

Diseases of the Heart.

Under this heading only the infectious diseases which are considered to have a direct relationship to heart involvements will be taken up. The diseases will be discussed in order of their frequency.

Rheumatic Fever:

Rheumatic fever is an acute infection, of questionable etiology, characterized by arthritis, myocarditis, and a marked tendency to inflammation of the endocardium of the valves of the heart.

Season plays a considerable role in this disease. During the months of February, March and April, by far the greatest frequency is found. Statistics taken from Bell's report in 1918 show that 65% of all cases appear in these months. A dry season in which the subsoil water is abnormally low and the temperature of the earth high, leans toward a higher percentage of cases.

The disease is common in children and young adults. Longmead reports a series of 141 cases, of which all but 21 showed heart involvement, and in 46% of the cases there was some abnormality of the tonsils and pharyngeal mucosa. A report of 456 cases was submitted from the Montreal General Hospital. These were of cases of undoubted infection of which 4.38 percent were under fifteen years of age, 48.68 percent from fifteen to twenty-five years, 25.87 percent from twenty-five to thirty five years, 13.6 percent from thirty-five to forty-five, and 7.4 percent over forty-five years. In another report of 655 cases analyzed by Whiphorn, only 32 cases occurred under the tenth year and 80% percent between the twentieth and fortieth years.

Rheumatic fever, as has been shown by various registered health districts, has epidemic prevalence with irregular periodicity, recurring at intervals of from three to six years. The disease has many features of suggestive septic infection. The symptoms are characterized by fever, arthritis, tendency to relapse, night sweats, anemia, leucocytosis, and above all the great liability to endocarditis and a pyemic involvement of the serous membranes.

The tonsils seem to be one of the main modes of entrance of the organism and much experimental proof points to the recovering of the same organism in the blood and from the valves of the heart as was isolated from the tonsils. Also these organisms, when injected into laboratory animals, produce similar conditions as were formerly found in the human culture. Many cases report of the removal of tonsils after which an almost spontaneous recovery occurred. The organism isolated, has been named micrococcus rheumaticus. Authorities do not all agree as to the nature of this organism however. Some consider that a variety of Streptococci is the causative agent, but up to the present time no absolute proof of either theory has been published.

Cardiac complications occur in well over fifth percent of the cases. Church reports a series of 889 cases and of these 494 showed definite signs of old or recent endocarditis. Pericarditis may occur either independently of or together with endocarditis. The liability to endocarditis diminishes with age, as is shown in the above reported cases, where its incidence was more than doubled in persons who had their first attack before the age of twenty, as compared to the cases in which the first attack occurred after that age.

Stephen Mackenzie reports 116 cases of which 58.1 percent had endocarditis in the first attack and 71. percent in the third attack. Of this group 96 percent showed involvement of the mitral valves, 27 percent the aortic valves, while in 23 percent both were involved. These figures show that the mitral valve is most frequently involved.

Myocarditis is probably always present in some degree (Sturges) and is especially marked in connection with endopericardial changes. Pathologically, there is a granular or fatty degeneration of the heart muscle, which leads to a weakening of the walls and consequent deficiency in degrees of dilation.

Syphilis:-

Syphilis is probably of next importance in the infectious diseases having heart complications. The disease is characterized by a general involvement of the whole organism and may attack any tissue in the body at some stage. The heart involvements in syphilis are only one of the many symptoms of the disease that may occur. It is rather characteristic that the heart is usually complicated rather late in the course of the disease. It was reported by Grossman, in Germany, that the average cardiac involvement occurred from 10 to 30 years after the primary infection. In one case it occurred as late as the fifty-first year.

Syphilitic endocarditis nearly always involves the aortic valves in association with syphilitic aortitis. Aortic regurgitation beginning in adult life without involvement of the other valves is a strong indication of syphilitic origin. In typical instances, at autopsy, the leaflets are pinkish gray in color, of a rubbery consistency and are thickened and puckered more irregularly than

in the arterial sclerotic type. Spirochetes have been isolated in the aortic lesions and are assumed to be present in the beginning leaflets of the valves.

Warthin distinguishes the following to be the characteristics of syphilitic infection:- 1. Collections of spirochetes in the myocardium without recognizable lesions. 2. Pale, fatty degeneration of the muscle in association with Spirochetes. 3. Simple atrophy. 4. Areas of necrosis. 5. Interstitial changes consisting of edema, proliferation and myxoma-like areas. In 50 syphilitics, Brooks found the pericardium involved in 28, the myocardium in 44 and the coronary arteries in 35. In five instances he has found gummata present in the myocardium. It is interesting to note that spirochetes may be demonstrated in great numbers in the myocardium when no others can be found elsewhere in the body. This tends to show the affinity of the spirochetes for growth in the heart muscle.

Pneumonia:-

Chatard found from careful observation of 658 patients at the Johns Hopkins Hospital, that 8 percent had definite pericarditis. He found the mortality to be very high. Thirty-one out of thirty-five patients died. All but three of these had a right lung infection, and pleurisy was present in all but one of the cases that came to autopsy.

Endocarditis was found to be present in about 25 percent of cases of heart involvement. The valves on the left side are more commonly attacked. Especially is this true if there existed a previous organic process.

Typhoid:-

Complications of the heart are rare in typhoid. The heart sounds may be normal throughout the disease. In severe cases, the first sound becomes feeble and there is often heard a soft systolic murmur at the apex and along the left sternal margin. In extreme feebleness of the grave forms, the first and second sounds become similar, and the long pause is shortened.

Pericarditis is rare with typhoid and is met with chiefly in children and in association with pneumonia. It was present in only three of this series and occurred in only fourteen of the post mortems reported. In the same list endocarditis was found in three of the cases. Myocarditis is more common, and is indicated by a progressive weakening of the heart-sounds and enfeeblement of the action of the heart. ().

Diphtheria:-

Experimental data and clinical evidence point in the case of diphtheria to weakened heart due to degeneration of the heart muscle. It is possible in some cases that there is a degeneration of the vagus fibers, from the fact that the palate is often paralyzed and associated epigastric pain and tenderness. Irregularities are common and are present in about 60 percent of the cases. A murmur at the apex or base of the heart is present in 94 percent of all cases. The symptoms however, are not serious in the large majority of cases, especially if there were not any organic lesions before the onset. Thirty-six out of the 946 cases collected by Smith and White showed a definite latent heart weakness.

The heart symptoms are more common in the second and third week of the disease while fatal dilatation may come on as late as the sixth week. In the serious cases the heart action is rapid with accompanying gallop rhythm. If there is a sudden drop of pulse from 100 or 110 to 30 or 40, it is evident that it is due to heart block, which is generally fatal.

Tuberculosis:-

Tuberculosis as a rule does not greatly effect the heart - as a seat of the tubercule growths. Large caseous tubercles are exceedingly rare. In the acute fulminating type, scattered miliary tubercles are sometimes found. The endocardium is involved in a little higher percentage of cases. J.W. Norris found 12 instances out of 216 cases of chronic tuberculosis. It is as a rule, the secondary form, the result of a mixed infection accompanying it. Kock's bacillus is thought by some to have been isolated from a true tuberculous endocarditis. This is, however, under dispute.

The remaining group of diseases of which the etiology of the infection is in question, will be taken up under one heading, (I.E. Exenthemaya, infleunza , mumps and whooping cough.)

In these conditions the cardiac involvement plays a small part. There is a question whether the etiological factor in producing the diseases is the cause of the heart disease or whether it is secondarily caused from the accompanying infection. The fact that different organisms can be isolated from the blood stream and from the heart directly, at autopsy, in which the same condition has been present, points to the later view.

There are instances of acute dilatation of the heart, and death, which are undoubtedly due to a toxic condition and heart failure from cardiac weakness in all the above mentioned diseases.

Thos. D. Wyatt.

Nelson's Loose Leaf Medicine.
Tices. Loose Leaf Medicine.
Osler, Medicine.