Spencer Wells, who applied nitrate of silver to the os uteri once with temporary benefit. I gave her mild bitter tonics, and applied nitrate of silver to the os uteri several times. She improved very much in health; and, on the last examination, I thought local treatment no longer necessary. There had been congestion and excoriation of the cervix, and slight ulceration in the canal; but this had all disappeared, and there was less tendency to prolapsus. On one occasion, the day after the caustic had been applied, a cluster of bodies of the size of very small currants came away—probably small polypoid growths, which had given rise to the hæmorrhage. When I visited her in 1865, I found that, in addition to the persistent vomiting, which had brought her into a state of dangerous starvation, she was suffering from pains about the pelvis and back, with forcing downwards, indicating the probability of abortion, and leading me to make a vaginal examination. On doing so, I detected a decided *retroversion* of the uterus, which I rectified, and prescribed oxalate of cerium. I soon afterwards learned that the sickness had ceased, and that she was going on quite well. My opinion at that time was, that *the backache, pelvic and bearing-down pains, were relieved by putting the uterus into a natural position; and that the sickness was stopped by the oxalate of cerium;* but, from what Dr. G. Hewitt says, it is very probable that the retroflexion was the cause of all the trouble, and its rectification the cure.

On referring to the *Handbuch der Geburtskunde* (published at Berlin in 1843) of Busch and Moser—a work which well deserves being translated into our own language, especially if it have undergone any recent edition—I find displacements of the uterus mentioned as one of the causes of vomiting in pregnancy: “Die dritte Art des Erbrechens wird durch organische oder mechanische Krankhafte zu Stande erzeugt; z. B. durch eine übermässige Ausdehnung der Gebärmutter, durch eine anormale Lage derselben,” etc.

I hope ere long to be able to communicate more at length upon this interesting subject.

ON A CASE OF UNUSUALLY RAPID ACTION OF THE HEART.*

By ROBERT FARQUHARSON, M.D.,

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CASES of unusually rapid action of the heart are still so rare, and their pathology is so obscure, that little apology seems necessary for bringing a small contribution to the subject under the notice of the profession. The instance of this curious condition which I am now about to describe occurred several years ago in military practice; and I am induced to place it on record, because, as we shall presently see, the material necessary for the construction of any reasonable theory is at present wonderfully scanty in proportion to the interest of the many questions involved.

Private J. Fox, aged 28, service eight years, was admitted into the regimental hospital of the Coldstream Guards on January 2nd, 1864. Reference to his medical history-sheet did not show any previous entry; but, two years after enlistment, and consequently prior to the issue of these returns, he was fourteen days under treatment for acute rheumatism, of which no special record has been preserved. During some time past, he had been short-winded on exertion, and had gone upstairs with difficulty; and, twelve months ago, he had a slight attack of palpitation, but no recurrence of this symptom was experienced until Jan. 1st in the forenoon, when he was suddenly and violently attacked on his return from a field-day. His heart beat very heavily all night, and this morning he felt so ill and unfit for duty, that he at once reported himself sick. On admission, it was noted “that he looked pale and anxious; the breathing was much hurried; the pulse was full, bounding, and thrilling, 116; and a loud double *bruit* was heard at the base of the heart and down the sternum; heart's impulse forcible and heaving, and dulness increased”. A belladonna plaster was applied to the side, and a mixture, containing nitrate of potash and tincture of veratria, ordered to be taken every four hours.

From this date, he took various remedies at various times; but gradual increase of palpitation led, on February 11th, to his being placed on fifteen minims of tincture of digitalis, with an equal quantity of tincture of iron, thrice a day; and next day the pulse had fallen to 80. Things went on satisfactorily until March 8th, when, during the usual morning visit, my attention was directed to the very alarming symptoms which the patient presented, and which seemed to threaten a rapidly fatal result. He was sitting up in bed, breathing with great effort; his countenance pale and bedewed with clammy sweat; and, on placing

my finger on his pulse, I was able, although with difficulty, to count 216 pulsations in the minute. On listening to the heart itself, the cardiac systoles followed one another with so great rapidity, that no *bruit* could be made out; but the first sound was distinctly and clearly audible. Whilst feeling his pulse at 11.45, the heart suddenly stopped for several beats, then gave three or four forcible and irregular pulsations, and, on resuming its action, was found to have fallen to 104. He now expressed himself as feeling much relieved; the countenance lost its ghastly pallor, and he was able to tell me that the palpitation first began at 9 A.M., and that he had suffered in a similar way, but much less severely, several times since admission. Next day, he had another, but much slighter, attack, and, three days later, he was invalided the service.

It will be remembered that, in 1867, Dr. Cotton published in the BRITISH MEDICAL JOURNAL a case of this nature; and, as this was probably the first on record, he may justly lay claim to priority in bringing the subject under the notice of the profession. His patient was a middle-aged man, who was seized on two occasions, at an interval of three years, with dyspnoea and faintness, and a pulse rate of 230, recovery taking place under treatment, one result of which was the expulsion of a tapeworm. The pulse here was regular, but uncountable at the wrist, and no indication of valvular disease could be detected.

Sir T. Watson, in a letter to Dr. Cotton, refers to a case in which the pulse on four occasions ran up to 216, with great anxiety and general distress, passing off suddenly in two or three days. In the fourth attack, the patient died, and a large flabby heart was the only morbid appearance observed. Dr. Bowles of Folkestone records, in the BRITISH MEDICAL JOURNAL of July 20th, 1867, the cases of two ladies, in the first of which the surprising pulse rate of 250 was reached, and in the second over 200. A case of Dr. Broadbent's is reported about the same time, where 168 was the number attained; and, in July 1869, Dr. Cotton sums up the evidence and records another instance where the heart's action exceeded 200 beats.

In a recent number of the *Lancet* (February 6th, 1875), Dr. Brisbane has published a case of mitral disease, where the pulse suddenly mounted up to 185, and continued at that elevation during several days; and Dr. Willett has mentioned to me an unpublished case, which first came under his notice five years ago, where a middle-aged woman was seized with most extremely rapid and irregular action of the heart after a sudden shock. Dr. Richardson, who saw her at this time, tells me that there was great dyspnoea and distress, and that the pulse ranged from 180 to 200, being hardly countable; and, in a letter received from Dr. Willett, describing the present condition of this patient, he says the pulse is uncountable and irregular, as well as intermitting. It stops suddenly and at irregular intervals, a bad attack lasting some days; but there is no indication of valvular disease.

This, then, is a tolerably accurate list of the cases of abnormally rapid cardiac action recorded in recent literature; and, on studying them attentively, with the view of discovering any marked differences or points of similarity between them, I find they may be, in the first place, divided into two classes: 1. Those in which valvular disease existed; and 2. Those in which the palpitation might fairly be assumed to be only functional in character. To the first belong Dr. Brisbane's case and my own, where mitral and aortic disease were respectively diagnosed; but, in the other six, no common explanation throws any light on the symptoms, two of the eight patients being the subjects of albuminuria, three being rheumatic and dyspeptic, two the subjects of dilated and gradually weakened hearts, and one having been proved by the results of treatment to have acted the part of host to a large tapeworm.

Another element of distinction is found in this: that, in a certain number of cases, the heart resumed its normal functions suddenly, whilst in others the unusually rapid action became gradually diminished. Accident enabled me to advance perhaps a step beyond other observers, by affording me the opportunity of feeling the pulse at the precise moment when the change took place; for it will be remembered that, whilst my finger was actually on my patient's wrist, the number of pulsations suddenly fell from 210 to 104, the heart recovering itself after a somewhat lengthened pause and several irregular contractions.

Having now summed up the principal facts connected with our subject, we find ourselves in a position to go a step further, and inquire in how far physiology can assist us in unravelling the difficulties which naturally arise; and let us first consider the explanations which have been brought forward by those who have previously written on the subject. Dr. Cotton is inclined to believe that in such cases the heart is led to contract too rapidly, on account of a condition of over-sensitiveness, such as we find in various nervous affections or in simple nervous palpitation; or, on the other hand, the blood may be irritating in

* Read before the Medical Society of London.

quality, as in gout and acid dyspepsia, and thus tend to induce more hurried and irregular contraction of the cardiac cavities.

Dr. Handfield Jones, who has considered this question in his interesting work on *Functional Nervous Disorders*, carries the explanation somewhat further by ascribing the phenomena to neurotic influence. He writes: "The associated symptoms point very decidedly to an implication of the vagi in the disorder; in five, the breathing was notably affected, and in two the stomach was deranged. My notion is, that the pathema is a paralytic neurosis of the vagi, or of their cardiac branches, essentially similar to a common neuralgia, e.g., sciatica."

Now, we know that division of the pneumogastrics, by removing their inhibitory or restraining influence, permits the sympathetic ganglia to run riot, and that enormously increased rapidity of the heart's action is the result; and Dr. Jones thus places the very reasonable theory before us that, from the influence of some weakening or paralyzing cause on the vagi or their centre in the cerebrum, the rein is partially removed, and the unrestrained vaso-motor ganglia, if we may use such an unscientific expression, take the bit between their teeth and bolt. And the analogy of physiological therapeutics also holds good here; for experiment has shown that the injection of atropine directly into an animal's veins causes an excessive rise in the number of cardiac pulsations, from its paralyzing power over the inhibitory branches of the pneumogastric distributed within the heart-muscle. Digitalis, on the other hand, produces a precisely opposite effect, for it causes a much lowered rate of pulse, even after section of the vagi, by acting on their cardiac nerves and the minute ganglia with which they are connected. Various other influences brought to bear on the innervation of the heart also induce increased rapidity of pulse; thus tubercular meningitis, in its later stages, when effusion at the base of the brain may be supposed to act on the centre whence the vagi spring, is characterised by an exceedingly quick pulse, and in children's disease generally we find an excessive excitability of the action of the heart. Thus, in pneumonia and in other of the inflammatory affections of early life, I have not unfrequently counted the pulse up to 200, even in cases which were not otherwise characterised by severe symptoms, but in which the mobility of constitution common to this period of life tends to the expenditure of nerve-force in various directions to the weakening and exhaustion of the great nerve-centres. We are also all familiar with the remarkable elevation of pulse following rapid exercise in ill-prepared persons: a brisk run, a stiff pull up a hill, will often run the cardiac pulsations up to what might well be considered a dangerous degree, and I have thus seen in my own case, during a severe ascent in Switzerland, undertaken under unfavourable conditions, the pulse beat at the rate of nearly 200.

In addition to these arguments in favour of the view that exhaustion of a certain nerve-force may cause well marked symptoms by enabling a distinct but usually subordinate function to come into play, we may appeal to the results of treatment. The successful issue of most of the cases I have mentioned was in all probability due to the administration of tonic and supporting drugs, among which digitalis always held a high place. We all know the property which this valuable medicine has in regulating and supporting cardiac contraction by its primary action on the inhibitory centres, as well as its secondary effect on the muscular structures of the heart itself. But, in this connection, my case affords a notable contrast to the others; for it was whilst the patient had been under the full influence of digitalis for twenty-five days that the violent palpitation came on. The remedy was here prescribed under the old-fashioned idea of reducing the labouring action of an enlarged and hypertrophied heart, and before modern research had shown that its use in such a case was not only unnecessary, but possibly injurious. The first result of its employment was to reduce the frequency of the pulse, and its second I fully believe to have been paralysis of the terminal cardiac filaments of the vagi, from that exhaustion which usually follows undue stimulation, and hence the remarkably rapid rate to which the sympathetic urged on the muscular contractions; and this is quite borne out by what is observed on experiment; for Nothnagel lays down the primary action of digitalis to be that of retarding the pulse, whilst larger or longer continued doses inevitably bring about a secondary stage of excitement and great rapidity. In Fox, therefore, it is probable that some temporary disorder of the secretions may have interfered with the due elimination of the drug, and so permitted that saturation of the system which is generally spoken of as indicating a so-called correlative effect. But it may be reasonably asked, Could not an exciting or stimulating influence directed towards the sympathetic nerve-supply of the heart explain more directly the phenomena of rapid pulse? This may be so, and Dr. Richardson was inclined to adopt such a view in Dr. Willett's case, where he believed the sudden emotional shock to have been the factor in enabling the accelerating action temporarily to overcome the controlling power

of the vagi. The only other point specially deserving of notice in my case was the observation that, during the rapid action of the heart, no trace of morbid *bruits* could be detected; and this was, no doubt, due to the feeble contraction of the cardiac muscular tissue not emptying the ventricle sufficiently fully or forcibly to bring about the physical conditions necessary for the production of murmur. And it was interesting, at the same time, to hear the clearness and distinctness of the first sound when unmasked by systolic *bruit*.

ORBITAL ANEURISMS.

By WALTER RIVINGTON, F.R.C.S. Eng.,
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THE value of Mr. Lansdown's extremely interesting case of "varicose aneurism of the left orbit cured by ligature of the diseased vessels" would be much increased if he would supply some additional information about the symptoms. The degree of exophthalmos; the nature of the *bruit*, whether continuous or intermittent; the presence or absence of thrill in the pulsating swelling; the presence or absence of noises in the head, and, if there were any, the date at which they were first heard by the patient; whether the *bruit* could be heard or not over the head, and, if so, whether it has now been completely removed; the presence or absence of chemosis, and of a fold of conjunctiva covering an everted lower eyelid; the presence or absence of paralysis of any or all of the orbital nerves; and the effects of pressure on the carotids—are all points of importance. Assuming for a moment that the exophthalmos was slight, that thrill was absent, that noises in the head were not heard at any time by the patient, that the *bruit* was only audible over the orbit, that there was no chemosis or conjunctival pad, and that paralysis of the orbital nerves was absent, the case would be one of much less severity than my own, in which all these symptoms were present, and in which it can scarcely be questioned that a communication existed between the carotid artery and the cavernous sinus, preceded and produced as it was by a very severe fracture of the skull, extending from the vertex along the right side and base of the skull. It would be of great advantage to determine whether such a lesion could or could not have been present in Mr. Lansdown's case. A fragment of the exploded soda-water bottle struck the patient at the inner part of the upper eyelid. Could it have penetrated so deeply as to wound the carotid in the cavernous sinus, as has happened in similar cases with other offensive objects? It is apparently beyond doubt, that the large vein which came off from the "aneurismal sac" was the dilated ophthalmic vein or one of its branches. Was not, then, the "aneurismal sac" a pouch of the vein, rather than a structure such as the description would denote; and the "feeding vessel" a vein, rather than an artery? If the affection was a varicose aneurism formed between the nasal artery and vein, it is difficult to understand, as Mr. Bader and Mr. Higgins found it difficult to understand, the congestion and dilatation of the retinal as well as of the superficial veins, and the projection of the eyeball.

The importance of establishing the diagnosis lies in the direction of the treatment adopted and recommended by Mr. Lansdown. If we grant the correctness of the diagnosis formed of a varicose aneurism between the nasal artery and vein, the treatment adopted remains both correct and successful; but it loses all, or nearly all, bearing upon the treatment of pulsatile swellings due to morbid conditions of blood-vessels behind the orbit. If we question the correctness of the diagnosis, and can render it not only probable, but almost certain, that there was either a small hole—possibly a very small hole—in the carotid, or a communication deeply within the orbit between the *ophthalmic* artery and vein, then the treatment pursued becomes of the highest interest. In point of fact, whichever view is taken, the treatment is unique. There is only one other similar case, so far as I know, in which the ligature of vessels within the orbit was attempted; but it was attempted without success. M. Passavant of Frankfort-on-the-Maine met with a case which resulted from a punctured wound of the orbit, caused by the forcible projection of a knitting-needle by the enraged sister of his patient: "Notumque furens quid femina possit." There were all the symptoms of an aneurismal tumour, and M. Passavant diagnosed an "aneurism of the lacrymal artery". An attempt was made to reach the supposed aneurism by resection of a part of the external wall of the orbit. No aneurism of the lacrymal artery was found; but at the apex of the orbit the finger encountered deeply, and on the inner side of the optic nerve, the pulsations of an aneurismal pouch. Attempts made to tie the pulsating sac were fruitless, and the operation was abandoned. The patient ultimately remained in the same state as before.