardium. The recency of the clot was evidenced by the absence of any attempt at organization. The source of the haemorrhage was easily traced to a ruptured aneurysm,

about the size of a pea, on the course of the coronary artery on the posterior aspect of the heart in the interventricular groove. The aneurysm was located about an inch from the apex of the heart—the most unusual site. On the anterior surface of the heart there were also two other similar aneurysmal dilatations of a branch of a coronary artery running over the surface of the right ventricle near the cardiac apex. The heart itself (407 grams in weight) was very large, showing hypertrophy of both ventricles, particularly of the left. The aorta (especially the thoracic portion)

Two aneurysms on the coronary artery, as described in Case I. The lower is cut across.

exhibited raised round areas of atheroma irregularly disposed, of the shirt-button variety, which is highly suggestive of a syphilitic aorta. The other arteries were considerably sclerosed. The solid viscera all showed increased density and fibrosis consistent with the usual findings in dementia praecox.

CASE II

S. H., aged 69, a case of dementia, was in very poor bodily health. Her heart was weak and irregular, and a mitral systolic murmur was present. Her arteries, too, were generally hardened. The blood and cerebro-spinal fluid were negative to syphilis. Mentally, she was very dull and confused, and unable to give any account of herself. She died suddenly on December 8th, 1930.

At the post-mortem examination an interesting lesion of the left anterior coronary artery was discovered, which in all probability accounted for the suddenness of her death. The artery was found to have ruptured longitudinally, resulting in a haemorrhagic infiltration of the outer portion of the muscle of the left ventricle. There was no evidence of any aneurysmal formation, although the coronary arteries generally were sclerotic. The heart, weighing 258 grams, showed slight hypertrophy of the left ventricle. Extensive atheroma with ulceration was found in the aorta. The kidneys were small and typically granular. In the brain there were some areas of softening, notably some small perivascular softening in the left basal ganglia and also in the left lobe of the cerebellum.

It will be seen that the special features of interest in Case I were: (1) The presence of multiple aneurysms of the coronary arteries, situated in an unusual position—namely, towards the terminal parts of the artery rather than near the place of origin. (2) The rupture of one of these aneurysms into the pericardium. (3) The condition of the aorta, suggesting a probable syphilitic origin of these aneurysms. In Case II, the rupture of the coronary artery was just the end-result of advanced arterial degeneration, associated with chronic renal disease and cardiac hypertrophy.

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