

1909

The Relative Frequency of Arterio Sclerosis of the Various Arteries

W. E. Sanders

Copyright ©1909 Iowa Academy of Science, Inc.

Follow this and additional works at: <https://scholarworks.uni.edu/pias>

Recommended Citation

Sanders, W. E. (1909) "The Relative Frequency of Arterio Sclerosis of the Various Arteries," *Proceedings of the Iowa Academy of Science*, 16(1), 193-196.

Available at: <https://scholarworks.uni.edu/pias/vol16/iss1/26>

This Research is brought to you for free and open access by the Iowa Academy of Science at UNI ScholarWorks. It has been accepted for inclusion in Proceedings of the Iowa Academy of Science by an authorized editor of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

THE RELATIVE FREQUENCY OF ARTERIO SCLEROSIS OF THE VARIOUS ARTERIES.

BY W. E. SANDERS.

The present paper is a preliminary report of one phase of a series of arterio sclerotic cases which the author studied during the summer of 1908 while engaged in pathological studies in Berlin and Munich.

A brief autopsy report was taken of each case, especial attention being given to the condition of the heart and kidneys.

The macroscopic appearance of the vessels were noted at the autopsy and specimens taken for further microscopic study. The vessels selected were the arch of the Aorta, the Pulmonary, the Coronaries, the Splenic, the Renals, the Internal Carotid, just below the circle of Willis, or pre fossi sylvii, and occasionally various other arteries.

The material included only selected cases from some 300 post-mortems with a view of eliminating syphilitic endo and mesarteritis and including only early cases of the so-called senile artero sclerosis, the primary object being to determine the nature and location of the initial process and if the same be of a circumscribed or diffuse character. The critical phases of the subject I shall not discuss in this paper but shall reserve it for a later contribution.

The specimens were fixed in 2 per cent Formol cut with the freezing microtome and stained with Hæmatoxylin and Sudan iii, for degenerative changes, and Carmine and Weigert's elastic stain for the changes in the elastic elements.

The following is an epitome of twenty cases. In describing the extent of the process I have used the terms minimal, moderate and pronounced. It must be understood, however, that these terms are used only in a relative sense as the cases were most all as I have previously stated in the initial or early stage of the disease.

Case I. Male, 51. Died from carcinoma of the œsophigus.

The thoracic aorta was free, the abdominal aorta minimal sclerosis. The left coronary and splenic minimal, the right renal moderate and the left renal and the right femoral pronounced changes.

Case II. Male, 56. Died from Addison's disease.

Thoracic and abdominal pronounced, both carotids and both coronaries moderate, splenic, both renals and the coeliac axis minimal and the basilar and cerebrals free.

Case III. Male, 46. Died from purulent meningitis.

The thoracic and abdominal aorta, the subclavian, both carotids, the splenic and both renals minimal, the left coronary pronounced, the right coronary and cerebrals free.

Case IV. Male, 47. Died from a myxo sarcomatous tumor of the mediastinum.

Thoracic and abdominal aorta, splenic and left renal minimal, left and right coronary and right renal moderately effected.

Case V. Male, 76. Acute infection, likely influenza.

Thoracic and upper abdominal and right coronary moderate, descending branch of the left coronary pronouncedly, splenic, left renal and internal carotid negative, pulmonary minimal.

Case VI. Male, 72. Died from cerebral apoplexy. This case was rather advanced but was studied with a view of noting the condition of the vessels in general in relation to the apoplectic insult.

Pronounced sclerosis of the aortic arch, atheromatous ulcer of the abdominal aorta, splenic and coronaries pronounced with calcification of the latter, right renal moderate, left renal, pre fossi sylvian and pulmonary minimal. The subclavial and common carotid pronounced, the basilar and vertebral were negative notwithstanding the cerebral hemorrhage.

Case VII. Male, 39. Died from pernicious anæmia.

The aortic bulb at the origin of the left coronary as well as the latter itself show minimal localized sclerotic patches, the left common carotid moderate, coeliac, both renals and the splenic minimal. The right coronary and pre fossi sylvii were not studied.

Case VIII. Male, 47. This was a medico legal case, the man dying suddenly after falling on the sidewalk. Examination revealed pronounced sclerosis and some atheroma of the aortic arch and pronounced sclerotic stenosis of the origin of the left coronary. The right coronary was minimally effected. The other vessels were free.

The diagnosis of angina pectoris was established.

Case IX. Male, 68. Died from carcinoma of the ampulla of the rectum. The aortic arch showed minimal sclerosis, the abdominal aorta moderate sclerosis with atheromatous ulcers about the origin of the renals. The cerebral vessels were not examined but the other vessels revealed no macroscopic changes.

Case X. Male, 34. Died from peritonitis, caused from a perforating carcinoma of the stomach.

The arch of the aorta showed minimal circumscribed slightly elevated yellowish sclerotic patches. The other vessels were free.

Case XI. Male, 40. Died from typhoid fever.

The aorta and the pulmonalis showed moderate circumscribed slightly elevated yellowish sclerotic patches. The other vessels are not diseased. This case is of interest because of the infection which existed, some authorities claiming infections, particularly typhoid, as an important etiological factor in arterio sclerosis.

Case XII. Male, 33. Died from heart disease. This case is of special interest because the sclerosis was practically limited to the pulmonary arteries while the systemic vessels were free. I have reported the case elsewhere. (Arch. of Internal Med., April 15, 1909.)

The aortic arch showed minimal sclerosis but the pulmonary, especially the medium and smaller branches revealed a pronounced diffuse sclerotic thickening limited to the intima.

Case XIII. Male, about 50. Died from cerebral hemorrhage.

The coronaries, the basilar, the pre fossi sylvii and the cerebral all pronouncedly affected. The aorta, the renals and the splenic only minimal

changes. This man also had a gastric ulcer which very possibly was induced by sclerosis of the gastric vessels.

Case XIV. Male, 40. Died from tubercular meningitis and pulmonary tuberculosis.

The aorta from the arch to the iliacs showed moderate sclerotic patches. The pulmonary minimal, also the coronaries, the inferior thyroid, the pre fossi sylvii and the right common iliac moderately affected.

Case XV. Male, 31. Diagnosis cardiac insufficiency. Right side pleurisy.

Aortic arch pronounced plate like sclerotic elevations. Thoracic aorta minimal pessary like elevations around the orifices of some of the intercostals. The coronaries, the renals were very slightly affected, while the splenic and pre fossi sylvii were negative.

Case XVI. Male, 54. Died from heart disease, odœma of the extremities marked.

Aorta and both renals moderate, coronaries minimally affected. This may have been syphilitic.

Case XVII. Male, 62. Died of sepsis from a carbuncle. Had also chronic interstitial nephritis.

Aorta pronouncedly sclerotic with atheromatous degeneration in the abdominal portion. Coronaries, splenic and renals moderately affected, arteria pre fossi sylvii very slightly.

Case XVIII. Female, 48. Died from heart disease, old mitral stenosis and acute endocarditis.

Aorta minimally, stem of pulmonary moderately, while the medial and the smaller sized pulmonary vessels are pronouncedly sclerotic. The splenic, renals and vertebral show only minimal sclerosis.

Case XIX. Female, 60. Died from some acute infection.

Pronounced sclerosis with some atheroma of the aorta, both coronaries and both renals moderately and the splenic and pre fossi sylvii only slightly affected.

Case XX. Male, 40. Died from carcinoma of the pancreas.

The aortic arch, moderate circumscribed patches near the origin of the carotids and coronaries. Abdominal portion atheromatous changes some in the ulcerative stage, the coronaries themselves only minimal sclerosis. Renals coeliac and pulmonalis free.

These twenty cases showed four between 30 and 40, seven between 40 and 50, four between 50 and 60, three between 60 and 70, and two between 70 and 80. The youngest was 31 and the oldest 76.

Chart I. * = not studied; o = negative; i, ii, iii = minimal, moderate and pronounced sclerosis.

Of the twenty cases studied, nineteen or 95 per cent revealed sclerosis of the aortic arch; fourteen or 70 per cent of the thoracic; fifteen or 75 per cent of the abdominal; fifteen or 75 per cent of the left coronary; twelve of the eighteen right coronaries, or 60 per cent; thirteen of the left renals, or 65 per cent; fifteen or 75 per cent of the right renals; twelve out of nineteen, or 57 per cent, of the splenics; five of the thirteen, or 37 per cent, of the pre fossi sylvii. In general the degree of the process is in accord with its frequency.

Without entering into detail I may state that the result of my study has demonstrated conclusively that so far as histological evidence is concerned the process is essentially limited to the intima being of the hyperplastic connec-

tive tissue type. The character of the rather superficial circumscribed yellowish elevations so commonly observed in infectious cases, correspond very well with the changes produced experimentally by treating animals with such substances as adrenalin, nicotine, bacteria and their toxins, et cetera, and I am by no means convinced that they bear any relationship to the type of sclerosis here discussed.

The degenerative changes which occur in advanced cases are invariably of a secondary character and almost always begin in the deeper layer of the intima. One of the early changes observed in the smaller vessels is a fission or lamellation of the elastica interna, the interstices becoming filled with connective tissue cells.