

Among the first symptoms of oedemas are a slight swelling of the ankles or eyelids. It is only, however, by making a physical examination of the heart that an accurate diagnosis can be made in early cases. Before describing these methods of diagnosis, it will be well to understand the *general pathology of valvular disease of the heart*. Every valve of the heart, in order to fulfil its physiological task, must on the one hand open perfectly at the right time in order to furnish a free passage to the blood current through the appropriate orifice, and must, on the other hand, close perfectly and firmly at the right time in order to make any abnormal backward flow of blood impossible. It will readily be seen that if there is an acute or chronic endocarditis or inflammation of the lineal membrane of the heart and valves, that there may develop a contraction of the free edges of the valves or a shortening of the chorda tendinal, and so the closure of the valve cannot be complete. This we call an *insufficiency of the valve*, and when it affects the mitral valve is one of the most frequent forms of heart disease. On the other hand, as a result of thickening and calcification, and a result of adhesion, the valves may form, be united together, and thus, when the blood current should pass freely through the open orifice, the valve remains a stiff narrow ring through which the blood must force its way, and this we call stenosis of the orifice.

Mitral insufficiency, as has been said, is one of the most frequent forms of heart disease. The closure of the mitral valve occurs normally at each systole or contraction of the left ventricle. It prevents the return of blood from the left ventricle to the left auricle. If the mitral valve is insufficient and its closure is incomplete, at every systole of the left ventricle a part of the blood is accordingly thrown back from it into the left auricle. This abnormal backward wave encounters the blood current coming in an opposite direction into the left auricle from the pulmonary veins. Since these two opposing currents rebound against each other they cause a loud blowing systolic murmur in the heart. We hear this murmur loudest at the apex of the heart, and either replacing the first sound of the heart or in addition to it. The second sound is often obscure or inaudible at the apex.

Any dentist can readily familiarize himself with the sounds of the normal heart by means of a stethoscope, or, better still, with a phonendoscope or Marsh's stethophone. The latter instrument may be used with advantage even without removing the clothing from over the region of the heart. Once familiar with the normal clear and distinct hub-dub of the heart, it is easy to detect any abnormal murmurs in the region of the heart.

In mitral stenosis, which often develops as a sequel of a previous insufficiency, the auscultatory sign is a diastolic murmur at the apex. This is never so loud and blowing as the systolic murmur of insufficiency, but it usually sounds more rolling and rippling.