A Post-Graduate Lecture ON INDIGESTION.

DELIVERED AT THE LONDON SCHOOL OF CLINICAL
MEDICINE,

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IN selecting "indigestion" as a suitable theme for our consideration this afternoon, I have been determined in my choice by the fact that, though often a symptom of many of the organic disorders which we see together at the bedside, it is also a frequent—perhaps of all others the most frequent—functional disturbance for the alleviation or cure of which our services are requisitioned. It is no exaggeration to say that, whether in hospital or private practice, there is no descriptive answer so frequently given to the first inquiry, "What is the matter?" as this comprehensive word "indigestion." It supplies to the patient a self-satisfying explanation of a wide variety of subjective symptoms, and equally suggests to the physician the greatest of all generalizations for the exercise of his diagnostic and therapeutic acumen.

I need scarcely remind you that though functional indigestion is universally regarded as a trivial affection, it may become one of the most serious detriments to the comfort of life. Neglected or imperfectly treated in its earlier stages, when cure is so often possible, it may prove the forerunner, if not the direct etiological antecedent, of such organic diseases of the stomach itself as catarrh, ulceration, or cancer. It may be associated, whether as cause or effect, with many subsequent intestinal disorders, such as constipation, diarrhoea, colitis, appendicitis, or duodenal ulcer. It is constantly responsible for congestion of the liver, haemorrhoids, and other consequences of disturbance in the portal circulation. Glycosuria may ensue upon it, and unless recognized and properly treated may gravitate into true diabetes. Albuminuria is no uncommon accompaniment, and though functional and intermittent at first may end in true Bright's disease. Phosphaturia, another frequent associate, may pave the way for calculus, cystitis, or pyelitis. The heart often declares its sympathetic association with the digestive disturbance by palpitations, intermittency, or pseudo-angina; while the arteries probably often owe to the presence in the blood of toxæmic products their first departure from health in the direction of arterio-sclerosis. More almost than any other part of the body the delicate nervous system offers a vicarious sacrifice to digestive unrighteousness in the shape of insomnia, vertigo, migraine, neurasthenia, and a whole army of bewildering neuroses. The respiratory apparatus pays its tribute in cough, dyspnoea, asthma, and bronchial catarrh. The skin enters its protest in the form of prurigo, urticaria, or eczema. There is good reason to believe that some forms of arthritis, certain varieties of anaemia, and many uterine and ovarian disturbances are directly sequential to dyspeptic troubles. This constitutes a serious indictment against such an apparently simple condition as indigestion, but it is related in order to emphasize the importance of our subject.

One of the greatest difficulties which most of us have encountered in our endeavours to attain a clear conception of indigestion has arisen from the diversity of views which have been expressed concerning its etiology, the multiplicity of classifications which have been promulgated for its proper understanding, and the hopeless tangle of suggestions which have been made for its dietetic and therapeutic treatment. For a good working scheme which will enable us readily to classify the majority of our cases, and, on the basis of that classification, treat them along well-defined lines of common-sense management, none is better than that proposed by Professor Robin of Paris. It has the superlative merit of simplicity, and confines itself to three divisions which are based upon the physiological functioning of the stomach. There are three ways in which function may be disturbed, namely, by

excess, by insufficiency, and by perversity. Indigestion, in its purely functional aspect, may be divided, therefore, conveniently into three varieties, viz., *sthenic*, *asthenic*, and *fermentative*. Such a classification is obviously open to many objections, but so is every artificial division to which any subject is submitted for purposes of description and orderly arrangement.

Each type is applicable to individual cases only in its main features. No two patients are quite alike, and though in their morbid manifestations they come under one or another category of the disorder from which they are suffering, each yet preserves the *ego* sufficiently to stamp the illness with individualistic details. The main features remain prominent enough to determine the type, which is not altered but only modified by idiosyncrasy.

1. *Sthenic Indigestion*.—The sufferer from this variety of indigestion is usually a man of full habit of body who has been accustomed to "do himself well" as regards both food and drink. The discomfort of which he complains is referred to the pit of his stomach. He is quite comfortable for three or four hours after his meal; then he begins to complain of weight and fullness in his epigastrium, waterbrash, sour risings from his stomach, and a desire to empty it of its contents. Should vomiting occur he is temporarily relieved till some hours after the next meal, the story being then repeated. When the stomach still contains a sour residue, food relieves the discomfort by counteracting the excess of acid. At first the attacks of pain are moderate and intermittent, but they increase gradually in severity, and become so constant that the patient, even if ordinarily hungry, is afraid to eat, because, though the first effect of a simple meal is to afford relief, the malaise returns in an accentuated form later on. The pain is of a burning, boring character, and is accompanied, as in other forms of dyspepsia, by flatulence, yawnings, hiccups, and cardiac uneasiness. The patient becomes nervous and irritable; he loses weight, and experiences increasing feebleness and incapacity for his daily work. He is subject to recurring attacks of pyrosis, and he suffers constantly from his throat, which frequently will be found congested and granular. As a rule there is obstinate constipation, and mucous colitis is a frequent complication. With the progress of his malady fermentative discomforts are added to his previous miseries. These are favoured by the physical condition of the stomach, which is usually more or less distended. This distension is probably due to a double cause—first, to enfeeblement of the muscular wall from debilitated innervation; and secondly, to spasm of the pyloric and cardiac sphincters from irritation of the hyperacid gastric contents. The sphincter at the cardiac orifice is more feeble than that at the pyloric orifice; it therefore, as a rule, yields first to intragastric pressure, and permits of a copious eructation of gas by which temporary relief is obtained. If the contents are siphoned off and examined chemically it will be found that they are abnormally acid from the presence of free hydrochloric acid in excess, and of organic acids produced by fermentative processes. There is usually tenderness on pressure over the epigastrium; the tongue may be slightly coated, but is often red and sensitive, pointed at the tip, and with enlarged prominent papillae. The urine, though perhaps scanty, is faintly acid or alkaline, and is deficient in chlorides.

The patient is often of good colour, but if his disorder has been of long duration he may be thin and ill-nourished, and he wears a look of wretchedness, which is unmistakably expressive of mental depression and physical uneasiness.

2. *Asthenic Indigestion*.—This type of indigestion is most commonly met with in young and badly-nourished persons, who have suffered privations from insufficient food, overwork, and mental anxieties, and who have become in consequence anaemic and neurotic. It has not inaptly been called "gastric myasthenia," and appears to depend upon a want of power in the stomach as regards both secretion and contractility. The patient—most frequently a woman—is usually worn, pale, with puffy features and cold extremities. She complains of constant weariness, shortness of breath on exertion, sleeplessness, and a complete absence of appetite, except for highly seasoned or pungent articles of food. She is never thirsty for ordinary liquids, but always feels the better for tea, alcohol, or other form of stimulant. Her tongue is flabby,

pale, indented by her teeth, and coated; and she complains of a constant bitter, disagreeable taste in her mouth. The gums are pallid and often spongy, and the teeth are frequently decayed and badly looked after. Always after eating she becomes languid and sleepy, gets uncomfortably distended, and experiences an unpleasant flushing of her cheeks and nose. She suffers from a feeling of weight in her stomach, which compels her to loosen her corsets and waistbands, and finds relief in frequent eructations of tasteless and odourless gas. She soon becomes aware that certain articles of diet—tea, pastry, green vegetables, etc.—increase her misery, and, in her search for relief, she often drops one article of diet after another from her daily bill of fare, until nutrition comes to suffer seriously. The influence of strong, coarse tea, which has been allowed to infuse for hours on the hob by the fire, in the causation of this variety of indigestion, is particularly apparent among mill girls, seamstresses, laundresses, and others who are in the habit of drinking this noxious infusion several times a day. The patient is alarmed by the occurrence of palpitation, and is liable, on sudden exertion, to feelings of faintness. Her pulse is soft, small, and feeble. Her skin is inelastic and clammy. Frequently, about an hour after a meal, she vomits the food she has taken, almost unchanged and not strikingly acid, and her comfort is thereby so promoted that she is often induced to produce sickness artificially by putting her finger down her throat. If no vomiting occurs, her discomfort continues for three or four hours, after which she remains free from all symptoms until another meal has been taken. The bowels act irregularly, being at one time constipated and at another relaxed, and, though the whole abdomen is distended with flatulence, it is unusual for the stomach to be dilated to any remarkable extent. There is no pyloric spasm in these cases, and therefore no obstruction to the passage of the gastric contents into the duodenum. None the less, atony of its walls and consequent undue retention of food within its cavity, causes the stomach to sag, and splashing sounds can always be elicited in it during digestion because of these physical conditions. If the stomach contents are examined chemically, the hydrochloric acid is found to be less than normal, but in cases of long standing the organic acids produced by fermentation are present in considerable quantity. The urine continues acid after meals, and is frequently found to contain large quantities of urates. The patient suffers constantly from headaches, vertigo, lassitude, and is apt to become so introspective that she can concentrate her attention upon nothing but her own miseries, from which she feels convinced she will never recover. This form of indigestion is frequently secondary to other ailments, such as pernicious anaemia, Bright's disease, diabetes, gastritis, tuberculosis, heart disease, etc., but in the present connexion we are interested in it only as a primary affection.

3. *Fermentative Indigestion.*—As has been already mentioned, it is extremely rare to meet with indigestion as a consequence of a primary fermentation. When such does occur, its inevitable consequence is to create a gastric irritation, which sets up, according to circumstances, either the sthenic or asthenic type of the disorder. Fermentation is, in the large majority of cases, a super-addition to a pre-existing condition of indigestion. When it ensues upon the sthenic variety of the disorder, we have, in addition to the ordinary manifestations which have been detailed, a greater prominence of three symptoms—giddiness, vomiting, and eructations. The vertigo is extremely distressing and alarming; the vomiting is frequent, the rejected contents of the stomach being unpleasantly sour and offensive; and the eructations are abundant and of a disagreeable odour. The breath is heavy, and the tongue becomes thickly coated with a yellowish pasty fur, which clings to the teeth and roof of the mouth, and produces a constant subjective feeling of a foul taste in the mouth. The appetite, though not banished, is easily appeased, and there is a disinclination to take much food because of the subsequent increase in the vomiting which is sure to follow. If the fermentative processes continue over any length of time, the portal system becomes loaded with the toxic products of food decomposition, and the patient acquires a characteristic muddy complexion, lustreless eyes, icteric conjunctivae, and a somnolent expression, which we are accustomed to

associate with a commencing cachexia. Haemorrhoids often occur, and add considerably to the other discomforts. The abdomen becomes distended and tympanitic, and the stomach dilated often to a point below the level of the umbilicus. This abnormally prominent abdomen forms a striking contrast to the rest of the body, which, in many cases of long duration, has become thin. The liver is usually larger than normal, and may be tender when palpated below the costal arch at the end of a deep inspiration. The bowels are obstinately constipated, and the stools are extremely offensive. The urine is always scanty, contains lithates in excess, not uncommonly a haze of albumen, and, in many instances, indican in varying amount. Chemical examination of the gastric contents would reveal an excess of total acidity, the greater portion of which would be found to be due to the products of decomposition, especially of albuminoid materials.

When fermentation ensues upon the asthenic variety of indigestion the same grouping of symptoms—vertigo, vomiting, eructation, etc.—is met with, but there are certain distinctive features to be borne in mind. The patient complains of a sense of over-fullness after the first few mouthfuls of food and immediately desires to relieve her oppression by loosening her clothes. She has choky sensations and eructations, which cause her to become temporarily purple in the face, and by and by she reaches a state of mental and physical inertia, from which she is often released, an hour or so later, by the regurgitation unchanged of the small quantity of food she has swallowed. She generally suffers from diarrhoea with fetid, frequent stools, both during day and night, accompanied by such urgency of demand for their evacuation that she is unable to risk going any distance from a place of convenience. She has constant headaches, often of the migrainous type, has her sleep disturbed at night by terrifying dreams, and experiences such continuous mental depression that life no longer possesses for her either brightness or hope. She has constant, and often extreme tenderness, over the pit of her stomach, the least pressure against which from without, or the mere contact from within of the blandest and simplest food, is almost certain to provoke a paroxysm of retching, acute epigastric pain, subsequent exhaustion, and not infrequently a terminal hysterical crisis. Chemical analysis of the stomach contents from a case of this type would reveal a condition of superacidity just as in the previous instance, but here it would be found that the carbohydrates had been imperfectly digested and that the fermentative processes had taken place almost altogether at their expense.

All forms of gastric fermentation are due to micro-organisms which inhabit or find their way into the stomach, and though the specific action of any of them as promoters of a special fermentation is uncertain, it would seem that some species have a preference for albuminoids and others for carbohydrates. The conditions which favour fermentation are: Unsuitable or excessive food, imperfect mastication, alcoholic beverages except in physiological amount, undue retention within the stomach of its contents, and abnormal ingestion of micro-organisms with the food or from the alimentary tract. The occurrence of fermentation always aggravates ordinary indigestion; it increases the irritability of the gastric mucous membrane, and readily leads to the establishment of catarrhal or other pathological conditions; it also contributes to the enfeeblement of the stomach wall, and favours dilatation.

These three varieties of indigestion usually remain true, more or less, to type throughout the continuance of the illness, but it occasionally happens that a patient suffering originally from the atonic form of the disease subsequently develops symptoms of its sthenic variety and ultimately presents unequivocal manifestations of fermentative processes. The victim of such a sequence of digestive troubles often takes his food fairly well after having forced himself to make a beginning. His appetite grows with what it feeds upon, and not unfrequently he rises from table without feeling quite satisfied. Within half an hour or so he experiences fullness and weight in the stomach; his face gets hot and flushed, he becomes restless, and cannot settle to read or to do any kind of work; he acquires a sensation of fatigue which tempts him to seek the comfort of an armchair or sofa, where he eventually falls

into an uneasy sleep. If he does not sleep too long he is refreshed and awakes with his local discomfort much improved, but he continues to complain of palpitation, swimminess, flatulent eructations, and regurgitations of mouthfuls of food without taste other than what belongs properly to it, without odour, and without marked acidity. The process is almost one of rumination, but when it is finished a period of complete comfort ensues, during which the ordinary occupations of every day are resumed comfortably. Later on, at from four to six hours after the meal, he gets a recurrence of malaise, ushered in by irrepressible yawning, general lassitude, excessive salivary secretion, and a sense of sinking in the epigastrium. "Hunger pain" is often felt, and cries out for the immediate relief that comes temporarily from any kind of food. It is not infrequently preceded by heartburn. The sense of emptiness at the pit of the stomach, which has not inaptly been described as "hunger pain," is spoken of sometimes as being pathognomonic of duodenal ulcer, but it occurs in many other conditions, and is especially associated with hyperacidity. The discomfort in the stomach sometimes increases to an acute burning sensation, which may radiate to the interscapular space or down into either iliac region or to the hepatic or cardiac areas, and in any of these situations is liable to arouse suspicion of local mischief, and lead to an erroneous diagnosis. The eructation of gas from the stomach or its passage from the intestine brings relief, and this is further increased by the next meal, which is by this time due. The meal being over, there is a repetition of the previous sequence of symptoms. If it happens to be dinner, the patient may go to bed feeling quite comfortable, and may fall into a profound and natural sleep; but in the early hours of the morning—often between two and three o'clock—he is awakened or disturbed by unpleasant nightmares, or violent palpitations, or a sensation of choking, or an extreme irritation of the skin, or a feeling of intolerable heat that compels most of the bed-clothes to be thrown aside, and the rest of the night is more or less restless, so that in the morning, when it is time to rise, the man clamours for longer rest, and declares he is more tired than when he went to bed.

What is the explanation of such a succession of events? Under normal circumstances, when food is taken into an empty stomach it excites the activity of the gastric glands, and the acid secretion which they pour out automatically produces closure of the pyloric orifice. The digestive processes act upon the albuminoid elements of the meal and render them fit for assimilation, and in this occurrence the acidity of the chyme is gradually diminished. The pylorus then relaxes and allows the gastric contents to pass on to the duodenum, where their remaining acidity is completely neutralized by the biliary, pancreatic, and intestinal secretions. Roughly, this is the normal process. But in a case of complex indigestion such as we are now considering, the original excitation produced by the entry of food into the stomach is insufficient to call forth an adequate supply of gastric juice, with the result that the food tarries too long in the stomach, as proved by the regurgitations of unchanged aliment which is one of the accompaniments of the condition. The subjective symptoms which characterise this period of gastric inactivity are precisely those which have been recorded as demonstrative of the asthenic form of indigestion. The stomach contents during this time are already undergoing fermentative changes, and are being projected, in this condition, into the duodenum. Coincidentally the gastric juice, which was at first delayed, is now provided superabundantly some hours after the meal, and, mixing with the acid remnant of the previous meal, rapidly converts an asthenic into a sthenic type of disturbance. Unless treatment rapidly remedies the sthenic condition, fermentative changes will increase, and the patient will pass into the ranks of those who suffer from the third variety of the classification we have adopted.

We are now in a position to pass on to the most important problem connected with this disorder—namely, the application of our knowledge to the question of practical treatment. But there are certain leading facts which should be recalled, and some general principles which must be referred to as being applicable to all varieties of indigestion.

The hydrochloric acid which is secreted by the stomach is derived from the chlorides of the blood, which are split up so as to leave the alkaline element behind. During active digestion, therefore, both the blood and the urine become more alkaline than during the intervals when the gastric functions are in repose. When gastric juice is not secreted in sufficient amount, the urine remains acid after meals, and there is a more or less complete absence of the normal "alkaline tide."

During normal digestion certain fermentative processes go on in the stomach without producing symptoms of any kind; but when there is either an insufficient secretion of hydrochloric acid, or an abnormal delay of food in the stomach, fermentative decomposition becomes excessive and pathological.

The discharge of the stomach contents through the pylorus is not constant, but takes place by intermittent jets. The time which the food takes to leave the stomach can be ascertained by the administration of a fifteen grain dose of salol. This substance does not undergo any change in an acid medium, but in alkaline surroundings it splits up, at the ordinary temperature of the body, into phenol and salicylic acid. The presence of the latter is readily determined in the urine by the addition of a neutral solution of ferric chloride. Though the time of its appearance is subject to considerable variation, the reaction may be expected to declare itself, when the condition of the digestive organs is normal, within the limits of from forty-five to seventy-five minutes after the salol is taken.

The absorptive power of the gastric mucous membrane can be tested by means of potassium iodide. If three or four grains of this salt be given in a capsule it will be possible, in a normal state of the stomach, to determine its presence in the saliva in from ten to fifteen minutes after the capsule has been swallowed. Filter-paper soaked in a solution of starch is moistened from time to time with saliva and then touched with fuming nitric acid. Whenever iodine is present in the saliva the filter-paper, at the point of this contact, will turn blue. According to Ewald, if absorption is delayed until one or more hours after eating, it is pathological.

The imperfect comminution of the food by undue hurry over meals, or by decay or absence of teeth, is frequently the starting point of digestive troubles. Carious teeth form admirable breeding grounds for microbes of all sorts, which readily and continually find their way from the mouth to the stomach, where they rapidly set up lactic acid and butyric acid fermentations should hydrochloric acid be at all deficient in amount.

Heredity has an important bearing upon the etiology of indigestion. Certain families throughout many generations give a history of dyspeptic disorders in many of their members, and it is noteworthy that a gouty ancestry generally connotes a likelihood of sthenic indigestion, whereas a neurotic and anaemic inheritance is associated with the asthenic type of stomach disorder.

Appetite is powerfully influenced by the state of the portal circulation; the desire for or dislike of food is therefore largely dependent upon the condition of the liver. Speaking generally, appetite is increased in sthenic and diminished in asthenic cases. Lauder Brunton says that "a lack of appetite, restored by eating, indicates an atony of the stomach which is likely to be benefited by tonics and stimulants; a craving appetite, easily satisfied, or anorexia with a tendency to nausea in eating, indicates irritation and requires sedative treatment."

Pyrosis, which is a leading symptom in the sthenic variety of indigestion, is the result of reflex activity of the salivary glands from some form of stomach irritability, of which excessive acidity is the most common. There seems to be an appeal on the part of Nature for sufficient of the alkaline saliva to neutralize this hyperacidity and cure the sensation of heartburn produced by the contact of acrid fluids with the lower end of the oesophagus, whose mucous membrane is much more sensitive than that of the stomach itself.

Flatulent discomforts are caused both by active fermentation and by the swallowing of air.

When indican is found in the urine its presence is to be regarded as evidence of albuminous decomposition, and in cases of indigestion this is most frequently the result of putrefactive changes in the small intestine.

An acute form of indigestion is encountered either in people of gouty habit or in those who have eaten an unsuitable and excessive meal. Pain and discomfort some hours after the meal announce that the stomach is unfit to overtake its duty, and the condition is usually relieved by active vomiting. If the fermenting contents of the stomach have been retained long enough to produce a mild toxæmia, some days may be required for complete recovery.

Motor insufficiency of the stomach may be recognized by splashing of the gastric contents on shaking the patient. This splashing sound is not of itself a morbid symptom; it only becomes so if it is persistent and is confirmed by other physical signs.

For its successful treatment indigestion requires care and judgement on the part of the physician and obedience and perseverance on the part of the patient. No two cases can be treated exactly alike, because there is no disorder in which so much attention to idiosyncrasy is necessary, especially in matters of diet. Dietetic rules are none the less necessary both to correct habits of imprudence that may have been formed, and also to educate the dyspeptic patient to a disciplinary routine which experience proves to be requisite for the maintenance of a proper balance between his intake of food and his capacity for digesting it.

With the reservation, then, that the following suggestions are to be regarded in the light of general principles only, let us consider first the procedure to be adopted in cases of:

1. *Sthenic Indigestion*.—Treatment of this variety of indigestion must be essentially sedative, both as regards medicine and food. It must also aim at counteracting the hyperacidity, which is the principal disturbing factor in the illness. The patient should give himself as much rest, both mental and physical, as he can conveniently command. He should have long nights in bed, observe the greatest regularity and moderation in regard to his meals, take a suitable amount of daily exercise in the open air, and indulge in a comfortably warm bath with subsequent active towelling every morning before breakfast. A Turkish bath once a week, if taken with due regard to individual requirements, followed by the use of a flesh brush, vigorous massage, and spirit rubbing, is a helpful addition to other treatment. In some cases it is a good plan to restrict the diet for the first three days entirely to milk. If your patient can be induced for these three days to remain quietly at home and to live wholly upon milk and Vichy water—two parts of the former to one of the latter—in quantities of 6 oz., taken every two hours, he will establish an excellent foundation upon which to build up successfully his subsequent treatment. In many cases it will be found that the addition to each pint of milk of from 20 to 30 grains of citrate of soda makes it more easy of digestion. Peptonization is unnecessary. Passing from this preliminary and drastic restriction, his meals afterwards should be arranged on the following plan: In the early morning a tumblerful of water as hot as can be borne, to which has been added half a teaspoonful of bicarbonate of potash, to be slowly sipped; for breakfast, oatmeal porridge or quaker oats with cream, hot milk and water without sugar, toasted bread or rusks and butter, and one egg, boiled, poached, or scrambled. For luncheon, chicken, game, tripe, or calf's-head; purée of vegetables; fresh fruit, cooked with glycerine or saccharin, and cream; biscuit, or toast, with butter and cheese; an alkaline table water. In the afternoon cocoa made from the nibs, dry toast, and butter. For dinner, clear soup, white fish, boiled or grilled, without rich sauce; pâté of macaroni, rice, vermicelli, etc.; a course consisting of a freshly-cooked vegetable in season, with melted butter; a simple omelette or pancake, with compôte of fruit, unsweetened; one to two ounces of well matured whisky or brandy in one of the alkaline table waters. Fluids should be reserved for the end of the meal, bread should be taken in small amount and toasted, salt ought to be indulged in sparingly, and after luncheon an hour's complete rest is desirable. Medicinally, each meal should be preceded by some such sedative mixture as the following: Tincture of belladonna and tincture of opium, of each 10 minims, liquid extract of ergot 15 minims, spirits of peppermint to 1 drachm; to be taken in two tablespoonfuls of water a quarter of an hour before the meal. This combination of drugs controls the glandular secretion of the stomach and

diminishes the excitability of the mucous membrane. It does not, however, prevent hyperacidity later on, and therefore it is desirable to deal with this by ordering the following powder to be given immediately after the first sensation of epigastric discomfort declares itself: Magnesium carbonate, sodium bicarbonate, and bismuth carbonate, of each 20 grains; Dover's powder, 3 grains; to be mixed in Vichy or other mineral water and taken after meals as directed, with a second powder an hour later if the discomfort persists. The liver should be stimulated and the bowels kept in order by an occasional mild antibilious pill. Constipation should be corrected by a sufficient dose of Carlsbad salts taken in the morning tumblerful of hot water. After the stomach symptoms are controlled it is often desirable to establish a better tone of the nervous system by a suitable tonic.

2. *Asthenic Indigestion*.—In the treatment of asthenic cases the object to be achieved is stimulation of the feeble gastric functions, bearing in mind that both secretory and motor power are at fault.

As regards food, it is a point of importance to remember that, in contradistinction to sthenic cases, milk should be given at first sparingly, because it tends to diminish gastric secretion; it also delays hepatic activity and induces constipation. The following arrangement of food will suit many cases: In the early morning a tumblerful of hot water, to which a thick slice of fresh lemon has been added, to be sipped slowly; for breakfast, weak tea or coffee, sweetened with saxon, toasted bread and butter, bacon and egg, cold ham, or white fish; during the forenoon a small cupful of meat jelly with a finger of toast; for luncheon, freshly cooked red meat thoroughly minced or pounded, and, in small quantity, purée of vegetables, milk pudding, biscuit and cheese; one claretglassful of an infusion of malt, prepared according to Robert's formula; in the afternoon, cocoa, biscuit or toast spread with butter, and Liebig's extract of meat, or with raw-meat pulp; for dinner, white fish, chicken or game, mashed potato or other cooked vegetable, stewed fruit or omelette, one glass of Burgundy, claret, or wood port wine; at bedtime, one teacupful of Benger's food, to which has been added one dessertspoonful of brandy. Bread should be taken sparingly, and must always be stale or toasted; condiments such as pepper, mustard, chutney, Worcester sauce, etc., may be allowed, to stimulate the appetite; ammonium chloride should replace common salt; a short rest after the principal meals is desirable; residence in the country rather than the town; moderate exercise in the open air; a morning warm bath, followed by a cold douche to the spine while still standing in the hot water, with subsequent vigorous towelling; and superficial massage over the stomach for ten minutes before going to bed at night. As regards medicines, each meal should be preceded by a simple bitter alkaline mixture, such as the following: Potassium bicarbonate 15 grains, tincture of nuxvomica 10 minims, tincture of capsicum 5 minims, compound infusion of gentian to 1 oz. Should epigastric discomfort ensue in the early days of treatment after a meal, one of the powders suggested for sthenic cases should be taken at once. The bowels, when constipated, as they usually are, should be regulated by a simple pill taken every evening before dinner. A useful combination will be found in leptandrin 1 grain, aloin $\frac{1}{2}$ grain, powdered ipecacuanha and extract of belladonna, of each $\frac{1}{2}$ grain, extract of rhubarb 2 grains. After we have succeeded by these methods in stimulating the gastric functions to such activity that the subjective symptoms are controlled, the alkaline bitter mixture before food should be replaced by tonic medication so arranged as to assist Nature's efforts until stability of function is restored and the general tone improved. For this purpose such a prescription as either of the following may be ordered: (a) Dilute hydrochloric acid 15 minims, pure carbolic acid 2 grains, strychnine solution 5 minims, tincture of ginger 15 minims, infusion of calumba to 1 oz. To be taken three times a day, one hour after meals. (b) Finkler's papain 2 grains, pure carbolic acid 2 grains, strychnine $\frac{1}{10}$ grain, extract of cannabis indica $\frac{1}{2}$ grain, and extract of taraxacum 2 grains; to be dispensed in a capsule and taken after meals three times a day.

3. *Fermentative Indigestion*.—As has been pointed out, this form of indigestion is most frequently a sequel to the sthenic or asthenic varieties of the disorder. Its proper

management consists in supplying an aliment as little fermentable as possible; in preventing prolonged accumulation of food in the stomach; in promoting normal gastric activity; and in the administration of suitable antiseptics.

It is of first importance to ascertain whether the fermentative processes are mostly concerned with the albuminoid or with the carbohydrate constituents of the daily menu—whether, in short, the preceding type of indigestion has been of the sthenic or of the asthenic variety. The diet being arranged on a plan to meet the one or the other of these indications, ought to have, as an addition to luncheon, sour-milk cheese, which should be thickly spread on toast or biscuit and taken at the end of the meal. There are endless lactic acid preparations, but one of the best and most reliable is sold under the trade name of "Uga." It is supplied in small squares, one of which should be consumed in three or four days.

The next point of importance is to deal with the distension of the stomach from undue retention of the food which all fermentative cases present. There are two methods by which this fault can be overcome: either by the administration of emetics or by the practice of lavage. On the whole, it will perhaps be found that the best results are obtained by a combination of these plans. Despite its unpleasantness, there can be no doubt that the old-fashioned system of clearing the stomach by 15 grains of ipecacuanha, 30 grains of sulphate of zinc, or $\frac{1}{2}$ grain of apomorphine given hypodermically has much to commend it. The effect is not only to empty the stomach thoroughly, but also to stimulate its contractile power, and to counteract the tendency to pyloric spasm. When resorted to, the emetic should be administered first thing in the morning, and repeated every alternate day for three doses. If this does not succeed in affording relief and improving the tonicity of the stomach wall, it is then desirable to wash out the stomach every morning for a week or ten days with a mild alkaline solution, taking care that the lavage is carried out so effectually as to ensure the removal of every particle of fermenting food which the viscus contains.

As regards drugs, it is in this variety of indigestion that antiseptics find their greatest value; they may be given either in acid or in alkaline media, according to the requirements of the case. For acid mixtures pure carbolic acid in 2-grain doses, and for alkaline mixtures sulphocarbonate of soda in 15-grain doses, will be found extremely serviceable.

Examples of carbolic acid combinations have already been quoted in dealing with the later treatment of asthenic cases.

Constipation is the rule in these cases, and must always be corrected by simple aperients in combination with calomel. In cases that prove very rebellious it is often helpful to rest the stomach entirely for forty-eight hours. During this time of fasting the patient's nutrition can be satisfactorily maintained by nutritive enemata given every six hours. A suitable enema can be prepared in this way: The yolk of 1 egg, Carnrick's peptonoids 1 oz., glucose $\frac{1}{2}$ oz., chloride of sodium $\frac{1}{2}$ eggspoonful; peptonized milk to 6 oz.; to be made comfortably warm and slowly introduced into the bowel by a soft rubber tube and funnel.

The prescriptions which are here suggested must obviously be subject to modification according to the requirements of each case, and are to be accepted only as examples of drug combinations that have been, in my own experience, useful.

The complications which may attend indigestion have not been referred to; they are many, and require to be treated on general principles as they arise.

A VOLUME has been issued giving an account of the proceedings of the Association Médicale Internationale contre la Guerre since the date of its foundation up to its annual meeting last year. The body is one which was brought into existence mainly through the energies of Dr. J. Rivière during the Russo-Japanese war, and has for object the bringing to bear the influence of its medical adherents for the suppression of warfare. The next general meeting of the association is to be held in Paris in September. Information regarding it can be obtained from its President, Dr. J. Rivière, 25, Rue des Mathurins, Paris.

Remarks

ON

HOUR-GLASS CONTRACTION OF THE STOMACH.

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HOUR-GLASS contraction of the stomach is said to be a very rare disease, but it is probably not so rare as it is supposed to be, for I have operated upon six patients who were suffering from it during the last three years. The narrowing was due to the contraction of a simple ulcer in five, but carcinoma had been grafted upon simple ulcer in the sixth case. The condition would not have been recognized in at least three of these without the aid of the bismuth and x-ray method of examination. No operation would have been performed, and the patients, who are now living and well, would have died unrelieved with their condition unrecognized. Twice a diagnosis of late carcinoma had been made, and a hopeless prognosis had been given. The bismuth method undoubtedly affords the most reliable means of diagnosis of hour-glass contraction, and it ought to be used more frequently. Five of the patients were extremely ill at the time of operation, and had been invalids for many years. Earlier diagnosis and treatment would have saved them much pain and misery. It is even possible that malignant disease would have been prevented in the sixth case. All the patients fortunately recovered from the operation, and they are now in fair but not robust health. The patient with malignant disease, although greatly relieved, is of course only better for a time. Early operation not only lowers the mortality, but makes the restoration of health more complete. The mortality of recorded operations for hour-glass contraction is high, therefore the recovery of these patients, in spite of very grave conditions, is gratifying, and is chiefly due to recent improvements in technique, and in the treatment of patients before and after operation. In most cases gastro-gastrostomy is the most suitable operation, but in two of these patients pyloric stenosis had to be relieved at the same time. For this gastro-duodenostomy, after Finney's method, was easily done and was efficacious. On account of the interest of the condition, a detailed account of the six cases will now be given, and this will be followed by a short discussion of the pathology, diagnosis, and treatment of hour-glass contraction.

CASE I.

Mrs. M. D., an American lady aged 42, was brought to me by Dr. J. C. Cook towards the end of October, 1909.

History.

She gave a history of lifelong constipation and indigestion. About ten years ago she began to have attacks of biliary colic about once or twice a year, but these entirely ceased four years ago. She has never been jaundiced. Since she was a girl she has suffered a great deal from indigestion. For the last three years she has had almost constantly a dull pain in the epigastrium, but this has become a great deal worse within the last few months, and has lately shifted up the sternum as high as the sternal notch, where it is sometimes very severe, especially when the patient swallows. The indigestion has been very bad during the last eighteen months. At first she used to vomit about once or twice a week, but gradually this has increased in frequency to once every day, and lately after every meal containing any solid. She has never had hæmatemesis or noticed melaena. Gradually the amount that she can swallow at a time has diminished. After the food she has a feeling of a lump in the throat and under the breast-bone. For months she has not been able to take solid food in comfort. The attempt has always been followed by great pain, which is only relieved by the return of all the food. One day she took an oyster divided into four pieces; this was followed by great pain and vomiting, which was only relieved when the last piece of oyster was returned four hours later. The only solid that she could occasionally take in comfort was a Welsh rarebit. Occasionally her mouth fills with water, and then she brings up a small amount of mucus. The act of swallowing itself is not painful if the patient is content with a small amount of liquid at a meal. For the last year she has not been able to take tea. For months she has lived on peptonized milk, Benger's food, Brand's essence, and so on, in decreasing quantities at a time. These have been supplemented by nutrient enemata and suppositories. She has wasted progressively for two years, but much more