Syphilitic Heart Disease

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Syphilitic heart disease is a misnomer, for the basic lesion in syphilitic heart disease is an aortitis. This, in turn, consists of a perivascular lymphocytic infiltration of the vasa-vasorum in response to the invasion of the spirochete. Depending upon the extent and the degree of this infection within the aorta, we may have, complicating the basic lesion of aortitis, either aortic insufficiency, coronary ostial closure or aneurysm formation. It is most unusual to find a gummatous change within the myocardium or a diffuse lymphocytic infiltration of the myocardium. Rarer still is it to find in association with syphilitic heart disease myocardial infarction as a result of coronary ostial closure.

The diagnosis of aortitis per se is very difficult. It depends upon the history of syphilis or the finding of a positive Wassermann reaction. If the patient is under forty years of age, there should be a tambour aortic second sound and there should be no other complicating cardiovascular disease. The aorta should be widened upon roentgenographic or fluoroscopic examination. In addition, a widening of manubrial dullness and retromanubrial pain may also be present. Any combination of any three of these factors suggests the diagnosis of luetic aortitis. If we hold, however, to these criteria, we seldom make the diagnosis correctly. In fact, we more often diagnose the disease by simply stating that any patient with syphilis has aortitis. Because of the difficulty in the diagnosis of syphilitic aortitis, the material used in this study was selected from those cases of luetic heart disease that were proven at necropsy. In a series of essentially 10,000 necropsies performed by Dr. John F. Noble at the Ancker Hospital, there were 161 patients with proven syphilitic aortitis. Of this group 106 were white males, twenty-five of whom were under the age of fifty years; twenty-eight were white females, twelve under the age of fifty years (Fig. 1); twenty-one were colored males, ten under the age of fifty years; and eight were colored females, three under the age of fifty years. In the necropsy series at Ancker Hospital the ratio of white to colored necropsies is essentially 4.6 to 1 which suggests that syphilitic aortitis in the colored people has about the same incidence as that of the white people.

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Of this group of 161 individuals ninety-six had four plus blood Wassermann tests. Of the ninety-six, forty-nine had indeterminate spinal Wassermann tests in the sense that they were not completely positive; twenty-nine had four plus spinal Wassermann reactions, and the Wassermann test was negative in seventeen individuals. In forty-five of the 161 patients the blood Wassermann was indeterminate in that it was not completely positive. In this group the spinal fluid Wassermann in forty-three individuals was indeterminate and in two the Wassermann test was positive. There were nineteen of the 161 patients with negative blood Wassermann reactions eleven of whom had indeterminate spinal fluid Wassermann tests, two had four plus spinal fluid Wassermann tests and six had negative spinal fluid Wassermann tests. Contrary to the ordinary belief, syphilitic aortitis seems to be associated not infrequently with central nervous system syphilis, and the presence of central nervous system syphilis does not exclude cardiovascular syphilis.

In this group of patients with luetic aortitis, coronary ostial closure was rather common. It involved the right coronary artery in sixty-nine patients with complete closure of the ostia in eight patients, and in fifty of the sixty-nine patients the left coronary artery was also somewhat involved, but to lesser extent. The left coronary ostia was more involved in thirty-nine patients and there was complete closure in two. In this group the right coronary artery was also involved, but to a lesser extent. Valvulitis occurred

![Chart: Wassermann Test Results](http://journal.publications.chestnet.org/pdfaccess.ashx?url=/data/journals/chest/21172/ on 06/26/2017)
in eighty-five of the patients. Of eighty-five, thirty-two had valvulitis alone without aortic insufficiency, and in fifty-three individuals aortic insufficiency was present. There were eighteen patients who had miscellaneous complications in association with aortitis such as rheumatic heart disease, auricular fibrillation, hypertension and subacute bacterial endocarditis. In nineteen of the patients aortic aneurysm was present, and in fourteen of these the location of the aneurysm was described. Since the aneurysm involved more than one part of the aorta, the description of their location (Figs. 2 and 3) would make it appear that there were more than fourteen aneurysms. The ascending aorta was involved eleven times, the transverse portion of the aorta five times, and the descending aorta five times. There were two aneurysms of the abdominal aorta, one involved the innominate artery and one the basal artery of the brain. Of the nineteen patients who had aortic aneurysms, fourteen had positive Wassermann tests, two had negative Wassermann tests, and in three the blood Wassermann was not recorded. In ten cases the aneurysm was an accidental discovery and there were no complications. In six cases the aneurysm ruptured, three times producing a cardiac tamponade, twice a bleeding into the pleural space, and in one case the rupture was retroperitoneal. In two of the patients there was a partial rupture of the aneurysm manifested by a superior mediastinal obstructive syndrome. In one patient there was an erosion into the esophagus which was characterized by the spitting of blood.

In thirty-seven cases the clinical findings and histories of rheu-
mantic fever suggested the possibility of rheumatic heart disease. In these patients the correct diagnosis of luetic heart disease was made twenty-eight times and the correct diagnosis of an associated rheumatic heart disease was made twice. In five instances the patient was thought to have rheumatic heart disease when he had luetic heart disease, and in two instances he was thought to have syphilitic heart disease when the necropsy proved that he had luetic heart disease.

Of the entire series of patients it is interesting to note that syphilitic heart disease was the major cause of death in forty-one of the patients, and the causes of death from the anatomical standpoint were combinations of valvulitis, aneurysm and coronary ostial closure. In fifteen per cent of the patients or twenty-four individuals of the group, it was felt that the syphilitic aortitis with its complication played a contributing role in the cause of death. Here it was a combination of valvulitis and aneurysm formation. In ninety-six of the patients the syphilitic artery disease had no connection whatsoever with the cause of death. It was purely an accidental finding.

Rheumatic valve defects were present in fourteen patients. The aortic valve was involved five times, the mitral valve eight times, and the tricuspid valve was involved once. Bacterial endocarditis occurred in five individuals. It was implanted upon a previous
rheumatic valve defect in four of the patients, and in only one instance was it upon a luetic defect. Auricular fibrillation occurred eight times, and in all of these patients some other complicating cardiac disease was present such as rheumatic heart disease or hypertension. Myocardial infarction as a result of closure of the coronary ostia occurred in three of the patients. In two of these individuals death was sudden. In one of the patients death did not occur until a clinical diagnosis had been made.

SUMMARY

Of the 161 patients with syphilitic heart disease the following clinical facts were obtained:

1) In the diagnosis of syphilitic heart disease, one should obtain a positive Wassermann test or the history of syphilitic infection.

2) If we assume that the presence of a positive spinal fluid indicates an infection in the central nervous system, then, contrary to popular belief, central nervous system syphilis is rather common in syphilitic heart disease.

3) When the problem arises as to the etiology of the aortic valve defect, the following facts are important:
   (a) Whenever the physical findings are those of a stenosing lesion, then the lesion is rheumatic.
   (b) In the presence of a regurgitating type of lesion, the evidence seems to indicate that the lesion is probably luetic.
   (c) If we have a diastolic murmur at the apex in the presence of a frank aortic insufficiency and the heart is enlarged to the left, the diagnosis of mitral stenosis even in the presence of a history of rheumatic fever is hazardous. On the other hand, a diastolic murmur at the apex, in the presence of a frank syphilitic aortic insufficiency with the history of rheumatic fever and with the left ventricle not being enlarged, usually means an associated rheumatic mitral valve defect. The diagnosis is further supported if there is an associated auricular fibrillation.

4) Subacute bacterial endocarditis is rare in syphilitic heart disease, yet in five patients this phenomenon did occur. In four, the lesion was superimposed upon an associated rheumatic valve defect and in only one case upon a pure luetic valve defect.

5) The popular opinion that auricular fibrillation is unusual in syphilitic heart disease is widely held and yet, there were eight instances of patients suffering from syphilitic heart disease with auricular fibrillation. In every instance, however, the auricular fibrillation was associated with some complicating factor such as hypertension or rheumatic heart disease.

The results of the analysis of 161 cases of syphilitic heart disease
have been tabulated. While the number is too small to be statistically significant, the analysis presents the pattern of the disease as it was seen at the Ancker Hospital.

RESUMEN

En un estudio de 161 pacientes con enfermedad sifilítica del corazón se obtuvieron los datos clínicos siguientes:

1) Para diagnosticar la enfermedad sifilítica del corazón se debe obtener una prueba de Wassermann positiva o la historia de infección sifilítica.

2) Si damos por sentado que la presencia de un líquido cefalorraquideo positivo indica una infección del sistema nervioso central, entonces, aunque contrario a la creencia popular, la sífilis del sistema nervioso central es bastante común asociada con la enfermedad sifilítica del corazón.

3) Cuando surge el problema de la etiología del defecto de la válvula aórtica, son importantes los siguientes hechos:

(a) Cuando quiera que los hallazgos físicos indiquen una lesión estenosante, la lesión es reumática.

(b) Cuando existe una lesión de tipo de insuficiencia, la lesión es probablemente sifilítica.

(c) Si se descubre un murmullo diastólico sobre el ápice cuando existe una insuficiencia aórtica franca y está hipertrofiado el corazón hacia la izquierda, es dudoso el diagnóstico de estenosis mitral aunque sí hay historia de fiebre reumática. Por el contrario, un murmullo diastólico sobre el ápice, cuando existe insuficiencia aórtica sifilítica franca y se obtiene la historia de fiebre reumática y no está hipertrofiado el ventrículo izquierdo, generalmente indica un defecto asociado de la válvula mitral de origen reumático. La presencia de fibrilación auricular apoya aún más el diagnóstico.

4) La endocarditis bacteriana subaguda es rara en la enfermedad sifilítica del corazón; sin embargo, ocurrió este fenómeno en cinco pacientes. En cuatro de ellos la lesión estaba superimpuesta sobre un defecto valvular reumático asociado y sólo en un caso estuvo superimpuesta sobre un defecto valvular puramente sifilitico.

5) La opinión popular de que la fibrilación auricular es rara en la enfermedad sifilitica del corazón es muy general; pero, a pesar de eso, hubo ocho casos de pacientes que padecían enfermedad sífilítica del corazón con fibrilación auricular. Sin embargo, en todos los casos la fibrilación auricular estuvo asociada con algún factor complicante tal como hipertensión o enfermedad reumática del corazón.