Nervous Palpitation of the Heart.

Secondly, we have to speak of the so-called nervous palpitation of the heart, palpitatio s. hyperkinesis cordis, by which term we designate a paroxysmal increase in the frequency and strength of the heart's action, which is not only objectively noticeable, but also subjectively felt by the patient. Pain is absent, and in pure cases at least there is no dyspnœa. Palpitation appears more frequently as an independent affection than angina; the attacks usually begin suddenly, often at night. If the patient be lying on his left side, he is seized with a feeling of oppression and anxiety, the pulse is accelerated, and its rate may be increased to more than two hundred beats to the minute; sometimes the second heart sound is curiously clicking (cliquetis métallique) and the first extraordinarily weak, the carotids throb, the radial pulse becomes hard and full. Dehio (cf. lit.) has examined the pulse curves by means of a Dudgeon sphygmograph, and found the pulse waves higher, the decline steeper, the first elastic elevation decidedly nearer to the base line of the curve, and the dicrotic elevation lower than normal. He attributes this condition to an increase in the frequency of the beats, and a decrease in the duration of the individual ventricular contraction. Besides the palpitation, the patient complains of ringing in the ears, dizziness, and faintness. The attacks usually pass off in a few minutes, disappearing as suddenly as they came on, and the patient soon feels perfectly well. Their frequency is extremely variable; they may appear once, twice, or more often daily, or only after long intervals of weeks or months.

That here we also have to deal with a neurosis of the vagus seems only a rational assumption. The seat varies; it may be either central or peripheral, but in most cases we are unable to positively say which it is. Sometimes we are justified in assuming that such conditions depend upon a central, bulbar nuclear affection, just as we may probably refer a temporary diminution of the vascular tonus to a transient paresis of the vaso-motor centre in the medulla oblongata (Dehio). The publication of Cuffer (Revue de méd., 1890, 4) shows that neuritic conditions of the vagus may also be found.

It is very important in these cases of palpitation to look for further co-existing affections, after the removal of which the nervous palpitation often disappears suddenly, and never recurs. To this class belong chiefly the anæmias of the young, cardiogmus juvenilis, habitual constipation, gout, and malaria, and accordingly we are able to bring about a marked improvement in the palpitation, which in such cases is only symptomatic, by improving the condition of the blood, by proper regulation of the bowels, by promotion of the excretion of uric acid, and by combating malaria by means of quinine, according to the indications in each. If such indications for therapeutic measures are wanting, we have to fall back upon the narcotics and nervines, unreliable as they are in their action. In hysterical persons certain mechanical manipulations, pressure on the abdomen, momentary compression on the neck, and the like, may be of service. Application of the ice-bag to the cardiac region may occasionally be beneficial; the psychical treatment of the patients, repeated assurances that these attacks are never fatal, and that they are quite amenable to treatment, is not to be underrated; in the case of children especially this has been found very effectual.

The ætiology is, unless the palpitation is secondary to an underlying disease, quite obscure. Under what conditions individuals in other respects quite sound, with a good family history, and who present no symptoms of neurasthenia, can be attacked by such transient pareses of the vagus we do not know. In suspicious cases we should think of masturbation.

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Tachycardia.

In rare cases, in people otherwise healthy, but more frequently in those affected with heart disease, we meet with a

transient acceleration of the heart's action (tachycardia), which usually lasts for several hours, after which the pulse rate again becomes normal. These attacks are accompanied by a feeling of great anxiety, and are ushered in by vaso-motor disturbances —e. g., circumscribed flushings. The number of the pulse beats may reach 200 or more. Pressure upon the vagus in the neck, a draught of cold water, or similar stimulation of the peripheral ends of the vagus often may cut short an attack against which we possess no other remedy. Whether in a given case irritation of the accelerators or a paroxysmal paralysis of the vagus is responsible for the attacks has, according to Nothnagel (Wiener med. Blätter, i, 2, 3, 1887), to be decided in the following way: A great increase in the frequency of the pulse, accompanied by a weak heart-beat, and perchance another disturbance of some nerve path belonging to the vagus, speak for paralysis of this nerve; whereas a strong impulse, fullness of the peripheral arteries, with high tension, associated with other symptoms of vaso-motor irritation, is in favor of stimulation of the accelerators. Traube assumes that some cases are due to a temporary anæmia in the medulla oblongata, in consequence of which a paresis of the inhibitory nerves ensues. To this class seems to belong the case related by Dehio (cf. lit.). The affection is met with equal frequency in both sexes; it is more liable to occur in advanced age; in women the climacteric period seems to predispose to it (Stokes, Kisch).

The mode in which nicotine acts upon the vagus is of great interest, and certainly deserves a closer study than has been given to it hitherto.

Chronic nicotine poisoning, as it is found in smokers, and only occasionally in tobacco workers, is not always well adapted to throw much light on this subject, for, whereas it is well known that the nicotine when brought into direct contact with the nerves paralyzes them rapidly, it is by no means common to find paralysis of the vagus in the course of nicotine intoxication. As a rule, it is true that the heart's action is increased, yet cases occur in which there is a slowing, so that we are led to think of a stimulation of the vagus, such as happens after drinking cold water, where the pulse rate may be reduced to thirty or twenty beats. Owing to the miserable arrangements for ventilation in tobacco factories, we have from time to time occasion to study the action of nicotine in those employed in them, although the disease is, as has been said, by no means frequent. Kisch has

recently called attention to a form of tachycardia which occurs at the menopause, and which he is inclined to attribute to changes in the ovaries (Wiener med. Presse, 1891, 19).

Cases which, in consequence of a vagus neurosis, present a simultaneous disturbance in the circulatory and respiratory apparatus, occur, but are rather uncommon. A case to the point has been published by Tuczek (Deutsches Arch. f. klin. Med., 1877, xxi, 1), and two others by Kredel (ibid., 1882, xxx, p. 547). For the respiratory apparatus acute emphysema, with dyspnœa and symptoms of catarrh, were noted; they were associated with tachycardia (asthma cardiacum, according to Kredel), and the existence of a paralysis of the vagus fibres regulating the heart, in conjunction with a stimulation of those presiding over the lungs, whereby spasm of the muscles of the bronchi was produced, was assumed. At the autopsy the cause was found to be pressure exerted upon the vagus trunk by a rapidly swelling lymph gland. The attacks lasted from twelve to thirty-six hours. Some of the patients had organic heart disease.

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Bradycardia (*βραδυς*, slow) is, on the whole, even less often met with than tachycardia; in this condition the number of the pulse beats may fall to half the normal—i. e., to 38–42, a condition which may also be found in perfectly healthy individuals. Sometimes bradycardia seems to be a peculiarity common to several members of the same family. After prolonged fasting, and in the puerperal state, it may occur without any other abnormality. Sometimes it is associated with

cerebral affections, with chronic articular rheumatism, with diseases of the digestive, circulatory, and uropoetic organs, or with certain intoxications (lead, alcohol, coffee). Lunz, among others, has recently called attention to the association of bradycardia with epileptic attacks, the so-called Adams-Stokes disease (Neurol. Centralbl., 1893, xii, 4, p. 142). In old men it is sometimes seen as an idiopathic vagus neurosis, a condition for which no physiological explanation can be given (cf. Grob, Deutsch. Arch. f. klin. Med., 1888, xlii, p. 574; also Riegel, Zeitschr. f. klin. Med., 1890, xvii, 3, 4, p. 221; also Dehio, Petersburger med. Wochenschr., 1892, 1. In these articles also the theories of the pathogenesis of the affection are discussed). We have thus far no means with which to treat this condition successfully.

It scarcely belongs within the scope of this book to treat of disorders of the cardiac rhythm, arrhythmia cordis, which is sometimes found in obesity, more often in the course of brain diseases, in intoxications (tobacco, coffee, digitalis), and above all in organic diseases of the heart. Baumgarten has published a comprehensive study treating of this condition (Disturbances of the Heart Rhythm with Reference to their Causation and their Value for Diagnosis, Transact. of the Assoc. of American Physicians, 1888). Rummo and Ferranini have attempted to investigate this condition experimentally (Riforma med., December, 1887, 278–287), but much is still obscure.

C. The Disturbances of the Digestive Organs due to Lesions of the Vagus.

The vagus forms two gastric plexuses: the one, the anterior, situated on the anterior surface, and the other, the posterior, situated on the posterior surface of the smaller curvature of the stomach. The first plexus is formed by the left, the second by the right, a somewhat stouter nerve. The branches of these plexuses associate with fibres from the sympathetic which accompany the ramifications of the coronary arteries; a part of the fibres which appertain to the right (posterior) vagus go on to the cœliac plexus, and can in a careful dissection be traced to the spleen, the liver, the kidneys, and small intestine.

The muscles of the œsophagus and stomach are also innervated by the vagus; its sensory fibres conduct the impulses concerned in the reflex actions of deglutition, sobbing, and vomiting.

Among the disorders of the digestive organs caused by disease of the vagus, the so-called stomach and intestinal neuroses,

we find affections of the motor, sensory, secretory, and perhaps also of the trophic fibres. Among the motor neuroses we have, according to Glax (Klin. Zeit- und Streitfragen, 1887, i, Heft 6), irritative and depressive forms. The former manifest themselves in simple peristaltic unrest of the stomach, or in nervous belching or vomiting, the latter in nervous atony of the stomach, or insufficiency of the cardia or pylorus. Merycism, or rumination, must also be classed among the motor neuroses. Among the sensory disorders we find cardialgia and hepatalgia. Of the secretory neuroses, nervous dyspepsia is the most important. To this class also belongs, in all probability, the so-called œsophagismus. The claim of Arndt (Deutsche med. Wochenschr., 1886, xiv, 5) that the round ulcer of the stomach should be regarded as "originating in a neurotic affection, an angio- or tropho-neurosis (of the vagus)," is deserving of further investigation.

These vagus neuroses are rarely met with alone in otherwise healthy persons; more often they appear in conjunction with other diseases, especially general affections of the nervous system, particularly hysteria or tabes. Sometimes they are associated with affections of the uterus, such as displacements (Panecki, Therap. Monatsh., 1892, 2); finally, they are met with in pregnancy. Possibly some have a reflex origin. According to Leva (Münch. med. Wochenschr., 1890, 20, 21) this is the case in merycism; but here we also find anomalies in the secretion of the gastric juice, a circumstance which may be of ætiological importance. In most cases of rumination which have been observed the patients have eaten copiously and rapidly and have overloaded their stomachs with imperfectly masticated food (cf. Alt, Berlin. klin. Wochenschr., 1888, 16, 27; Boas, ibid., 31; Jürgensen, ibid., 46; also the above-mentioned article of Leva, and one by Singer in the Deutsch. Arch. f. klin. Med., 1892, li, Heft 4, 5, articles in which especially the relation of rumination and vomiting is discussed).

The other motor neuroses of the stomach and intestinal tract will be discussed in the chapter on Hysteria.

Cardialgia.

Cardialgia (gastralgia, gastrodynia) is a disease of the sensory nerves which occurs mostly in paroxysms. Romberg, distinguishing two forms, assumed the one to be due to a hyperæsthesia of the vagus branches going to the stomach

("gastrodynia neuralgica"), the other to a hyperæsthesia of the solar plexus (neuralgia cœliaca). There have been, however, cases coming under notice which can not be classed under either of these heads, and even more which do not permit of a decision as to which of the two forms we are dealing with.

The characteristic symptoms of gastrodynia are violent paroxysmal constricting pains, starting in the region of the stomach and radiating to the back; the face becomes livid, the hands and feet cold, the pulse smaller and intermittent, and a feeling of unutterable anguish and distress takes possession of the patient. If in the presence of these symptoms careful examination has excluded the existence of any organic stomach lesion—e. g., acute or chronic catarrh, gastric ulcer or tumor—if there is no evidence of gall stones, and the patient has previously at times been subject to neuralgia in other parts of his body, we make our diagnosis with some amount of certainty. But in all cases this can only be done after careful and repeated examination before and after meals; not uncommonly we find that pain, which is present while the stomach is empty, is relieved by the ingestion of food, and the patient states that uniform firm pressure on the epigastrium has often a beneficial alleviating effect, both conditions not generally observed in organic diseases of the stomach.

In the treatment of these cases we must first of all endeavor to remove any primary cause, and in this connection mental and physical overstrain, excesses in venery, masturbation, or uterine affections, must be thought of. Besides the external application of blisters to the epigastrium, arsenic given for several weeks is to be recommended. During the attack morphine can often not be dispensed with. The diet has to be carefully regulated, but not restricted; on the contrary, it is advisable for the patient to take four or five times daily substantial but easily digested food.

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Of great practical importance is the so-called hepatalgia or nervous biliary colic, which was first described by Andral in 1827, and which has been studied more recently by Frerichs, Fürbringer, and Talma (cf. Pariser, Deutsch. med. Wochenschr., 1893, 31). This affection is usually seen in anæmic women; it manifests itself in

paroxysmal pains, which are as severe as those of a true biliary colic; they are, however, more restricted to the hepatic region, and never, even after recurring for years, lead to febrile inflammatory affections of the liver, the gall-bladder, or the gall-ducts (Fürbringer). Anti-neurasthenic treatment is often of no avail.

Nervous Dyspepsia.

The disease known as nervous dyspepsia is an extremely common neurosis of the vagus, especially in females. It is characterized by a loss of appetite, painful sensations in the region of the stomach, frequent vomiting, and still more frequent belching; besides these the patients generally suffer from other nervous symptoms—dull headache, vertigo, palpitation; they are easily tired, complain of a lump in their throat (globus hystericus), at times have a voracious appetite, and obstinate constipation is seldom absent. The motor functions of the stomach are, as a rule, more or less disordered, and sometimes secretory anomalies are observed; indeed, only rarely do both the motor and chemical functions remain intact (Herzog, Zeitschr. f. klin. Med., 1890, xvii, 3, 4). In rare cases periodical spells of vomiting have been noted (twenty to thirty in the twenty-four hours), accompanied by acute circumscribed swellings of the skin (angio-neurotic œdema, Strübing, Quincke). Although the patients feel very poorly, their state of nutrition remains, nevertheless, for a long time remarkably good; only in a few cases do we observe a rapidly increasing and marked anæmia. It is still doubtful whether the condition is essentially a disease of the peripheral nerves of the stomach or a general neurosis (neurasthenia dyspeptica, Ewald). We would refer the reader to a most interesting and comprehensive article which has been written on this subject by Leube (Berl. klin. Wochenschr., No. 21, 1884).

In making our diagnosis we are brought face to face with no inconsiderable difficulties. The claim of Leube that we are, in the presence of the above-described symptoms, justified in thinking of nervous dyspepsia if a stomach-washing six to seven hours after the meal shows the stomach to be empty, has been opposed by Ewald and others. These have shown that, on the one hand, the stomach may be empty seven hours after a meal in cases of ulcer, and, on the other hand, may contain remains of food in nervous dyspepsia after the same time. To be sure, an increase of hydrochloric acid (hyper-

acidity) is a common condition in gastric ulcer. The results of stomach-washing are, however, certainly not always pathognomonic, but we must rather for the purpose of diagnosis take into account the course of the disease and the general condition of the patient. But in spite of the greatest care experienced men not seldom in these cases are led into error. Under certain circumstances the hyperemesis nervosa, a motor neurosis of the stomach occurring in pregnant women, especially in the first months of pregnancy, may closely simulate the disease.

In the treatment our attention has chiefly to be directed to the proper nutrition of the patient. Of medicines, arsenic, quinine, chloral (1.0 (grs. xv) several times a day), should be resorted to. Saline purgatives, a course of treatment at Carlsbad, as well as the use of electricity, are of no avail. A stay in the mountains, hydrotherapy, sea-baths, all should be tried in succession, and last, but not least, the possibilities of psychical treatment must not be forgotten.

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Œsophagismus.

Spasmodic dysphagia, known as œsophagismus (spasm of the gullet), is an affection which sometimes follows dyspeptic symptoms and protracted vomiting, sometimes irritation of the fauces by hot food, irritating substances (mushrooms, red pepper, etc.). Sometimes the spasm is seen to occur reflexly in consequence of uterine diseases, and quite frequently in hysteria. As an independent affection it is rarely ever observed. In all cases it is characterized by the fact that the patient from time to time (periodically) finds it difficult, or is even unable, to swallow his food; that when it reaches a certain point it is regurgitated, and that the sound which is introduced for the purpose of examination is stopped at the same place; if this point is situated in the upper portion of the œsophagus, usually violent pain is experienced on the ingestion more especially of cold food, a circumstance which makes the patient object to taking his nourishment, and consequently leads to emaciation, although the loss of flesh is here considerably less than in stenosis of the œsophagus caused by new growths, because in the former case the patient is able at times to swallow his food without any difficulty.

Predisposed to œsophagismus are nervous, easily excitable, hysterical persons, in whom the affection often suddenly makes its appearance after some emotion without the previous existence of any symptoms referable to the œsophagus. It has often followed the suppression of the menses, or has appeared during pregnancy and lactation. Sometimes no other ætiological factor could be discovered than injuries to the gullet years previous to the spasm—burns, injury by sulphuric acid, etc. No definite statement is warranted as to the duration and the course of the disease, as both vary greatly, but this much may be said with certainty, that in pure cases the prognosis is always good, that complete recovery is almost always effected by the repeated use of the sound and by the application of the faradic brush.

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