

PHYSIOLOGY AND MEDICINE.

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DISEASES OF THE CIRCULATORY SYSTEM.

TWO important signs of disease of the circulatory system are dyspnœa and dropsy.

By *dyspnœa* is meant difficulty of breathing. In cases of advanced disease, dyspnœa may be present without intermission, even when the patient is at rest in bed: exertion precipitates an attack of dyspnœa or intensifies the dyspnœa if already present. Sometimes patients suffering from constant dyspnœa prefer to sit up in bed, propped up with pillows or leaning forwards with their arms resting on a special design of table which bridges the bed in front of them (*orthopnœa*). Dyspnœa also occurs in certain diseases of the lungs; in these cases there is usually a distressing cough and intense lividity of the patient.

Dropsy is due to the more fluid parts of the blood escaping from the blood vessels more quickly than they can be absorbed, and filling the connective tissue spaces of the body or collecting in the potential cavities of the abdomen and thorax, *e.g.*, the peritoneal cavity. By *œdema* is meant dropsy of the subcutaneous connective tissue; by *ascites*, a collection of fluid in the peritoneal cavity of the abdomen. A common cause of dropsy is inefficient action of the heart giving rise to engorgement of the large veins and consequent "back-pressure" and difficulty in the return of blood to the heart. Dropsy appears also in some forms of kidney disease and other conditions when there is no "back-pressure" to explain its occurrence: in these affections, the capillaries allow an unusual amount of fluid to pass through their walls. The dropsy due to heart disease is much more influenced by gravity than that due to kidney disease. Consequently, in heart disease, dropsy generally appears first as a slight swelling about the ankles which comes on towards evening. As the disease progresses, this swelling or œdema may extend up the leg and spread to all parts of the body, first manifesting itself where the skin is loose, *e.g.*, eyelids, scrotum, back of sacrum. To detect the presence of œdema, press the part suspected of being œdematous firmly with the tip of the index finger for a few seconds; if a dent remains, œdema is present.

In severe cases of dropsy, incisions are sometimes made in the legs of the patients, in order to drain off some of the fluid. The nurse has to pay particular attention to such patients; the beds are liable to get soaked and dirty; and cellulitis or erysipelas is apt to supervene at the points of incision.

In ascites, the distension of the abdomen with fluid may be so great as to interfere with breathing by pressing on the diaphragm. In such cases "tapping" is called for. For this operation, the nurse will have to provide a broad abdominal binder, arranged to fasten with tapes or safety pins; sterile cotton wool and collodion to seal the puncture; a pad of sterile gauze; and a large pail to catch the fluid as it escapes from the peritoneal cavity. The urine should be drawn off before the operation—if a female patient—by the nurse.

DISEASES OF THE HEART.

The commonest causes of heart disease are rheumatic fever, bronchitis and emphysema, overstrain and syphilis. As regards valvular disease of the heart, the mitral and aortic valves are those most commonly affected; and the causes, course and symptoms of disease of these two valves are quite different in many respects.

Diseases of the Mitral Valve.—The commonest cause of disease of this valve is rheumatic fever. The disease is met with most frequently in females and generally begins about the period of puberty, yet a fair age may be attained notwithstanding intermittent periods of illness. The symptoms are very varied and due to the effect of "back-pressure" on the different organs. Thus—owing to chronic venous congestion (1) of the lungs, there may be intense dyspnoea and lividity, coughing and hæmoptysis; (2) of the liver, there may be slight jaundice; (3) of the stomach, there may be dyspepsia; (4) of the kidneys, there may be albuminuria and a diminished secretion of urine. The patients are usually well nourished; so that the outward appearance of the patient is generally sufficient to distinguish the phthisical patient from the patient with a cough and hæmoptysis suffering from disease of the mitral valve of the heart. Sudden death from mitral disease is very rare: death is usually preceded by a severe attack of dyspnoea and lividity. As the chief danger in this affection lies in over-distension of the venous side of the heart and the large veins, opening a vein and letting blood freely escape (*venesection*) during an attack of severe dyspnoea may save the patient's life. As regards general treatment, the bowels should be kept well open and the diet should be light. Digitalis is the medicinal remedy usually employed to steady the rapid irregular heart in this disease. Its continued use is not without danger as the active principles of this substance may accumulate in the patient's body and ultimately produce poisoning. Indications of digitalis poisoning are—giddiness, nausea, loss of appetite, a diminished output of urine and a rapid irregular pulse. Should any of these symptoms or signs appear, the administration of digitalis should be stopped immediately.

Hemiplegia or paralysis of one-half of the body, occurring in a young person, and particularly in a young woman during parturition, is generally due to disease of the mitral valve of the heart. During the straining of labour, the heart contracts more powerfully than usual; a fragment from the diseased mitral valve gets broken off and, carried in the blood stream (*embolus*), blocks one of the principal arteries in the brain.

Disease of the Aortic Valve.—This disease is met with most frequently in males and is for the most part due to syphilis or overwork. Sudden death from syncope (fainting) is not uncommon. The symptoms are due not to "back-pressure" and venous engorgement of the organs of the body but to defective onward flow of blood in the arteries and a consequent anæmia or want of blood in the tissues of the body. Thus there are—pallor, although the patient is well nourished; shortness of breath, due primarily to a demand for oxygenated blood on the part of the respiratory centre in the brain; sleeplessness; great restlessness; and a feeling of faintness, especially on exertion. Pain also is commonly associated with disease of the aortic valve. Patients suffering from affections of this valve should not participate in excesses of any kind; they should avoid undue exertion as in hurrying to catch a train or ascending stairs quickly. Their meals should be small in amount and light in character. Opium and morphia are the medicines most commonly administered in aortic valve disease: they relieve pain, and procure rest and sleep. Paraldehyde and sulphonal are sometimes necessary. During attacks of faintness, the patient should lie down and keep the head low.

(To be continued.)

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