THROMBOSIS OF THE ABDOMINAL AORTA.

With Report of a Case.

By JAMES RONALD, M.D., M.R.C.P. Ed.,
Junior Assistant Physician, Victoria Infirmary, Glasgow,
AND
MARGARET LESLIE, L.R.C.P. & S.E,.
Junior Assistant Pathologist, Victoria Infirmary, Glasgow.

Thrombosis of the aorta is a comparatively rare and almost invariably fatal condition. Hesse (1921) and Rothstein (1935) have surveyed the literature dealing with this condition, and a further search suggests that the number of published cases is less than 150.

In most instances the condition has been encountered in association with chronic cardiovascular disease or with acute infections. Most commonly it is met with in old people, but it may occur at any age, and a case is reported in an infant aged ten days (Moschcowitz, 1914). The occlusion may be partial or complete, and any part of the aorta may be affected. The onset is usually sudden, and accompanied by abdominal pain. Collapse may occur, followed by the rapid development of signs of circulatory disturbance in the extremities (Rouillard and Louvet, 1931). There is, however, considerable variation in such signs and symptoms (Fontaine, 1922, 1927; Aubertin, 1927), and case reports include intermediate stages varying from vague symptoms of claudication to the development of bilateral gangrene of the extremities. Rarely, the condition may be unaccompanied by signs, and be discovered only at autopsy (Achard, 1920; Derman and Dutkewitsch, 1929).

In the case reported here, the signs present did not point directly to the diagnosis:—

CASE REPORT.

Male, commercial traveller, aged 43 years, admitted to the Victoria Infirmary, Glasgow, complaining of flatulence and "tingling sensations in the stomach."

The history showed that he had suffered from gastric trouble, having had a gastro-enterostomy performed ten years before. During the last five months he had become "paler" and "thinner," and had suffered from insomnia,

failing vision and "nervousness." While going to work eight days prior to admission he collapsed suddenly, being seized with severe pain which began in the left side of the abdomen and moved to the right side of the abdomen and the back. There was no sickness or vomiting, and the bowels moved normally. The pain had diminished rapidly, but he had been much troubled with flatulence since the onset. He was a teetotaller and smoked thirty-five cigarettes a day.

On admission, he was complaining of persistent flatulence, eased by sitting up, and mild epigastric discomfort. He occasionally felt a "gripping" sensation in the legs, but no numbness, tingling or pain. He was very restless and pale though not distressed, and gave confused answers to questions. There was no cyanosis or œdema, and no pallor or coldness of the extremities, The radial pulse was regular in rate, rhythm and force, and of high tension. The vessel wall was easily palpable. The heart was enlarged and the area of cardiac dulness increased. Blood pressure $\frac{260}{164}$. The liver was enlarged to $2\frac{1}{2}$" below the costal margin, but there was no abdominal pain, rigidity or tenderness. No impairment of bladder or bowel function. Examination of other systems yielded negative results.

Special investigations:—On ophthalmoscopic examination the typical changes of severe hypertensive neuro-retinitis were obvious, accompanied by streaky hæmorrhages and star figures. There was a considerable amount of exudate, and some œdema of the nerve head. An electrocardiogram showed a pathological QRS 3 of the type described by Wilson as associated with right branch bundle block; also sharply pointed P and short PR interval.

Blood Urea, 81 mgm. per cent. *Blood creatinine*, 1·87 mgm. per cent.

Blood count:—R.B.C. 3,270,000. W.B.C. 12,400. Hb. 59 per cent.

Urine:—S.G. 1,028; acid; albumen +; no casts; no blood or sugar.

Cerebro-spinal Fluid:—Clear; pressure slightly raised; no increase in cells or protein.

Progress:—The patient's condition deteriorated rapidly and he died three days after admission. No further signs had developed to suggest aortic thrombosis.

Post-Mortem Examination.

General Appearances.—A well-developed, well-nourished body. A slight but definite degree of jaundice of face and conjunctivæ is present. Some blood-staining of skin and slight fullness are seen in right iliac region.

Serous Sacs.—*Pericardium* contains slight excess of bile-stained fluid. *Pleural sacs* contain a small quantity of fluid. *Peritoneum* shows nothing abnormal.

Circulatory System.—*Heart* weighs 21 ozs. There is well-marked hypertrophy of the left ventricle, some hypertrophy of the right ventricle, and dilatation of all four chambers. No valvular lesion is present, but the mitral and tricuspid rings are dilated. The *coronary arteries* appear small for the size of the heart, and show some stenosis of the orifices and early atheromatous change. The heart muscle is very pale but of fair consistence. The arch and thoracic area of the aorta show a patchy degenerative change. In the lower thoracic region a few areas of adherent clot are seen, while the abdominal part (see figure) is completely thrombosed. Between the orifices of the renal arteries the clot is red; below this level and extending into the common, external and internal iliac arteries on both sides, pale thrombus is present which is densely adherent

Thrombus Aorta.

to the vessel wall. Calcification is seen at the bifurcation of the iliac vessels. The left femoral artery is thrombosed, the right patent. In spite of a careful search no evidence of the establishment of a collateral circulation was discovered.

Respiratory System.—Lungs adherent at apices, the right apex showing a calcified tuberculous focus associated with a large emphysematous bulla. Marginal emphysema present in both lungs. On section, marked œdema and congestion are seen. *Bronchi* show changes of chronic bronchitis.

Alimentary System.—Liver weighs 68 ozs, It is pale and firm, and section reveals the appearance of chronic venous congestion which has largely passed off. *Gallbladder* normal. *Stomach* normal in size with congested mucosa. Large patent stoma of posterior gastro-enterostomy present. Duodenum shows a small pouch on the antero-inferior surface. *Pancreas* congested but otherwise normal. *Bowel* shows no lesion.

Genito-Urinary System and Suprarenals.—Kidneys are both of normal size, capsules stripping readily. Left kidney shows presence of two infarcts, measuring ¼″ at base; one is recent but shows some pallor at periphery, the other is pale. Section shows a commencing cortical necrosis. The left renal artery is completely thrombosed with firm adherent clot. Left suprarenal is of good size and shows some increase of medullary substance. On the right side the perirenal tissues are hæmorrhagic. The right kidney appears normal except for some arteriosclerotic change. The right suprarenal is replaced by a mass of blood-clot measuring 5″ x 4″ x 3″, and suprarenal tissue cannot be recognized. The right renal artery is partially thrombosed. *Bladder* normal. *Prostate* very moderately enlarged—a simple hypertrophy.

Hæmopoietic System.—Spleen weighs 9 ozs. and shows chronic venous congestion.

Microscopic examination of the aorta reveals the changes of an advanced atheromatous degeneration. The intima and inner part of the media have a hyaline appearance, with no nuclear staining; elastic fibres are absent in some areas, and swollen and granular in others. Considerable calcification is present. In the outer part of the media a thin layer of elastic fibres is present, and there is also some degree of fibrosis. The adventitia shows a diffuse inflammatory reaction, the vasa vasorum presenting the periarteritis and endarteritis typical of a syphilitic infection. Spirochætes were not demonstrable in specially stained sections.

Discussion.

Of particular interest in this case is the almost complete lack of "regional" signs and symptoms. Apart from the sudden acute abdominal pain, and the gripping feeling in the legs, there was little to distinguish this case from any other of severe hypertension. Although autopsy failed to reveal the establishment of a collateral circulation, there was no clinical evidence of impaired circulation in the extremities. It is difficult to understand how such an extensive lesion as was present in the aorta can be unaccompanied by localizing signs. Stricker and Orban (1930) have pointed out that resection of the lower aorta in dogs leads to paraplegia and death within twenty-four hours;

previous bilateral extirpation of the lumbar sympathetic chains followed by resection of the lower aorta allows the survival of the dog, which can usually walk and run in a few days. It is possible that such ramisection is associated with considerable vasodilatation, and it is interesting to speculate as to whether some analogous effect was obtained in this case in view of the association of the suprarenal hæmorrhage with the aortic thrombosis.

SUMMARY.

A case of complete thrombosis of the abdominal aorta is reported. The condition was unaccompanied by localizing signs, and occurred in a man aged 43 years, who was the subject of hypertensive and syphilitic disease.

ACKNOWLEDGMENT.

We are indebted to Dr. A. M. Scott for permission to publish this case.

BIBLIOGRAPHY.

Achard, A., *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, 1920, 903.

Aubertin, C., *M. Press*, 1927, *124*, 221.

Dermen, G. L., and Dutkewitsch. E. A., *Virchow's Arch. f. Path. Anat.*, 1929, *274*, 535.

Fontaine, L., *Thèse., Paris*, 1922.

Hesse, E., *Arch. f. Klin. Chir.*, 1921, *115*, 812.

Moschcowitz, *Proc. N. York Path. Soc.*, 1914, *14*, 21.

Rothstein, J. L., *Amer. J. Dis. Child.*, 1935, *49*, 1,578.

Rouillard, J., and Louvet, *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, 1931, *47*, 1,744.

Stricker, P., and Orban, F., *Jour. de Chir.*, 1930, *36*, 697.