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## The Value of the Pulmonic Second Sound.



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*presented by the author,*

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## THE VALUE OF THE PULMONIC SECOND SOUND.

BY J. N. HALL, M.D.

My object in presenting this paper is to call attention to a well-known but much neglected subject, the investigation, in diseases of the chest especially, of the character of the second sound at the orifice of the pulmonary artery. It appears to me that many physicians, although gauging quite accurately the tension in the systemic circulation, by means of the pulse and the character of the aortic second sound, pass over as almost unworthy of notice the examination of the pulmonic area. And yet, in a few seconds, with the stethoscope as much may be learned of the conditions of the circulation in the lungs as has been learned, at the aortic area, of the systemic circulation.

In diseases of the mitral valve, whether obstructive or regurgitant, all authorities agree as to the importance of the accentuation of the pulmonic second sound, in deciding as to the degree of obstruction in the pulmonary vessels. One may probably, with safety, go even further than most authors go, in the case of an apical systolic murmur, which has existed for some time, and say, given such a murmur, not transmitted greatly to the left, without enlargement of the cardiac area, and without accentuation of the pulmonic second sound, that probably no serious change has taken place in the valve. In other words, it is a crucial test when one is in doubt as to the character of an apical systolic murmur, and, I believe, not appreciated at its full value.

This sound is equally available in case of a mitral obstructive lesion in forming a correct judgment as to

the degree of obstruction, and the degree of compensation as well. In case of doubt as to whether a presystolic murmur at the apex were due to mitral obstruction or to aortic regurgitation (Flint's murmur), the absence of marked accentuation of the pulmonic second sound would weigh decidedly in favor of the integrity of the mitral valve, although I have not found this point mentioned in any of the treatises upon this subject.

In chronic disease of the chest of whatever nature, a marked accentuation of the second sound at the pulmonic orifice is of grave prognostic import, indicating a decided obstruction to the circulation in the vessels involved, although indicating as well an hypertrophy of the right ventricle to meet the increased demand. Whether the obstruction be from the destruction of capillaries in emphysema, the contraction of the interstitial tissue in fibroid phthisis, or the combination of destruction of tissue, infiltration of the new products and possibly other processes in ordinary tuberculosis, it indicates serious trouble.

A knowledge of the value of this sign may at times save one from serious error, as in the following case, seen in consultation some years since: A girl, six years of age, had presented for five days all the rational signs of acute lobar pneumonia, but the attending physician had been unable, after repeated examinations, to locate the disease. Finally, fearing that some other trouble was setting in, he asked me to see the case with him.

After hearing the history I confidently expected to find the signs of pneumonia in the left chest, and was surprised to find the fronts entirely normal, so far as I could determine. Because of the child's weakness, it was proposed to me that the examination of the back be omitted, but, having noted a decided accentuation of the pulmonic second sound, and called the attending physician's attention to it, I insisted upon the complete examination, confident that anything of sufficient gravity to cause a decided increase in the

tension in the pulmonic artery, must be discoverable upon careful examination. The back was found normal, however, with the exception of an area two inches in diameter near the lower angle of the left scapula; here very moderate dulness existed, but the auscultatory signs were marked, namely, bronchial respiration, bronchophony and moist râles. It was evidently an acute pneumonia which approached the surface of the lung only at this point, and, to one not fairly expert in physical diagnosis, not easy to discover. I admit, of course, that no physician should overlook such signs, but they *were* overlooked by the attendant in this case, and by a previous consultant. If the two had appreciated the meaning of the decided accentuation of the sound in question, they would probably have been led to make a successful search for the cause of it.

Other instances of somewhat similar nature might be quoted, but this one will suffice for illustration.

I believe that most of the present generation of physicians in active practice were taught that the murmurs at the pulmonic orifice were not only rare, but of comparatively little importance. The effect of this teaching has been to lead many of us to entirely neglect all sounds at this orifice in ordinary examinations, for I have often seen its area passed by without so much as the touch of the stethoscope. Inasmuch as a proper idea of the amount of obstruction in the pulmonic circuit in pneumonia, and hence of the amount of work called for from the right ventricle—a most important factor in prognosis and in deciding upon the advisability of administering cardiac stimulants—can not be obtained without an examination of the sound in question; nor a correct judgment be formed, in a case of chronic bronchitis, as to whether there is beginning obstruction, and consequent hypertrophy of the right heart, from emphysema which has not yet developed sufficiently to be patent to percussion, it would seem to be proven, when the evidence we have heretofore adduced is considered, that this

sound should be investigated in every day practice exactly as other accessible chest sounds are, the ease with which such examination can be made being a powerful recommendation of the procedure.



