ON A CASE

OF

ANEURISM OF THE ABDOMINAL AORTA,

WHICH CAUSED

GANGRENE OF THE RIGHT LOWER EXTREMITY, PARTLY BY EMBOLISM, AND PARTLY BY PRESSURE ON THE INFERIOR VENA CAVA.

BY

HENRY MORRIS, M.A., M.B., F.R.C.S.,

SURGEON TO, AND LECTURER ON SURGERY AT, THE MIDDLESEX HOSPITAL.

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THE following case is an instance of what is probably a very rare cause of gangrene of the lower limb; and an example of death from an aneurism full, or nearly full, of laminated clot. It is also another illustration of the fact that advanced caries of the vertebral column may exist without any obvious clinical signs of the disease.[1]

Thos. S—, æt. 38, a carver and gilder, was admitted on January 1st, 1885, with gangrene of the right lower limb. On the 27th of December, 1884, at 6 a.m., the morning being bitterly cold, he started to go to work as usual, but

[1] Since writing the above another case of advanced spinal caries without symptoms, and the result of aneurism of the arch of the aorta has passed under my notice. The patient died suddenly whilst turning in bed from the breaking of the spine at the diseased point.

on crossing the road just outside his house, he was seized with pains, numbness, and a pricking sensation in the soles of his feet and the calves of his legs, accompanied by profuse sweating. He recrossed the road and reached his own door, grasping the railings to save himself from falling. He was, however, obliged to let himself down for rest, but after a time with much difficulty he raised himself with his hands, unlatched the door, entered the house, and again lowered himself to the ground, almost entirely by the aid of his hands. For some time he remained at the foot of the staircase, but at length he was discovered and carried up to bed by the other inmates, who applied hot water bottles to his feet and legs. During all this time both legs had seemed to him to be similarly and equally affected, but in the course of the same day he regained the mobility and sensibility of the left lower limb. On the following day (December 28th), the right leg and foot began to turn black; and continuing to get worse, he was brought to the Middlesex Hospital on New Year's Day.

On admission, he told us that sixteen years ago he had syphilis, that he had never suffered from rheumatism, nor from any lung or heart disease, though for some time past he had been subject to shortness of breath; that six months ago an attack of "lumbago" kept him in bed for about a week; and that three months ago he was taken with drowsiness and throbbing pain in the right temple and right eyeball, and could not raise his right upper eyelid. He had, in fact, temporary complete ptosis.

His father died aged forty, cause unknown; his mother aged sixty-three, from cancer of the breast; and one sister died, aged fifty-five, of heart disease.

The patient was a large-framed stout man. The whole of his right lower limb up to Poupart's ligament was greatly swollen and œdematous, and large hard swollen areas of a faintly bluish-red colour were observed on the front and inner aspects of the enlarged thigh. The femoral artery in the right groin could not be felt, that in the left

was beating feebly. The whole of the foot and the lower third of the leg were quite gangrenous, being blackish grey, swollen, and œdematous ; there was a purplish red discoloration over the calf, and mottling of the skin nearly up to the knee. He still complained of slight weakness and coldness in the left foot, but there were no signs of gangrene there. The veins of the abdominal parietes, especially of the right side, were particularly distended. Skin of trunk moist. Pupils equal. His pulse 88, soft and weak ; heart's impulse feeble and ill-defined, no valvular disease, but mitral sounds thought to be not quite clear. Urine clear, acid, 1025. Abdomen and rectum were carefully examined, as it was supposed, from the condition of the limb and the character of the gangrene, that a tumour of some sort must be obstructing both artery and vein as they passed along the pelvis to the groin. This examination afforded no information.

The question of amputation was anxiously discussed, and it was resolved to amputate as soon as time had been allowed for collateral circulation to be established and the gangrene gave any appearance of not further spreading. In the meanwhile the danger of septicæmic infection in such a form of gangrene was considered to be unusually great.

On January 11th the gangrene seemed to have stayed its progress just below the knee. The temperature began to run high, being 102·8°, and on the three following days it sometimes reached 104°.

On the 14th the thigh was amputated in its lower third, the circular method being preferred as it was thought to cause the least division and disturbance of the arteries. A feeble and tiny stream of blood coursed out of the superficial femoral trunk ; the main vessel was torsioned. At the time of the operation it was feared that the stump would slough because the muscles were so pale and bloodless, and there was gaseous crepitation felt in the deep tissues of the thigh.

The patient lived eight days after the amputation, the

stump showed superficially no signs of sloughing, but neither did it show any signs of healing; no pulsation returned in the right femoral artery. Slight delirium and diarrhœa set in on the day of the operation, the temperature kept high, subsultus tendinum was marked, the delirium and restlessness increased, the urine became albuminous, the excreta at last were passed unconsciously, vomiting became incessant, the face cyanosed, and death occurred on the afternoon of January 22nd.

The autopsy was made twenty-three hours after death by Dr. Fowler, and the following is the summary of the post-mortem report :—

General appearance.—Well nourished. The right thigh had been amputated a little below the junction of the middle and lower third of the femur. There was œdema of the left leg. The veins of the abdomen and lower part of thorax were prominent, and more than the usual number of venous radicles were visible.

Stump : The edges of the flaps were united by sutures; but little reparative action had occurred; there was no actual union at the outer margin of the wound, but the opposed edges here were covered with granulations. On laying open the wound the muscular and intermuscular structures presented a horrible sloughy appearance; the sloughs emitted a most fœtid odour. The hip-joint was intact. There was no infiltration or other change in the integument of the stump.

Heart $12\frac{1}{4}$ oz. There were a few small soft clots, mostly of post-mortem formation, in the right cavities of the heart with some fluid blood. The (right) valves were normal, the muscular tissue pale and rather soft. The left cavities contained some small post-mortem clots and fluid blood. The valves were competent; there were a few spots of atheroma in the anterior curtain of the mitral valve and also in the first part of the aorta. The muscular tissue was pale and soft, but not obviously fatty.

The left lung showed some emphysema along the anterior edges, and was œdematous in both upper and

lower lobes. The posterior portions of the right lung were completely collapsed and non-crepitant.

Abdomen.—The peritoneal cavity contained about two ounces of clear serous fluid. There was a considerable deposit of fat upon the abdominal walls. In the inner margin of the right lobe of the liver close to the round ligament there was a small pale wedge-shaped area, probably an infarction. The liver tissue was pale, soft, and swollen. The liver weighed 71 ounces.

The spleen was large, weighing $9\frac{1}{2}$ ounces, soft and congested. The kidneys were swollen, each weighing $7\frac{1}{4}$ ounces, the capsule thin and slightly adherent. In the upper margin of the left kidney there was a small, pale, wedge-shaped area much resembling that in the liver. The renal tissue was firm, the cortex showed a slightly granular surface.

Vessels: The aorta, and arteries of the extremities, with the vena cava and corresponding veins, were removed entire and afterwards dissected. They presented the following appearances. The arch of the aorta and the thoracic aorta showed numerous patches of atheroma. Immediately below the point where the aorta passes beneath the diaphragm, and pushing forward the crura of the latter muscle, there was an oval aneurism projecting from the right side of the vessel. It measured externally $2\frac{1}{2}$ inches in its long diameter and was about equal in size to a Tangerine orange. The mouth of the sac, $1\frac{1}{2}$ inches long and oval in shape, was situated so that its central point nearly coincided with the origin of the superior mesenteric artery. This latter was not, however, involved in the aneurism. From the mouth of the sac some laminated clot was protruding; the sac itself was nearly filled with similar clot. The posterior wall of the sac had been quite destroyed and the aneurism was here limited by the first and second lumbar vertebræ, the bodies of which were deeply eroded—to the extent of half an inch in depth. The intervertebral disc and edges of the bodies were scarcely at all affected. The aorta was blocked at its

bifurcation, the clot extending for nearly an equal distance (about $\frac{5}{8}$ inch) into each common iliac vessel. The central portion of this clot was paler than the upper and lower portions, and appeared slightly laminated. Just above the origin of the right profunda artery a laminated clot (a portion of the clot from the aneurismal sac) was found blocking the vessel; above and below it were some non-laminated coagula. The divided femoral artery of the stump had been twisted, the end was plugged with firm coagula for a distance of two inches. The vena cava was completely blocked by a tapering thrombus from one inch and a half below the margin of the sac of the aneurism. The common iliac veins were both completely blocked; the external iliac and femoral veins were also blocked, the right femoral down to the point of amputation, the left just above the point corresponding to the origin of the profunda artery. A minute branch of the femoral artery was included in a fine ligature which surrounded the cut end of the vein.

(For report of the discussion on this paper see 'Proceedings of the Royal Medical and Chirurgical Society,' New Series, vol. i, p. 426.)