may fail or they may withstand the strain, but it is hardly safe to wait. An acute appendicitis may subside without the surgeon's aid, yet it is usually more prudent to call for that aid. By supplying gland products we attempt to reinforce the natural defensive mechanism and thus to prevent its exhaustion. Just as insulin may be said to rest an overstrained pancreas, so other glandular extracts may co-operate with the natural secretions and allow them to continue their work without depletion of their strength. In the words of Vines:¹⁸

"The aim of treatment should be fundamentally to encourage the re-establishment of normal conditions (that is, a metabolic balance), and since the endocrine glands are the regulators of normal metabolism it is to them that we should look for a means of obtaining the end in view."

Geikie Cobb has called these the glands of destiny, and it is probable that the personality or "make-up" of each member of the human race is influenced profoundly by the predominance of one or more of the endocrine glands. This implies that there is an endocrine balance which is normal for each individual, though differing widely in different individuals; and I believe that health depends upon the maintenance of that normal balance, with slight but constantly occurring deviations according to the needs of the moment.

Departure from health, on the other hand, probably depends on, or is associated with, an unusual deviation from the normal balance. The compass is deflected more or less violently. If, for some of the reasons which have been given—for example, faulty diet or long-continued emotional strain—the endocrine glands become temporarily inefficient, acute disease may result from the advent of a virulent organism in the system, which then responds well or badly, according to the underlying condition of the endocrine glands. If the latter are only slightly under-

mined as regards their efficiency, they will respond adequately to the sudden stimulus of an acute infective condition, in which case recovery is likely after a struggle. An example of this is lobar pneumonia. If the endocrine response is poor, death is probable. Even if the invading organism is one of comparatively mild virulence, death may result if the endocrine glands are inefficient. An example of this would be the occurrence of boils, or a scratch on the skin, followed by septicaemia in a sufferer from diabetes; or the occurrence of puerperal septicaemia in a patient with apical infection of the teeth, presupposing that no interference with the normal course of labour has been necessary.

According to this view subacute and chronic diseases represent varying degrees of virulence in attack, balanced by varying degrees of endocrine response in defence. Having set forth the theory, I am carrying out work at present in connexion with its application to treatment in acute infective conditions.

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SIMPLE ILEO-CAECAL LYMPHADENITIS.

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THE subject of mesenteric lymphadenitis has from time to time attracted attention, probably, however, not to the extent it merits. Considerable confusion still exists apparently, to judge from the writings that appear now and again, as to the forms in which the condition occurs. The disease may be purely tuberculous, purely non-tuberculous, or a mixture. Tuberculosis of the glands may be diffused, but much more frequently is localized to the ileo-caecal angle; its late effects here, particularly as a cause of obscure chronic right-sided pain, are familiar to all. It is not uncommon to find a septic exacerbation of the process, just as is so often seen in connexion with cervical adenitis.

It is desired here to call attention to the existence of a simple adenitis, which may be either an acute inflammation or a chronic hyperplasia. Occasionally a chronic hyperplasia is found throughout the mesentery of the small bowel—usually in younger children affected by some definite chronic enteritis; much commoner, however, is the condition here described, which is localized to the ileo-caecal lymphatics.

CLINICAL FEATURES.

The disease is seen chiefly between the ages of 5 and 15, and is more frequent in girls. Acute attacks may or may not have been preceded by other acute attacks or by chronic abdominal symptoms—for example, dyspepsia. A large proportion of patients conform to type: the child is a "finicky" feeder, is listless, easily tired, sallow; is liable to acidosis; the musculature is hypotonic. There is sometimes antecedent bowel irregularity, and acute attacks may be preceded by a definite catarrhal condition. It is notable also that a considerable proportion show cervical gland hyperplasia in addition; frequently there has been tonsillar trouble, as if the "stopping power" of the (alleged) first line of lymphatic defences of the mucosae were in general deficient.

Acute Attacks.

The pain is rapid in onset and nearly always right-sided, but sometimes is epigastric or diffuse at the beginning. Vomiting and nausea are relatively infrequent; the appetite may be retained throughout, and the tongue remains moist and only slightly furred. Fever is early and often much higher than in appendicitis, not uncommonly reaching even 102° to 103° F. The bowels may be loose or constipated; the breath often smells of acetone. True abdominal rigidity is not found, though the right side may not move freely; deep tenderness is present over a band about an inch wide under the outer and middle part of the rectus muscle, above McBurney's point. Swollen glands are commonly palpable with a conscious patient, practically always under anaesthesia. Pain is often elicited by either active or passive movement of the hip.

The disease is as rapid in recovery as in onset: two or three days usually sees it end, while the pain itself may last only a few hours. It will be obvious that while there is a superficial resemblance to appendicitis, the two conditions are sharply cut clinically.

Chronic Cases.

The patient comes under attention for repeated attacks, usually very short, of abdominal pain; there may be dyspepsia, and the case usually agrees with the type already described. The pain may be right-sided, umbilical, or epigastric; there may sometimes be persistent aching, worse on movement, on the right side. In a great number of cases the lumpy glands can be felt—the patient has a thin lax parietes; only slight tenderness is present.

PATHOLOGY.

The glandular condition is localized to the ileo-colic chain, and affects the ileo-caecal group in particular. In some cases glands were enlarged up to and in contact with the duodenum, and the lowest were commonly adherent in the ileo-caecal angle; nodes are frequent on the anterior and posterior aspect of the ileo-caecal junction, and in the meso-appendix. In the acute cases the swelling is considerable, the retroperitoneal tissue is oedematous and abnormally vascular, and there may be a small amount of clear colourless fluid in the peritoneal cavity. In the chronic cases the glands are firm, nearly always discrete,

and rarely larger than a filbert. There is never any evidence of peritoneal thickening or adhesion over these glands, as is so common in tubercle, nor are there visible the whitish or yellowish patches of that disease. The glands are semitranslucent, fawnish or grey, never white; there is never caseation or suppuration. The total number of nodes is not greatly increased, as is so characteristic of tuberculosis, nor is there dense periadenitis. On section the glands are homogeneous and firm: in acute cases they are oedematous and exude fluid, and show microscopically all the signs of acute inflammation; in chronic cases there is simple hyperplasia. Culture in two acute cases gave a growth of *B. coli*; in many, however, it was negative. All cases easily pronounced non-tuberculous on the above appearances were confirmed microscopically.

The bowel was carefully inspected in all cases, but in none was there any external evidence of ulceration, inflammation, or hyperplasia of submucous lymph nodes. In one case with intense glandular swelling the terminal two inches of the ileum and the caecum were intensely and uniformly glistening and rubbery, with the appearance seen after reduction of an intussusception—the condition was clearly one of lymphatic obstruction, and a result, not a cause, of the glandular disease. In general there is no gross appendicular disease (and it may be stated that manifest appendicular infection—for example, suppuration—is not associated with such glandular swelling as here described). Very constantly, however, there is a diffused, swollen, succulent condition of the mucosa, slight polymorphonuclear infiltration, and lymphoid hyperplasia, at times considerable. Other abnormalities—oxyurides, soft faeces, submucous fibrosis—were fairly common, but did not appear relevant.

PATHOGENESIS.

Once again it must be insisted that this disease is not tuberculous, and occurs chiefly in a very distinct type of patient, whose mucosae offer but poor resistance to the passage of bacteria and in whom exacerbations of infection are apt to precipitate attacks of acidosis. That the incidence is chiefly on the ileo-colic glands would suggest the altered nature of the bowel content in this region as a determining factor. No confirmation of a catarrhal disease of the caecum was obtained by microscopy of a small portion of this excised with the appendix. There is, however, another possibility: it is commonly said that lymphoid tissue, wherever found, is defensive, a barrier to infection; applied to submucous nodes, such a view is certainly open to the gravest objections, the structure of some such masses in particular giving the impression of being designed to favour the entrance of bacteria into the system. The appendix, by its structure, invites infection, and by its nature causes stasis and enhancement of bacterial virulence. In a large proportion of cases, but admittedly not all, treated by appendicectomy there has been not only cure of the symptoms but also a considerable improvement in general health. Treatment by intestinal antiseptics has been quite valueless, but, in view of their general inefficacy, perhaps the argument fails to carry weight as to whether or no the bowel is the source of the infection. The production of the acute attacks of pain may perhaps excite curiosity; it seems probable they may be vascular or neurogenous in origin, owing to the intimate relationship of the diseased structures to the neuro-vascular supply of the gut. In a recent case of acute adenitis it was seen at operation that irregular peristalsis had been excited, for, in addition to pronounced glandular disease, there was the beginning of an intussusception in the terminal ileum.

A protest should be registered against the widespread, rather happy-go-lucky "child will grow out of it" attitude; chronic infections in childhood may be the cause of grave damage, which may not become apparent until the stresses of middle age find the viscera exhausted; and it should be remembered in this particular instance that the infected lymphatics, as has long been known, are capable of inducing disease in such organs as the pancreas, gall-bladder, and pylorus.

TREATMENT.

In the acute cases, though recovery is invariable without intervention, and the diagnosis from appendicitis is usually

easily made, it will nevertheless often be felt that operation is safest, if only to put the diagnosis beyond doubt. In such instances the appendix will be removed.

In the conservative treatment of both acute and chronic cases the mouth and throat are put in order, the bowels are regulated, and the diet modified—green vegetables with plenty of roughage seem to exercise more influence than any other dietetic factor. If there be acidosis both sugar and alkali are necessary. A fair trial may be given to these and other general hygienic procedures (in my experience seaside air, sunlight, etc., have proved disappointing in these cases). A very considerable proportion of patients resisting such treatment will be cured by appendicectomy, and the opportunity can be taken to verify the non-tuberculous character of the case by microscopy of a gland. This again needs emphasis, as there seems to be an ineradicable general impression that all enlarged abdominal glands are tuberculous.

STATISTICAL SUMMARY.

Total cases 48; average age 10 years. Females 74 per cent.

Acute Cases (8).—Duration of symptoms three and a half days (average). Culture of *B. coli* from glands in 2 cases.

Chronic Cases.—Average duration of symptoms ten months. The patient conforms to type in about 75 per cent. Pain purely local in 72 per cent., on walking in 20 per cent. Glands felt without anaesthesia in 74 per cent. Constipation in 52 per cent.; occasional diarrhoea in 15 per cent. Tonsils removed in 17 cases. Urinary culture negative—9 female cases. Cases operated on 28; oxyurides in appendix in 6 cases; culture of glands always sterile.

Results.—Cases difficult to trace. In those followed, cures with great improvement in general health noted from six months up to five years. Four recurrences after operation—in one case there were several attacks during the first month after operation, none since; one case had several attacks up to two years after. Dental caries: one case (referred to under "Pathology") in which a large glandular mass was removed; this was actually said to be sarcoma by one pathologist. A painful attack occurred three years later; this seemed to be partial obstruction, possibly due to adhesions from the operation.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SARCOMA OF THE STOMACH.

MR. JAMES S. HALL's report on March 10th (p. 393) of a case of sarcoma of the stomach which clinically simulated a duodenal ulcer has led me to consult the records of an undoubted case which came under my observation.

Although the condition is said to be extremely rare, another case was recorded on January 22nd, 1927 (p. 139), by Mr. H. Stewart Brander. In both these instances symptoms pointing definitely to stomach or duodenum were prominent features, whereas in the case I saw the symptomatology was entirely different.

A young man, aged 20, pale and listless, had begun three months previous to admission to have twinges of pain in the abdomen. This pain was in no way related to the taking of food; he had had no sickness, and his appetite was good. He was found to have a tumour mass about the size of a man's clenched fist in the left hypochondrium and extending into the epigastrium. The tumour was slightly movable and was not notched. He had been sent in with a diagnosis of abdominal tuberculosis, but in appearance he looked more like a patient with a grave blood condition, and the position of the swelling seemed to support this. A blood examination gave a haemoglobin percentage of 70, with 4,500,000 erythrocytes and 12,000 leucocytes, a differential count revealed no abnormal elements.

One month after admission the abdomen was opened by Mr. James Taylor. A large tumour mass was found involving practically the whole of the stomach wall save for small portions at the cardiac and pyloric ends. It was adherent to the pancreas and to the under surface of the liver, and numerous gland masses were present in the gastro-hepatic and gastro-colic omenta. Removal of the growth was attempted, but was found impossible; a small portion and an enlarged gland were taken for pathological examination. Sections revealed small round cells of a typically sarcomatous nature with very little surrounding stroma. I for-