ON THE ASSOCIATION OF MITRAL STENOSIS WITH GOUT AND GRANULAR KIDNEYS.

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My attention was first drawn to this relationship about four years ago by a gouty man, over 50, admitted with an attack of hemiplegia due to cerebral hæmorrhage, who had granular kidneys. There was a loud first sound, with a short, definite, blowing, systolic *bruit* limited to an area of an inch in the region internal to the apex-beat, in whom mitral stenosis was diagnosed. Shortly afterwards a man, who had only a loud first sound at the apex, with no second sound audible, whose kidneys were cirrhotic, was found *post-mortem* to have also a contracted mitral orifice. Since then I have observed several cases: there has usually been no difficulty in diagnosing the granular condition of the kidneys, but the stenosis of the mitral has sometimes been unsuspected till after death, and while its existence was often readily diagnosed in some, it could only be suspected in others. A presystolic *bruit* was the exception rather than the rule.

Quite recently there have been two cases under my care. The first was a woman, aged about 50, who was admitted comatose, with meningeal hæmorrhage. She had granular kidneys, and a small mitral orifice, which I had suspected from the marked accentuation of the first sound and the feebleness of the second at the apex. The other was a woman, aged 45, with albuminuric retinitis and granular kidneys, who for a long time had only an accentuation of the first sound and absence of the second at the apex, with a soft, long, systolic *bruit* internal to it; she has now developed a well-marked presystolic *bruit*.

The symptoms which have been most frequently observed in this group of cases are a loud first and a weak or absent second sound at the apex, accompanied or not, as the case may be, by a systolic *bruit*, which often may be extremely localised. The second pulmonary sound is usually accentuated or reduplicated. At times only a presystolic rough or rumbling *bruit* is audible. It is, hence, not at all surprising that an inexperienced auscultator should record that the heart-sounds are normal; as it is some time before students recognise that other signs besides the mere presence or absence of a *bruit* may be of importance.

I have searched the records of the Guy's *post-mortem* room for the preceding ten years, and find that during that period there were 542 fatal cases with granular kidneys, of which 33 (23 women, 10 men) had mitral stenosis (that is, 6 per cent.), while only 2 per cent. of the total fatal cases showed mitral stenosis; so that a contracted mitral is three times as common among patients with granular kidneys as among other patients.

During the same period there were 115 cases of mitral stenosis, so that one-fourth of them were also suffering from granular kidneys; a further examination showing that while the proportion was about one-fifth for the men, it was one-third for the women. Two-thirds of all the cases of mitral stenosis occurred in women.

Most authors allow that atheroma of the vessels and endocardium is a frequent sequence of granular kidneys, and hence that aortic failure, which is the most frequent result, is more common among adults than among children.

In children, rheumatism is the predominant cause of valvular disease, and we find both mitral incompetence and mitral stenosis frequently resulting. I am not aware, however, that attention has hitherto been drawn to the fact that one-third of all the fatal cases of mitral stenosis in women, and one-fifth in men, are associated with granular kidneys; and if the cases under puberty be excluded, the proportion for women amounts to almost one-half. Of these, doubtless the complication is a mere accident in some, but there is a large number in which the secondary degenerative vascular lesions set up by the impure blood and high blood-pressure have led to thickening and contraction of the mitral orifice.

On looking at the reports, I was struck by the number of cases in which the women had borne children, and it was noted that the kidneys were scarred as well as granular; lesions due to consecutive nephritis at the times of pregnancies most probably.

Whether the nephritis set up by pregnancies is more likely, on account of the concomitant factors of impure blood and excessive abdominal tension, to set up sclerotic changes in the endocardium is at present unknown, but the increased proportion of granular kidneys among the female cases of mitral stenosis points that way.

An analysis of the 23 female cases shows that in only 3 cases was there a history of rheumatic fever, and in 1 of these there was also gout. In a fair proportion of the others it is probable that the granular degeneration of the kidneys was a consecutive nephritis, due to pregnancy or other uterine trouble. The hearts were larger than the average and the kidneys smaller, hence it is most probable, in the absence of any other cause, that in most of the cases the mitral stenosis was secondary to the kidney degeneration. The ages of the patients were between 32 and 58 in 17 out of 22, and between 46 and 66 in 7 of the cases. The youngest patient was 21.

An analysis of the 10 male cases gives a history of gout in 4, rheumatic fever in 3 (1 being also gouty), cancer of pancreas and syphilitic lardaceous disease in 1 each. The evidence is also strongly in favour of the mitral stenosis being secondary to the granular condition of the kidneys in 7 of the cases. In 9 out of the 10 cases the ages lay between 46 and 66; the other patient, whose cardiac trouble was probably rheumatic, was aged 35.

If granular kidney be produced by heart-disease, it would not be unreasonable to expect that among this series of cases there would be some among young people in whom mitral stenosis is not uncommon, yet only 2 patients are under 32. Hence, as the two diseases are frequently associated together, we are led to the conclusion from these cases that granular kidneys are a frequent cause in middle life of mitral stenosis, but that this cardiac degeneration only ensues in a few cases of granular kidney, and that there is no definite evidence that mitral stenosis produces granular kidneys. It is also instructive to notice that the average age at which the women die is 42, while the average age of the men is 52, the primary cause in the former frequently being pregnancy and in the latter gout, and this is probably the explanation of the difference in the ages.

ON HYGROPHILA SPINOSA (VEL ASTERACANTHA LONGIFOLIA).

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HYGROPHILA spinosa vel *asteracantha longifolia*—a prickly herbaceous plant common in the marshy places in the hotter parts of Ceylon, belonging to the natural order *Acanthaceæ*—was tried as a diuretic in several cases of dropsy with success in the Government Civil Hospital, Kurunayala. It is known as *Ikkirrie* in Singalese, and *Neermullie* in Tamil. The entire plant is used in medicine; the practitioners of native medicine in Ceylon consider it as one of the best medicines in dropsy, and is given in the form of a decoction, and locally it is used as a fomentation in cases of inflammation and in rheumatism. The ashes of the burnt plant, according to Dr. J. Shortt, in doses of about half a teaspoonful twice or thrice a day, is a form of administration followed by native practitioners of India. Dr. Kirkpatrick states that he frequently employed it in dropsical cases, and it undoubtedly possesses considerable power as a diuretic. Dr. Gibson also bears testimony to its powers as a diuretic. It is also favourably reported by several of the surgeons of India.

The two following formulæ for the administration of the drug are given in the *Indian Pharmacopœia* by Waring, namely: Decoction—Take of *asteracantha* root one ounce; water, one pint; boil to fourteen ounces; strain; dose, from one to one ounce and a half daily. Acetum—Take of *asteracantha* leaves freshly dried two ounces; distilled vinegar, sixteen ounces; macerate for three days, press and strain; dose, four drachms to one ounce.

The mode of administration followed in this hospital is the following, namely, two ounces of the dried plant is infused for half an hour in a pint of boiling water, and strained; this quantity is administered in divided doses to one patient in the twenty-four hours.

CASE I.—Villeyan, aged 35; male; civil condition, not married; race, Malabar; birthplace, India. This was an extremely anæmic Malabar coolie, sent into hospital from an estate in Polgahawella for treatment, on July 7th, 1886, suffering from extensive general dropsy. His condition on admission was the following. His face was swollen, conjunctivæ and tongue pale and bloodless, abdomen distended with fluid, feet cedematous, bowels regular, urine scanty. He was treated with tincture of digitalis and iron; under this treatment his bowels became irritable, and he had a severe attack of diarrhoea, from which he suffered for about a month; in the meantime his dropsy increased. Suspecting that the cause of anæmia was due to the presence of *anchylostoma duodenale*, he was put upon half-drachm doses of oil of male fern, which brought on a relapse of diarrhoea. After he was cured of his diarrhoea, he was put upon infusion *asteracantha*; this

treatment was continued till October 10th, when his dropsy altogether subsided; during the period he took the infusion he passed from 112 to 140 ounces of urine daily; subsequently he was treated with small doses of iron. He left the hospital cured on January 11th, 1887.

CASE II.—Daniel, aged 40; male; civil condition, married; race, Singalese; birthplace and residence, Hawadiawella. This was an extremely anæmic Singalese man, admitted into hospital on September 23rd, 1886, with extensive general dropsy, depending on long continued and repeated attacks of ague. His condition on admission was the following. His face was swollen, conjunctivæ and tongue pale and bloodless, abdomen distended with fluid, feet œdematous, bowels inclined to be relaxed, urine scanty, appetite indifferent. Suspecting the cause of anæmia was due to the presence of *anchylostoma duodenale*, he was put upon half-drachm doses of oil of male fern for two days, and on the third day a dose of calomel as a purgative. On October 2nd he was put upon infusion *asteracantha*, and continued till October 8th; during this period he passed from 32 to 56 ounces of urine daily; from November 9th, for three days, he was put upon small doses of rhubarb, soda, and santonin, and from the 11th he was again put upon infusion *asteracantha*, and the treatment was continued till the 19th; during this period he passed from 64 to 144 ounces of urine daily; under this treatment dropsy entirely subsided. Subsequently he was put upon small doses of iron. He left the hospital on November 8th, cured of his disease.

CASE III.—Penyhamy, aged 40; male; civil condition, unmarried; race, Singalese; birthplace and residence, Kahatapeteya. An anæmic Singalese man, suffering with extensive general dropsy, depending on long-continued and repeated attacks of ague. His condition on admission was the following, namely: his conjunctivæ and tongue pale, liver and spleen enlarged, abdomen distended with fluid, urine scanty, bowels costive, appetite bad, and feet œdematous. He was put upon salts and sulphate of iron, and a pill containing podophyllin at bedtime. This mode of treatment was continued for a week, and finding no improvement, it was changed for a mixture containing tinct. digitalis. During the period he was taking this mixture, he passed on an average 48 ounces of urine a day. The treatment was then changed to infusion *asteracantha* for a period of six days; during this time he passed from 32 to 112 ounces of urine a day. This treatment had to be discontinued as symptoms of inflammation of the lungs showed themselves.

CASE IV.—Savery Muthu, aged 20; male; civil condition, widower; race, Malabar; birthplace, India. An anæmic Malabar coolie, resident of Mallowapetteya, in Kurunayala District, was admitted into the hospital on November 8th, suffering with general dropsy of about three months' standing. His condition on admission was the following, namely: his conjunctivæ and tongue pale and bloodless, abdomen distended with fluid, feet œdematous. He complained of pain along the limbs, general weakness, and inability for exertion; bowels regular, urine scanty. Suspecting that the cause of anæmia was due to the presence of *anchylostoma duodenale*, he was put upon small doses of rhubarb, soda, and santonin, and subsequently on tincture of iron and infusion of quassia. On the 14th he was put upon infusion of *asteracantha*, and the treatment was continued till the 20th. During this period he passed on an average 96 ounces of urine a day. On the 21st he was put upon small doses of tinctura digitalis; under this treatment he passed on an average 48 ounces of urine. On the 24th he was again put upon infusion of *asteracantha*, and the treatment was continued till December 5th. During this period he passed from 128 to 192 ounces of urine a day. He left the hospital on December 10th cured of his dropsy.

CASE V.—Hawadia, aged 30; male; civil condition, married; race, Singalese; birthplace and residence, Ranawana. An anæmic Singalese man, admitted into hospital on March 21st, 1887, suffering with extensive general dropsy. His condition on admission was the following: face bloated, conjunctivæ and tongue pale and anæmic, abdomen distended with fluid, urine scanty, feet dropsical, bowels costive. He was put upon a mixture containing sulphate of iron, salt, and digitalis, and afterwards on infusion of *asteracantha*. During the time he was taking the infusion he passed at the rate of 40 to 68 ounces of urine a day. He left the hospital on April 5th. His stay in the hospital was too short to be relieved of his disease.

CASE VI.—Adrian, aged 30; male; civil condition, single; race, Singalese; birthplace, Myombo. This was a Singalese man, native of Myombo, but living from his younger days at Polgahawella as a cultivator; admitted into hospital on February 7th, 1887, suffering with extensive general dropsy depending on anæmia. His condition on admission was the following: face pale and bloated, conjunctivæ and tongue pale and bloodless, heart-sounds normal, abdo-

men distended with fluid, appetite fair, bowels regular, urine scanty, feet œdematous. He was put upon thymol, santonin, and extract of opium, but he did not pass any *anchylostoma duodenale*; then he was put upon squills and tinct. digitalis, and subsequently on iron, and finding no improvement, he was treated with small doses of liq. arsenicalis, and as there was no diminution in dropsy, he was put upon inf. *asteracantha* from March 20th, and continued till the end of the month. During that period he passed from 80 to 104 ounces of urine a day. He was discharged from the hospital cured of his dropsy on April 9th, 1887.

AN EXAMPLE OF FRACTURE OF THE FIRST RIB ALONE.

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In a paper (Pathology of Changes produced by Pressure on the Trunk and Shoulder Girdle) in the *Guy's Hospital Reports*, 1886, I described at some length the manner in which the clavicle transmits to the thorax pressure applied to the shoulder-girdle, and I showed both experimentally and pathologically that fracture of the first rib alone, which is regarded by surgical authors as the rarest of all fractures, since there is only one case (Holmes's *System*, vol. i, p. 808) on record, is produced with greater facility and occurs more frequently in the adult than does fracture of the centre of the clavicle, which point of the clavicle is described by many surgical writers (Holmes's *System*, vol. i, p. 948) as being its most common seat of fracture.

Since I wrote that paper I have found in the dissecting-room another instance of united fracture of the first rib alone, so that in less than 200 subjects which I have examined consecutively in the dissecting-room, I found four undoubted examples of fracture of this rib. I say "undoubted" as I have not included several which I believed had been fractured, but concerning which there might be some difference of opinion; nor does that number comprise several examples of fracture of the first costal cartilage, though both in its unossified and ossified conditions it may fairly be regarded as a portion of the first rib. In the latter case especially it is practically impossible to determine the original limits of the cartilage, since a portion of it has united to the rib to form with it a single bone, and a portion to the manubrium, the two divisions being connected by ligaments to form an arthrodial joint.

I think we are therefore justified in concluding that fracture of the first rib alone occurs in at least 2 per cent. of that class from which our dissecting-room supply is drawn.

The fourth example of fracture of the first rib was present on the right side in the body of a strongly-built male subject. The neck of the rib had been broken through transversely, immediately internal to the facet for articulation with the transverse process of the first dorsal vertebra. The fragments, though somewhat displaced, were united firmly together by bone. The inner fragment was displaced so that the head of the rib was on a lower and more anterior plane than normal; a considerable interval, which was filled in by ligament, being present between the anterior portion of the head of the rib and the body of the vertebra. The gradual curve formed by the inner margin of the rib was therefore broken somewhat abruptly at the seat of fracture.

Projecting from the posterior aspect of the seat of the fracture was a large mass of bone which articulated by a flat surface with a corresponding facet on the anterior surface of the transverse process of the first dorsal vertebra, the opposing aspects of bone being firmly united by dense ligamentous tissue.

On the same side, there was an ununited fracture of the acromion, whose direction extended outwards and backwards from the centre of the clavicular facet. The fragments which were not displaced were connected to one another by a strong capsular ligament, and the margins of the opposing articular surfaces were thickened by the deposit of bone upon them.

In the paper in the *Guy's Hospital Reports* already referred to, I proved both by experiment and by pathological results that the usually received statistics of the relative frequency of fracture of the acromion and of the outer portion of the clavicle were absurdly inaccurate, and that the obvious cause of this was the fact that the comparatively slight displacement of the fragments in these fractures prevented their recognition at the time of the injury.

I also pointed out that a theory (*A Treatise on Fractures and Dislocations*, p. 244) originated by Professor Hamilton, of New York, was