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**AORTIC STENOSIS WITH MITRAL REGURGITATION.
A CLINICAL LECTURE. ***

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Gentlemen:—I wish to show you to-day an instance of the rarest of the valvular diseases of the left side of the heart, aortic stenosis, accompanied, in this case, with mitral insufficiency. After the close of the lecture the patient will pass around the room, that you may have an opportunity to examine him.

M. D., 68 years of age, without family history of interest in this connection, has been a miner in this state for nearly forty years. He has experienced, at intervals of several years, several attacks of acute articular rheumatism. There is no history of syphilis or of alcoholism, but the patient has done much severe manual labor.

He complains of dyspnoea, palpitation, faintness and dizziness, but almost solely after some sudden change of posture, notably from the recumbent one to the erect position, or upon exertion.

Upon physical examination we find extensive atheroma in all of the accessible arteries,—a feature of some importance in making the diagnosis of aortic stenosis. We may briefly state that the examination of organs other than those involved in carrying on the circulation has been negative. The impulse of the heart is found in the fifth space, somewhat outside of the mamillary line. The area of dullness is decidedly increased, as you may see by following the blue lines drawn upon the patient's chest, and which have been verified by some of those present. The increase in area is almost wholly in a transverse direction, extending from the right edge of the sternum to a line one inch to the left of the left nipple.

Upon palpation we feel a marked systolic thrill over the sec-

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presented by the author.

ond right interspace. The pulse is seventy to the minute, small, but of fair tension. There is no visible pulsation in the arteries of the neck.

With the stethoscope we hear a loud, sawing, systolic murmur over the aortic area, but transmitted beyond the area of the thrill, for it is to be heard in the arteries of the neck and in the femoral and radial arteries as well. With the fingers holding the bell of the stethoscope one easily feels the thrill transmitted through the wall of the chest to the instrument.

Over the apex we distinguish a second systolic murmur, which differs from the first in being musical, or, as one of your number has just described it, "cooing" in character. This murmur is transmitted to the axilla, and faintly into the back, and indicates, in connection with the increase in the transverse area of cardiac dullness, and the accentuation of the pulmonic second sound, which is fairly marked in this case, mitral insufficiency. Although these two murmurs are both systolic, we may be sure that they are distinct, because their areas of greatest intensity are different; the direction of transmission of the murmur in each case is characteristic of that of the lesion described; between the areas of greatest intensity is a space where neither is heard with its normal distinctness; and, finally, the timbre of each murmur differs decidedly from that of the other. This second lesion doubtless accounts in part for the great lateral extension of the cardiac dullness, for the hypertrophy in pure aortic stenosis—simple rather than excentric—does not give rise to marked increase in cardiac area.

The mitral murmur probably originates in this case from endocarditic change in the mitral leaflets, and not from secondary changes brought about by the effects of the aortic lesion, as we might have inferred, possibly, had this latter lesion been that of insufficiency. We base this statement largely upon the history of repeated attacks of rheumatism, which disease, you will remember, has an especial predilection for the mitral valve, in case the endocardium is involved. Musical murmurs, further, are found, in my experience, at least, rather in cases of regurgitation accompanying actual valvular disease than in those of relative insufficiency. Still further, we have no reason for looking for relative insufficiency in a case of pure aortic stenosis during the time of compensation, because the stenotic lesion is not accompanied with dilatation of the

left ventricle sufficient to interfere, in any manner, with a complete closure of the mitral leaflets, although such relative insufficiency may easily occur after myocardial degeneration begins.

You will recall that I exhibited to you, a few weeks ago, a patient with a double aortic murmur, and mitral regurgitation, with the statement that both aortic and mitral valves were insufficient, as indicated by the respective murmurs and associated signs; you were told, however, that the aortic direct murmur did not probably indicate stenosis. You will recall, further, that the statements made were all verified two weeks ago, when you examined the heart after the autopsy. Why should we expect to find stenosis at autopsy in our present case, and not in the one just quoted?

The aortic systolic murmur may depend upon stenosis of the orifice, as we assume to be the case in this patient; upon roughening of the intima of the aorta, from atheroma, as was the case in the patient mentioned, upon whom we held the autopsy; or upon the changes in the blood in anemia. Pressure from without may cause systolic murmur, and possibly other causes, but the three mentioned are the ones of immediate interest to us.

The most common cause of the murmur is anemia. If we find a systolic murmur, especially if it be soft in quality, in a patient with pale complexion, associated with venous hum in the neck, and without enlargement of the heart, without atheroma and without thrill, we feel no hesitancy in attributing the abnormal sound to changes in the blood. In the case of the woman just quoted, we had no symptoms pointing to a failure of the blood-supply to the brain, and, on the other hand, we had a very notable pulsation in the carotid and other arteries, visible even at a distance of several yards. The latter feature, especially, is incompatible with material narrowing of the aortic orifice. There was, further, absence of thrill, of the "sawing" character of the murmur often found in stenosis, and of transmission to the large arteries. The presence of notable atheroma, although this is found likewise in real stenosis, permitted us, especially in view of the syphilitic history, to assume that an endarteritis existed, sufficient to give rise to the murmur—an aortic direct but non-stenotic murmur.

The diagnosis of stenosis is probable only in those cases, then, in which there are evidences of extensive atheroma, rough murmur transmitted to the neck and elsewhere, and vibratory thrill, in con-

nection with the symptoms noted in the history of this patient. Such a combination of signs and symptoms is most commonly seen in old men, and is decidedly rare in young patients of either sex.

This patient, in spite of his two valvular lesions, presents no signs of serious disturbance of his circulation. He has no edema, no cough, no pain, no pulmonary hemorrhage, no irregularity of the pulse. The palpitation occurs only upon exertion, and does not interfere with moderate exercise, nor with sleep. The dizziness and faintness do not disturb him excepting upon the sudden assumption of the erect posture. In other words, his compensation is still quite perfect, the heart being sufficiently hypertrophied to enable it to perform the increased amount of work demanded by the aortic narrowing and the mitral leakage without showing any notable signs of failure of power. With the moderation in life natural to a man nearly seventy years of age, the patient may look forward pretty confidently to some years of fairly comfortable life, and to serving, for future medical students, as he has to your predecessors for two or three years, as an excellent example of a disease which is diagnosed clinically much more often than it is found *post mortem*. I feel, however, in this case, that I should face the pathologist with reasonable confidence.

The patient receives at present no medicine, excepting as symptoms calling for treatment arise. It is chiefly important that his general health should be kept at its highest level, in order that his cardiac compensation may be maintained. With failing nutrition of his myocardium, we may expect to see the signs and symptoms of the latter stages of mitral regurgitation which we have just mentioned as being conspicuous in this case by their absence, for the mitral valve is the one, in such patients as this, most likely to give rise first to serious trouble.