

is truly paroxysmal, and oftentimes periodic, the intervals being in some cases of great duration. There is, moreover, constantly present a cough, with expectoration and sibilant râles. In general, emphysema may be recognised by the physical signs proper to that lesion. The diagnosis is further elucidated by the absence of the special signs of aneurism or morbus cordis.

Again, angina pectoris is frequently referred to simple or aneurismal inflammation of the origin of the aorta. This also is an error. The symptoms of the two affections are distinct; for instance, the subternal constriction, and the neuralgic pain extending down the left arm, which are the essential symptoms of angina, are not necessarily present in aneurism. Sudden death also is common in the former but not in the latter. [This will doubtless appear a bold assertion, but it is nevertheless the author's exact expression.]

Aneurism of the arch of the aorta is generally situated in the interval comprised between the origin of the arteria innominata and the left carotid and subclavian. The projection of the tumour shows itself in the space included between the internal third of the second right rib, and the corresponding portion on the left side. It is also sometimes perceived in the hollow between the insertion of the sternomastoid muscles. When the aneurismal tumour of this part of the artery becomes apparent to the eye, it gives rise to symptoms identical with those lately mentioned. The aspect of the tumour is the same, and the pain has the same character, with the exception that it is perceived at the summit of the sternum, and between the shoulders. If the tumour does not project externally, its diagnosis is a matter of considerable difficulty, especially when the posterior portion of the arch is the part affected. The dulness on percussion in deep-seated aneurisms of the arch is somewhat obscure, and is therefore of little service as a diagnostic sign. The auscultatory phenomena are similar to those exhibited in aneurism of the ascending aorta, but are perceived in a different situation. In front they are heard at the summit of the sternum, and under the junction of the clavicle and first rib with that bone; behind, they are most evident on a level with the second rib, and close to the spinal column.

The deviation of the trachea is more decisive in aneurisms of the arch than in those of the ascending portion, but the apex of the heart is not displaced, as is occasionally the case in the latter. The pulse is deceptive as a diagnostic symptom taken *per se*, but is a valuable accessory sign, and is one by which we may judge of the exact site of the disease. If, as is commonly the case, the innominata is implicated in the aneurismal tumour, the pulse is feeble in the right wrist. When on the other hand, the left pulse is the feebler of the two, we may conceive that the disease is located at the left extreme of the arch.

The dyspnoea in aneurism of the arch, is subject to the same conditions as when the ascending aorta is the seat of the disease. It does not differ from the dyspnoea, which occurs in the latter case, unless the trachea be compressed. In that case, inspiration is remarkably difficult, and is accompanied by a whistling sound. In some cases the voice is enfeebled, or even entirely extinguished.

Of all forms of aortic aneurism, those affecting the descending part of the vessel are the most difficult to recognize. It is difficult to distinguish the impulse and the bruit, when perceived in front from those of the heart itself, but we may sometimes arrive at a diagnosis by compressing the abdominal aorta. This causes the second sound to cease, if it originates in the artery, but has no influence upon the cardiac bruits. If, however, to the double "*bruit de choc*," perceived in the front of the chest, is added a sibilant râle, and if the second sound slightly precedes the diastole of the heart, the existence of an aneurism may be considered certain.

The signs of aneurism of the descending aorta are perceived more plainly in the back than in the front of the chest. They are, as perceived in this situation, the double "*bruit de choc*," together with a rough or sibilant friction sound. If these signs are very evident, no doubt need be entertained of the existence of aneurism, especially if they are conjoined to a tearing, gnawing pain along the spinal column, which is aggravated by motion of the upper extremities.—*Ranking's Abstract of the Medical Sciences.*

ON THE CHANGES IN THE URINE EFFECTED BY DISEASE, AND THE TESTS TO DISTINGUISH THEM.

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3. We will now endeavour to point out the easiest modes of detecting the contents of diseased urine, under the following divisions—viz., 1. Crystalline contents; 2. Colouring matters; 3. Organic deposits.

The only necessary apparatus for these experiments are, a urinometer, test tubes, watch glasses, spirit lamp, and a good achromatic microscope. The re-agents are well known to the profession.

CRYSTALLINE CONTENTS.

Urea.—When this is in excess, the urine is of a high specific gravity, and generally of a reddish colour. By adding an equal quantity of nitric acid in a watch glass, it crystallizes at the bottom very soon as nitrate of urea; when the urea is in excess, it soon becomes solid. By combining with two atoms of water, urea is converted into carbonate of ammonia; and this accounts for urine becoming alkaline and pungent soon after it has cooled. A little excess of mucus aids this process.

Uric acid or *Lithic acid* is the substance of which the greatest number of urinary calculi is composed. The urine is high-coloured; specific gravity generally above 1.020, and contains an excess of urea. Uric acid, acting on the phosphate of soda and ammonia, (or microcosmic salt,) existing in urine, is decomposed; urate of ammonia is formed, and phosphoric acid set free, which is the cause of the acid re-action of urine. So that uric acid is usually found in the form of urate of ammonia. To detect it—warm the urine containing urate of ammonia in a watch glass, and the uric acid becomes deposited at the bottom of the glass, and, when viewed by the microscope, is seen crystallized in red rhombic prisms. It is familiarly known by the names of yellow and red sand. Heat does not dissolve it. Pure uric acid is only soluble in 10,000 parts of water at 60 deg., and is insoluble in alcohol. Liquor potassæ dissolves it, forming urate of potass. Hydrochloric and acetic acids have no action. It is dissolved by nitric acid; and by evaporation, a pink colour (becoming a rich purple on being held over the vapour of ammonia) is produced. This is purpurate of ammonia. Exposed to heat in a platinum spoon, it burns, evolving an odour of bitter almonds, and leaving phosphate of soda and lime behind.

Hippuric acid.—This is rich in carbon, and found plentifully in the horse and cow. Evaporate the urine to a syrup, add excess of hydrochloric acid; uric acid and hippuric acid will then be separated, and fall to the bottom; pour off the supernatant fluid, and wash in cold water; boil the residue in alcohol, in which hippuric acid is soluble, and uric acid is not, from which it gradually crystallizes in delicate coloured needles, very visible under the microscope. It is soluble in four hundred parts of water at 60 deg.

Urate of ammonia.—This is the *laticituous sediment*, soluble in 480 parts of water at 60 deg. The colour of this urine is from pale to crimson; specific gravity from 1.012 to 1.025;