

dinous cords arising from the papillary muscles do not relax during the diastole, for if they did, the valves could not in the beginning of the systole possess the direction required for their immediate closing, a large quantity of blood would every time regurgitate from the ventricles into the auricles, and the valves would frequently require to be drawn into the proper direction for opposing the regurgitation of the blood, by the contraction of the papillary muscles.

In order that the mitral and tricuspid valves may perfectly perform their function, their free edges must exhibit the above-mentioned pouches, and the tendinous cords and papillary muscles must possess a length in proportion to the capacity of the ventricles. If the structure of the valves be other than normal, they are either not in condition to prevent the return of the blood into the auricles during the ventricular systole, or they are insufficient, or they offer hindrances to the passage of the blood from the auricles into the ventricles during the systole of the latter.

Insufficiency takes place in thickening and shortening of the free edges of the valves, when the free edges grow together with the tendinous cords, which are inserted into the middles of the valves, by which the pouches become obliterated in shortening, lengthening, or tearing of the tendinous cords, in excrescences, deposition of coagulated blood, &c.; at the edges of the valves, and in growing together of the valves with the sides of the ventricles, the blood is hindered in its passage into the ventricles by considerable excrescences, coagula of blood, chalky concretions, &c., on the auricular surfaces of the valves, or by a growing together of the tendinous cords, or of these with the free edges of the valves, which prevents a separation of the valves from each other.

Action of the semilunar valves.—The semilunar valves in the aorta and pulmonary artery, are pressed during the systole of the ventricles, by the blood which is forced into the arteries against the sides of the latter, and during the diastole they are expanded by the return of the blood which is pressed by the elasticity of the arteries as well against the ventricles as in every other direction.

From excrescences, chalky concretions, &c., which develop themselves on the valves of the aorta, or from a growing of those valves together, they sometimes become immovable, do not admit of being pressed against the sides of the artery, and prevent the passage of the blood into it. If the free edges of these valves be shortened, turned back, or covered with excrescences, or if the valves be partly separated from their function with the mouth of the artery, or have apertures in them, they are no longer in condition to prevent the regurgitation of the blood, and it returns during the diastole of the ventricles, from the aorta into the left ventricle.

It is very easy to determine in the dead body, whether the valves of the aorta had perfectly closed during life or not. If in the normal condition of the valves, water be poured into the aorta, it will not pass into the left ventricle, but will remain in the artery, because the valves close and hinder it, but if the valves be insufficient, it will sink into the ventricle.

This test cannot be applied in the dead body to the mitral and tricuspid valves. If a ventricle be filled with water, the mouths of the arteries closed, and pressure made on the ventricle, the mitral or tricuspid valve will be expanded, but the passage of the water will not be completely hindered, even although the valve be perfectly normal. The reason of this is obviously that the contraction of the papillary muscles, and the equal contraction of the ventricles on all sides, cannot be imitated. Thence it can only be determined whether these valves had closed during life, or not, by examination of their form, of the tendinous cords, and of the papillary muscles, and by remarking the presence or absence of those changes, which insufficiency of the valves usually produces in the auricles."

CASE OF POISONING BY TR. OF OPIUM.

By S. C. SWELL, M.D.,

At half-past eight o'clock, P.M., on the 21st of April last, I was hastily summoned to see S—J—, ætat 40, a cabinet-maker, who had inadvertently swallowed laudanum for Tr. of Rhubarb. He had taken it at half-past three o'clock, P.M., about five hours before my arrival. When seen by me he was in bed awake, and quite conscious. The pupils were contracted to the size of a pin's point, and immovable; the temporal arteries pulsed with great violence; speech was uttered with difficulty; skin dry; pulse 100, and jerking. On examining the phial of poison, I found that he must have taken 10 drachms, which I afterwards verified by measurement. Being near the General Hospital, I went over to request the assistance of Dr. Scott, the house surgeon; he returned with me, and brought with him a stomach pump. The patient by my direction had risen, and was beginning to feel the influence of the poison very much, by increasing drowsiness and weakness of the legs; he now also complained of nausea. We gave him a drachm of sulphate of zinc, which brought on vomiting, the matter ejected being coloured with the laudanum. He had taken nothing during the day but a cup of tea. After an interval of half an hour, we gave him another similar emetic, and encouraged the vomiting, until the water swallowed came up clear, when he was directed to take two ounces of vinegar every half hour. Soon after the vomiting commenced, a profuse sweat broke out, and the pulse rapidly lost