CITY DISPENSARY.

ON THE PHYSICAL SIGNS OF INSUFFICIENCY OF THE AORTIC VALVES.

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CASE X. *Constriction and Insufficiency of the Aortic Orifice: Dilated Hypertrophy of the Heart: Musical Diastolic Murmur.* James Brown, cigar maker, aged 30 years, admitted February 25th, 1856. Has been ill for the last six months. At the present time complains of nervousness, giddiness, pains in the thumb and fingers. Every morning, upon coughing, he expectorates a small quantity of blood, mixed with much mucus. He is not subject to bleeding from the nose. No pain is felt in the chest; but he suffers from palpitation and dyspnœa, particularly upon exertion. He sleeps soundly and well without starting. His appetite continues good, although he is losing flesh slightly. The kidneys apparently are acting healthily; the urine is of specific gravity, 10·17, not hazy by heat, but slightly reddened by nitric acid. The ankles have never been swollen. He comes of a healthy family, the members of which are still living. He is of sedentary habits, a teetotaller for two years, but has recently taken porter, and fancies himself somewhat better from its use. He has never had rheumatic fever.

Inspection. Face rather tumid and sallow; lips florid; nares not dilated; eyes dull, lustreless; no distension or fulness of neck; chest not quite symmetric; slight, but well marked præcordial *voussure*. Left nipple quarter of an inch higher than the right; visible impulse of the heart extending from nearly one inch external to left nipple, and about eighth rib, continuously to epigastrium. No epi-sternal pulsation. Pulsation of superficial arteries, temporal, carotid, subclavian, brachial, radial, and ulnar, marked, but not violent. Moderate brachial venous distension. Respiratory movements tranquil.

Palpation. Marked impulse, systolic and diastolic, from left nipple to the eighth rib. Strong epigastric impulse. Well marked diastolic *frémissement*, extending from the centre of sternum to about an inch and a half to its right side, and from about the second to the fifth right cartilages. Over the left half of the sternum *frémissement* is either extremely feeble or absent, but is again perceptible over the corresponding left cartilages, only very greatly diminished in intensity. It is also to be felt from the left nipple as far as the eighth cartilage, but in this situation the thrill is of a larger description, as it were. The thrill is also felt *in epigastrio*, and slight fremitus in the epi-sternal notch, and cervical, subclavian, and brachial arteries. These last vessels give a sharp stroke to the finger. The pulse is markedly collapsing, and intermits once in about eight pulsations.

Percussion. Anterior surface yields a clear sound, as also the upper and mid-sternal regions. The heart's dulness commences apparently one inch above the left nipple, extends downwards to nearly the eighth rib, and continuously over the lower sternal region. It has an area of at least four inches square. The right wing of the diaphragm apparently is situated between the fifth and sixth ribs, so that the heart is elongated by two inches.

Auscultation. Normal sounds of the heart entirely replaced by a double murmur of a strongly marked character (*scie en long*), having its maximum about the upper border or middle of the cartilage of the third right rib immediately at its junction with the sternum. This is also the maximum seat of diastolic *frémissement*. It is the diastolic murmur which yields the almost musical character of the saw. The heart's rhythm is occasionally interrupted, conveying the notion of an arrest in the action of a saw. All murmur for an instant entirely ceases, to be resumed with the recovery of the heart's action. The periods of silence are almost completely absorbed by the murmur, a sufficiently slight portion remaining to prevent the murmur being absolutely continuous; the second sound occupying by far the larger share. The murmurs pass with very great intensity up the aorta, epi-sternal notch, and into the carotids, where they are still most strongly marked. These sounds are also audible over the entire anterior surface of the right side of the chest, they pass round the axilla into the inferior scapular region, and here the diastolic note prevails, and resembles that of the silver E string of the guitar. It then ascends the vertebral column to the superior border of the scapula, but certainly is less audible here than upon the left side. The diastolic murmur is only heard like a musical note almost immediately damped. The sawing murmur is also audible over the left anterior surface of the chest, completely masking the second sound of the pulmonary artery, but with a diminished intensity below the third rib, as compared with the right side. Both sounds descend vertically downwards into the epigastrium; but beyond this point the first sound gradually becomes nearly inaudible, while the diastolic musical one is heard to one inch below the umbilicus. In the oblique direction, the double sound passes to the apex; the first sound greatly decreasing, the second being still musically audible. This latter sound then passes round the axilla to the inferior scapular region, ascends the spine to the upper scapular region, being here a short but well marked musical note. The musical diastolic note is also distinctly audible from the occiput to within one inch of the sacrum. A musical modification of the sawing murmur is very distinct in the left subclavian.

REMARKS. In all cases of valvular disease, before any attempt at differential diagnosis be made, the exact position of the heart should be established; since, in default of such knowledge, our endeavour to define the anatomical seat of the various intrinsic and extrinsic phenomena must be vainly made. The key to such position is given in the precise point at which the apex strikes the chest wall, and this may usually be determined by either the visible or tactile impulse. The ribs being then counted from above downwards, and the apex stroke measured from the sternum, and compared with the vertical line of the nipple, an estimate sufficiently near for all practical purposes may be obtained. The situation of the nipples, at least with regard to any given rib, oscillates within such very wide limits, that they must be considered most fallacious landmarks wherewith to measure the apex position. Should the impulse appear unusually low, the position of the right wing of the diaphragm must be ascertained before any opinion be given as to the lowered seat of impulse being a pathologic change. Caution must also be exercised not to confound a physiological with a pathological heteromorphism, a phenomenon of no rare occurrence over the præcordial region.

These points then being observed, and the apex seat determined, the arterial ostia will be nearly on a line drawn along the middle or inferior border of the third costal cartilages and sternum; and within these limits, or upon their confines, the maxima points of intra cardiac murmurs, or those occurring at the arterial ostia, are audible.

Among the cases mentioned in this and a preceding paper, there occur four of dilated hypertrophy of the left side of the heart. These, although characterised by pain, palpitation, disturbed rhythm, cough, and dyspnœa, were not associated with the general dropsical phenomena, which usually attend upon the more confirmed stages, so that we may infer the right cavities of the heart are at present free from serious implication; Dr. Blakiston having shown that while disease is restricted to the left chambers, such constitutional results do not commonly occur. They may perhaps be more correctly considered in their transition stage; the pulmonary capillaries gradually becoming obstructed. Another fact worthy our reflection is the persistence of pain and irritability of the heart—symptoms which would seem to justify the suspicion that the endocardium may still be in an actively unhealthy condition, inasmuch as it is by no means proved that the hypertrophy and

valvular disease necessarily stand in any fixed causal relation; the change may be concurrent, not sequential; the resulting damage from inflammation of the endocardium lining the valve, and the dilatation of the heart from paralysis of its walls, from contiguous or continuous irritation, may proceed *pari passu*, and the hypertrophy may be altogether an ulterior condition. The morbid anatomist is constantly meeting with cases of marked dilated hypertrophy, with a very insignificant amount of valvular change, and with others, again, in which much valvular disease exists, without any greater amount of thickening of the walls than might be essential in the young to the proper maintenance of the circulation—in fact, a true conservative hypertrophy.

From this selection of cases, there are at least two, and those well marked, of musical diastolic murmur. Now, musical diastolic murmur is of itself, clinically speaking, exceedingly rare; but even excluding this fact from consideration, there are residual phenomena in these cases well worthy of consideration, and apparently difficult of explanation. In the first case, although the murmur be so loud and extensively diffused, not the slightest *frêmissement* is to be detected; and even conceding diastolic *frêmissement* to be uncommon, the same argument may be urged with respect to a diastolic musical murmur. But this latter phenomenon existing with unusually distinctive character, it is difficult to comprehend why no *frêmissement* should have been perceptible. Does it constitute a sufficient reply, to argue that in this case the great agent for its production—the contractile power of the heart—was weakened, and the elasticity of the arterial wall probably much impaired? One could scarcely rest satisfied with this reasoning, or comprehend why an impulse sufficient to engender sonorous vibrations of so marked and extensive a nature, and in such immediate proximity with the chest wall, should not have developed tactile vibration simultaneously. It must be remembered, however, that in the second case, No. 10, very marked diastolic *frêmissement* was perceptible; but here existed a powerfully acting heart, and no evidence of impaired elasticity of the arterial coat.

Having thus far discussed some of the more salient points of the cases reported, an inquiry may now be instituted into the semeiotical importance of diastolic murmur. Practical physicians have for some long time recognised the division of murmurs into those of inorganic and organic origin. But I believe that the most experienced observers are unanimous in the opinion that a diastolic murmur is never of inorganic origin; consequently, a murmur accompanying or replacing the second normal sound of the heart at once enters the domain of murmurs of organic origin. Now, theoretically speaking, a diastolic murmur may conceivably occur at both the arterial as well as at the venous *ostia*. Clinically speaking, however, a diastolic murmur at the mitral orifice is exceedingly rare, and, even should it be detected, is combined with certain peculiar characters. For example, such murmur is generally slight, profound, circumscribed, pre-diastolic as well as diastolic; while the rhythm of the heart and pulse is strikingly irregular. But if a diastolic murmur be rare at the mitral orifice, the same remark will, *à fortiori*, apply to both the arterial and venous *ostium* of the right chambers. Furthermore, if exception be made for the occurrence of diastolic murmur in some rare cases of aneurism, as pointed out by Gendrin, we may, *par voie d'exclusion*, in the immense majority of instances, generally regard a diastolic murmur, superficial, diffused, simply blowing or musical, as bearing strong testimony to the existence of regurgitation through the aortic valves; and this testimony becomes converted into direct clinical evidence, if, upon more careful examination, the murmur be found to conform to the subjoined rules.

1. Its principal *focus* is at or near the mid-sternum.
2. It ascends the aorta to the carotids, completely masking the second sounds of the aorta and pulmonary artery.
3. It is frequently audible over the whole anterior surface of the chest, masking the normal *tic-tac;* so that the rule laid down by Littré finds no constant application.
4. It is audible *in epigastrio*, masking the second normal sound; so that the rule laid down by Rayer finds no application.
5. The murmur passes with diminishing intensity to the apex, and is gradually lost towards the left axilla.

These lines of direction apply principally to the simple blowing murmur. The musical murmur, which would appear simply a higher degree of blowing, is much more widely diffused, being audible over all the posterior surface of the chest, and the entire length of the spinal column. Musical murmur is also occasionally associated with well-marked diastolic *frêmissement* and arterial thrill.

The pulse was not by any means constantly of a collapsing character in these cases; nor was such character associated with those alone in which the chambers of the heart were enlarged and thickened. Indeed, the peculiarity of the pulse in many cases appears liable to considerable variation, being some days well marked, at other times but faintly so. It is also a question whether such character of the pulse, together with marked visible pulsation of the superficial arteries, may not occur in other conditions of the circulatory system, besides patency of the aortic valves. The retardation described by Dr. Henderson was not observed.

It is also worthy of remark, that neither hypertrophy of the heart nor general symptoms appear necessarily to be coexistent with moderate insufficiency of the aortic valves.

ORIGINAL NOTES OF LONDON HOSPITALS.

DISEASES OF BONES.

A BOY, aged 12 years, recently under the care of Mr. Skey, afforded that surgeon an opportunity of displaying to his class a somewhat singular form of diseased bone. The left leg was very much larger than the right, fully an inch and a half in circumference more in extent; yet there was not a vestige of ordinary inflammation present. Mr. Skey ordered iodide of potassium in ten-grain doses, with bark, etc. Two and a half years ago, the patient said, he complained of pain in the limb; but at present it did not annoy him, except for its size. After the case had been a few days in hospital, Mr. Skey said, it presented an instance of inflammation of the medullary canal, or *inside of the bone*, without external lesion. He believed that bone may in such cases die from within; and probably in this instance such a state of things existed.

A second case in the wards exhibited the evil effects of depletion. H. B., aged 15 years, was admitted into St. Bartholomew's, December 8th, with pain in the left leg, from the knee to the ankle. The wretched young man was emaciated to an almost skeleton thinness; he was weak, worn out, and pale. Mr. Skey, in reading the notes of the case, said he had no hesitation in ascribing the boy's illness to the treatment by unskilful hands out of hospital. The young man should have had iodide of potassium and bark, with wine and generous diet, like the previous patient. As it seemed, he was quite well up to a week previous to the 8th, or the day of his admission. It appeared, however, on the 5th he had a chemist or surgeon to see the limb, who placed thirty leeches on it! The pain then suddenly increased; and on the second day after (the 7th), the same "skilful leech" applied ten more, or forty leeches in all: while during this time there were fully two pints of pus under the integuments, which Mr. Skey let out on the 8th. On the 10th, the report states, the young man, though yet emaciated to a shadow, pale, and gaunt, from his previous sufferings, was quite relieved; but the probe went up and down for some inches along bare bone. The tibia was quite exposed. He was then ordered bark, wine, and soups, to get up his strength. The tibia was bare; but, by better diet and more generous treatment, Mr. Skey hoped to have a more easy separation of the dead bone. Granulations would be thrown out: these were rather an index, he thought, of improved health, than the source of new bone; they were an "anachronism"