in a hap-hazard way whenever we meet with a case accompanied by profuse leucorrhœal discharge, but only when this is very abundant, and when it evidently comes from the deep-seated parts of the uterine canal beyond the os, from which it is seen issuing through the speculum; and even then only when the case has proved rebellious to other and simpler methods of treatment.

2nd. That I never adopt it unless I am satisfied that the uterus is likely to bear it with impunity, and that where there is much tenderness of the womb on being touched, even when the case is otherwise suitable, I deem it advisable first to remove the congested condition by rest, the application of one or two leeches, the introduction into the vagina at bedtime of pledgets of cotton-wool thoroughly soaked in glycerine, as recommended by Marion Sims, the use of sedative pessaries, and other suitable means; and that the slightest evidence of any concomitant inflammatory mischief or irritation, recent or of old standing, in the neighbourhood of the uterus, as in tenderness on pressure in the region of the broad ligaments, or in fixity of the uterus in some part of its contour, is an absolute contra-indication. To careful attention to these precautions I probably owe the fact that, though I have been constantly adopting intra-uterine medication for the last four years, I am still able to say what I observed in a paper on the subject which I read at the British Medical Association at Leeds in 1869, that I have not yet met with a case in which anything but good followed its use. This is the more satisfactory, as I am quite willing to admit that this, like every other form of treatment involving mechanical manœuvres, whether in connexion with the uterus or any other part of the body, is capable of doing harm if rashly, injudiciously, or unskillfully used.

3rd. Intra-uterine medication should not interfere with any other kind of treatment, local or constitutional, which the peculiarities of the case may require. Into the details of this it is clearly impossible for me to enter at present, but it is far from my intention to undervalue it, and, indeed, no one lays greater stress on careful attention to all the usual methods of treating such cases than I do. It is only as accessory and additional to them that I advocate that which I am specially discussing.

OLD BLOOD-CLOT ADHERENT TO THE WALL OF THE LEFT VENTRICLE AND SEPTUM OF THE HEART, PRODUCING THICKENING OF THE ENDOCARDIUM AND DEGENERATION OF THE MUSCULAR TISSUE.

By T. WHIPHAM, M.B.,

ASSISTANT-PHYSICIAN AND CURATOR OF THE PATHOLOGICAL MUSEUM AT ST. GEORGE'S HOSPITAL.

THIS case came under observation in St. George's Hospital in the early part of the year 1871; and for the clinical notes I am indebted to my friend Dr. Laking, medical registrar at the hospital.

George F—, aged fifty-eight, a stonecutter, was admitted as an in-patient, under Dr. Fuller's care, on the 5th of April, 1871, with the following history:—He had been ill for a month with violent cold and cough, had occasionally spat blood, and during the four weeks had lost flesh. He had also suffered much pain in the left foot. On admission, respiration and percussion were normal on the right side, but on the left side there was dulness in front, with deficient breathing and slight inspiratory crepitation. Posteriorly, on the left side, the physical signs were similar to those in front as far as the spine of the scapula; but at this point the breathing became tubular, with increased "twangy" voice sound near the inferior angle of the bone. The percussion, too, was very dull. The sputa were scanty and frothy. The urine contained no albumen. He was treated with chinchona bark and ammonia, and had ten grains of Dover's powder every night. Gradual improvement took place, and he went to the Convalescent Hospital at Wimbledon, where, on May 10th, the following note was

made: "Has suffered at times from great flatulency and dyspeptic symptoms. On the whole improved."

On Nov. 22nd, 1871, he was re-admitted into St. George's, under Dr. Barclay, and stated that after leaving Wimbledon he was able to walk about, but could not do his work, and in this state he continued until October, when his legs began to swell. This was shortly succeeded by swelling of the abdomen; and at the same time he was attacked with shortness of breath, which gradually became worse. On admission there was some orthopnoea, with congestion of the face and œdema of the legs. The belly was distended with fluid and flatus. The lungs were slightly dull on percussion, and moist sounds were audible all over the chest. The heart's action was regular, but the sounds were short and weak, and there was scarcely any impulse. No bruit was detected. The pulse was weak. The urine was clear and free from albumen. He suffered severely from cough, with bronchitic expectoration. Had no jaundice of face or conjunctivæ.

The treatment now consisted of digitalis with acetate and citrate of potash. This was, however, on Dec. 18th changed to chinchona bark, with five grains of iodide of potassium three times a day, together with five grains of compound digitalis pill of the Hospital Pharmacopœia with each dose. From this treatment he derived no benefit whatever. The dropsy was persistent and the cough unrelieved. The urine was still free from albumen. Subsequently various diuretics were tried, but without effect, and on March 4th the belly was so distended that it was deemed advisable to resort to paracentesis. Twelve pints were taken away with great relief to the patient. On April 18th the belly was again so distended that the operation was repeated, and eleven pints came away. On March 8th he was tapped, and again eleven pints were withdrawn. Fluid continued to drain away from the opening, and he became gradually exhausted. He died on May 18th.

The autopsy took place thirty-three hours and a half after death. The legs were œdematous; arcus senilis well marked. Pleuræ: There were firm and extensive adhesions on the left side, but the right pleura was natural. Lungs: Both lungs were congested and very œdematous, but the pulmonary tissue was natural. Heart: The heart weighed nineteen ounces; the ventricles were semi-contracted; the mitral and aortic valves were thickened with soft atheroma; the right ventricle was slightly dilated. To the septum and anterior wall of the left ventricle was adherent a clot, which on its surface exposed to the blood in the cavity was firm, jelly-like, and of the usual appearance of decolorised coagula so frequently found in the heart's cavities. But beneath this layer of fibrin was another clot, evidently of considerable standing. The outer layers of this coagulum were dense, thick, and opaque, whilst its central parts were broken down into a soft, creamy fluid of a pinkish colour. Unfortunately the mass slipped down the drain, and consequently no microscopic examination of its various parts was made. It was firmly adherent to the endocardium, and had been thus attached for a considerable period, for the endocardium covered by it had lost its smooth, glistening appearance, and was dull, opaque, and of a pink or brick-red colour. Around the edges of this adherent clot the endocardium was greatly thickened, opaque, and cartilaginous in appearance. Moreover, it was so hard as to require much force to divide it when opening the ventricle with the scissors, and it "creaked" under the operation. The endocardium in the immediate neighbourhood of the coagulum had become so thick that a prominent fibrous ridge had been formed bounding the clot, which commenced at the apex of the ventricle, and extended three-quarters of an inch upwards over its anterior wall, and to the same extent over the septum. It was somewhat oval in shape, and measured at its widest part an inch and a quarter. Beneath it the muscular walls were much attenuated, but, although a kind of pouch was thus formed, no bulging or prominence on the outer surface of the ventricle was perceptible. At the extreme apex the walls measured only a sixteenth of an inch in thickness. In other parts of the ventricle where no coagulum was attached, the muscular walls were hypertrophied, and the septum between the upper part of the clot and the aortic valves measured three-quarters of an inch. It was found that the endocardium beneath the coagulum, though greatly thickened and bloodstained, was not ulcerated. The clot itself must have occupied nearly

half the cavity of the ventricle. A portion of it which remained adherent to the endocardium was microscopically examined, and found to present the ordinary delicate fibrillation of coagulated fibrin, and in the meshes were red blood-globules, and others resembling white ones, in considerable numbers, but all were shrivelled and of very irregular shape; much granular amorphous matter was also present.

In the walls of that portion of the left ventricle which were covered by the clot the microscope revealed very extensive changes. In place of the ordinary muscular tissue, a groundwork was seen, granular, or very delicately fibrillated; it was somewhat wavy, but far less so than ordinary fibrous tissue; no nuclei were found. In this stroma were scattered, at considerable intervals, attenuated granular bands, having for the most part pointed extremities, and in many of these oil-globules were distinctly visible. In addition to these, but at wider intervals, were seen irregularly-shaped masses, bounded by thin fibrous walls, and rendered opaque by the presence of oil-globules in great numbers. The stroma itself had also undergone fatty degeneration, for here and there would be seen minute oil-globules irregularly disposed among the fibres, and not contained by any limiting membrane. They were occasionally aggregated, but were generally dotted about without definite arrangement. The granular bands and irregular fatty masses were doubtless muscular fibres in an advanced stage of fatty degeneration, while the scattered oil-globules denoted a similar change in the stroma. It should have been mentioned that the fibrillation was more marked in some parts of the stroma than in others, and that when not so fibrillated it was finely granular. The accompanying sketch of a portion of the thin part of the walls fairly represents the amount of degeneration.

Showing the degeneration of the muscular walls beneath the softened clot.

Microscopic examination of the hypertrophied, or parts of the walls uncovered by the clot, proved the muscular fibres to be for the most part healthy, though occasionally one or two fibrillæ were found in which the striæ were indistinct or obliterated, and in which oil-globules in considerable numbers were present; but this fatty degeneration was by no means common. The connective tissue between the fibrillæ was in some places in excess, but not more so than is ordinarily the case in hypertrophy of the cardiac walls.

In the abdominal walls was a punctured wound, the result of paracentesis abdominis, in which no reparative process had been set up. The peritoneal cavity contained a large quantity of dark straw-coloured fluid, and the membrane itself was greatly congested, but no lymph had been thrown out. The capsule of the liver was extremely thick, dense, and of a yellow colour; the organ was "nutmeggy," but there was no increase of fibrous tissue throughout its substance. There were patches of thickened capsule on the surface of the spleen, but the organ itself was natural. The surfaces of the kidneys were coarsely granular, and the cortical parts were somewhat diminished; their capsules were thickened and adherent.

Remarks.—This case is interesting because it seems to afford some guide as to the period during which coagula

may remain adherent to the cardiac walls, and also because it shows that such adherent clots may, in the absence of any disease of the muscular tissue, set up great changes in the walls themselves. Firstly, then, it is probable that in the early part of March, 1871, when the patient was attacked with cough and hæmoptysis, the coagulum was formed and became adherent to the endocardium as described; but that, under suitable diet &c. in the hospital, his health improved, and the clot underwent no further retrograde changes. In October his health again failed, œdema of the legs and ascites set in, and death then gradually commenced; and this may be the time at which the central softening began in the clot. If these suppositions be correct, the total duration of the coagulum would be fourteen months, or thereabouts; and the time during which it was undergoing process of softening six months. Secondly, as to the alterations found in the muscular walls. The case presents, as far as I am aware, two unusual complications: (a) extensive thickening of the endocardium beneath and around the clot; and (b) atrophy of that portion of the walls to which it was attached. I have looked into several reported cases of these softened coagula in the cavities of the heart, especially those published in the Pathological Society's Transactions, vols. vii. and xiv., by Drs. Bristowe and J. W. Ogle. These pathologists mention various conditions under which such coagula are found; and both concur in the opinion that the formation of the clots and their softening take place at some more or less distant period before death, when, as Dr. Bristowe expresses it, "the struggle between life and death is protracted." But in no instance do they record any alteration in the tissues of the heart as resulting from the presence of the coagulum. The thickening of the endocardium and degeneration of the muscular tissue, described above, show that the clot must have existed for a considerable time. It remains to trace the causes of these alterations in the ventricular walls. In the case of the endocardium, a chronic inflammation must have been set up in the membrane by the presence of the clot, which eventually resulted in hypertrophy of the part of the endocardium affected—i. e., the part beneath and immediately surrounding the clot. The atrophy of the muscular tissue may, I think, be explained as follows:—It has been stated that the muscular tissue at a distance from the clot was natural or very nearly so, while that beneath the clot was degenerated. This coagulum, by its firm adhesion to the walls, rendered that portion of the heart incapable of contraction, and this forced inactivity in the muscle (as is evidenced by the rapid wasting of the muscles in healthy persons who have been previously accustomed to take hard exercise, and who are suddenly compelled to adopt a sedentary or inactive mode of living) led to extensive degeneration of tissue otherwise healthy. Thus, then, the changes of tissue appear to be due entirely to the long duration of the adherent clot. Lastly, as regards the central softening of the coagulum, Dr. Bristowe remarks, "that the influence of the inflammatory condition of the endocardium is propagated into the mass of the clot, and promotes the formation of a low form of cell-growth in those parts of its substance in which vitality is not wholly extinct," and consequently if the patient continue in fair health a tendency to organisation is set up in the clot, as in the case of blood-membranes found on the surface of the brain after an attack of apoplexy. This explanation may be applied to the present case. After the supposed formation of the coagulum in March, 1871, the patient's health, until October, was tolerably good. In October, when œdema, &c., supervened, these products of inflammation degenerated, and their central parts from want of general vitality broke down, and thus the ordinary appearance of softened coagulum was the result.

One symptom in the history of the case calls for a remark—namely, the hæmoptysis in March, 1871. The formation of so large a clot in the left ventricle, and the consequent forced inactivity of so considerable a portion of ventricular wall, must have mechanically impeded the circulation throughout the whole body, and this would be especially felt by the lungs. The smaller vessels gave way and hæmoptysis was result.

Other points of interest in the case might be enlarged upon, but in a communication of this kind it is deemed better to notice only the more prominent facts.

Green-street, W.