INDICATIONS FOR INTERNAL GLAND THERAPY.*

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To begin with, it is quite important to recognize that disturbances of the internal glandular system are accompanied by disturbances in all the tissues of the body. The tissue manifestations of such a disturbed system are manifold; to take a very common example, abnormal distribution of the hair. In certain disturbances of the thyroid gland, especially a deficiency of secretion, there is a deficiency of hair; in certain disturbances of the pituitary gland we find an increase in the growth of hair, so that patients suffering from a hyperpituitary state, instead of having an ordinary eyebrow will have eyebrows that meet over the nose, a nasal brow. Such individuals will be quite well covered with hair, abnormally or normally distributed. In gonadal disturbances we also have abnormal distribution of hair. In women with masculine characteristics menstruation begins very late in life, and often ceases for long periods; that type of woman has a distribution of hair very much like the male; instead of having a horizontal demarcation the pubic hair distribution assumes a pyramidal character, in the midline reaching to the umbilicus. Such a woman will also have a certain number of hairs on her breast and a tendency to a beard and moustache. Certain disturbances of nutrition involving the thyroid and parathyroid glands show a disturbance in the teeth, which have a consistency dif-

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ferring from the normal, and also differing in relative growth, size and color, with occasional pigment deposits.

Accordingly we have come to regard the characteristics of some of these tissue changes as fairly pathognomonic of certain states. In a large proportion of cases in which the lateral incisors are very small as compared with the central incisors and the rest of the teeth, when they are almost rudimentary, we usually find a gonadal underdevelopment. A woman with such undeveloped incisors usually has an undeveloped uterus and ovaries. The disturbances and lack of balance evinced by these changes are manifold and defy enumeration.

Then comes the important question: Is every case that comes to us showing such manifestations a suitable case for glandular therapy? Most distinctly not. In the large proportion of cases, showing characteristic evidences of disturbance, there are also manifestations of compensation. Acromegaly manifestations of compensating glands, which are among the ones that we see, are not necessarily the hallmark of the disturbances themselves. For instance, we see cases of acromegaly that need no treatment; the acromegaly has ceased; it is part of a process which has existed some or many years before the patient is seen. Shall we treat a patient because he has acromegaly? Certainly not. We investigate the mechanics of the disturbance by which he became acromegalic, and we may find that early in youth he had a status thyinicoymphaticus, some of the other glands compensating for the condition; but in this attempt to compensate, on the part of the pituitary for example, acromegaly was produced. This acromegaly is the indicator of the compensation and not the disease itself, and it comes to a stop when compensation of the pituitary gland is finally completed. This is similar to the hypertrophied heart. When the compensation is complete the patient needs no treatment; though he still has the hypertrophied heart. It is the same with some types of acromegaly. If the condition is checked there is no indication for therapy.

This holds for some thyroid conditions. We frequently see a girl with pronounced thyroidal enlargement but no general hyperthyroid symptoms. She wants to get rid of the thyroid for the cosmetic effect. You must realize how such a condition has been produced. If you will go back in her history you will find that the gland became enlarged on account of a latent hyperthyroid state. Although the gland remains fairly large the patient does not suffer, but if the gland diminishes in size the patient will immediately suffer from hyperthyroidism. We frequently see this thyroid type, but it needs no treatment any more than does the acromegaly mentioned. Surgical intervention may be harmful. We see then that the manifestations of internal glandular disturbance are not necessarily indications for treatment.

What then are the disturbances which indicate treatment? Certain terminal types, such as, Addison's disease, exophthalmic goitre, Raynaud's disease, and many others that are pictured in the textbooks, are largely beyond the reach of treatment; we cannot deal with them successfully so far as therapy is concerned; they are only fit for textbooks or museums. Therefore we must look about for a symptomatology or group of symptoms which will in a more or less general way indicate when the beginnings of these processes are at hand. If we can understand the beginnings and modify them, then to a large extent we can prevent the further development of structural or physiological changes beyond which therapy will not be of avail.

The list of symptoms of such glandular disturbances is quite long. I will mention only a few of these. They may be included in four or five categories. The first is fatigue; second, headache;
third, structural abnormality; fourth, gonadal and secondary sex changes; and the last is that which has to do with lack of tone and smooth muscle fibre, causing vasomotor and vegetative neurological disturbances.

The first of these, fatigability, is of prime importance, for it is for this symptom alone that we see one third of our cases of internal glandular disturbance. The patients simply recognize that they are weak, and that the work which they could previously accomplish without effort has become extremely irksome; going upstairs is an effort. This may come on at any time of life, is of most significance and most amenable to treatment between the ages of ten and twenty-five years. Of course you realize that there are numerous types of fatigability, not all of them necessarily due to glandular disturbance. Some of them are due to toxic states that may or may not be due to endocrine conditions; some of them are cardiovascular; others gastrointestinal; but the type in which no organic disease can be found is the type to which I refer.

If we examine these patients carefully we see certain characteristics. They show a low blood pressure; on laboratory examination they usually show a diminished blood sugar content—eighty milligrams of sugar to the 100 c.c. of blood or even less. These are two prime concomitants. This fatigability arises largely between the tenth and twentieth years. Such a patient will come to you with a history of rapid exhaustion and on close examination you will find certain other complaints; he has grown rapidly or is beginning to grow rapidly, and he may show some tendency to intratemporal headaches: he has a weakness in his vasomotor system, and he may have a weak bladder. We cannot confine fatigability entirely to the blood sugar content and to the low blood pressure, but with it we usually find symptoms referable to the other structures—the smooth muscle fibre atonicity, the abnormal growth of skeleton, the vagotonic gastrointestinal symptoms, and so on, but the prime factor is the fatigability.

There is another type of muscle fatigability the characteristics of which also indicate endocrine disturbance. Such fatigability, if progressive to any great extent, may finally develop into a progressive muscular dystrophy. These cases show low blood sugar, low blood pressure, and also show pineal shadows in early life. These pineal shadows after the age of thirty are negligible, but too early involution of the pineal gland will result in a disturbed muscular system. Probably the fatigability is partially produced by the low blood sugar content. The muscular fibres need sugar for their activities. If you diminish the amount of sugar, you diminish the potential activity to the same degree, other things being equal. If you ask what glands are disturbed in such a condition, I can simply say that each individual has a series of glands of different potentiality from every other individual, so that in one the adrenals may be at fault, and in another the pituitary, but the greatest number of these cases arise from a status thymolymphaticus. We are frequently asked: What becomes of the patients that don’t die a status lymphaticus death; how do they develop? They emerge from the state of status thymolymphaticus by a compensation of the glandular system. Among other things, a certain amount of fatigability may disappear. This may occur with or without treatment, or through the help of compensatory glands. So much for fatigability as an indication for glandular therapy.

The next prominent symptom and indication for treatment is headache. Every specialty has its type of headache, from the genitourinary to the psychiatric. There is a headache which may be produced by organic or functional changes in any of the organs of the body; but the headache por ex-
cellence which is due to a disturbance of the internal glandular system is caused by the mechanical pressure of the hyperactive or hyperastic pituitary body which endeavors to enlarge beyond the confines of the sella turcica that encloses it. Such headaches are described by the patients as being intratemporal. They will point directly to where the intersecting lines would meet approximately at the sella turcica. This type of headache is quite characteristic, and it almost invariably means a pituitary headache. What is the reason for this headache? A great deal of criticism has lately been aroused by various unqualified statements as to the conclusions that may be drawn from the radiograph of the sella turcica, and the criticism is just. There are certain sella turcica pictures from which we cannot draw any conclusions dependent on the appearance of the sella turcica itself; but there is a type from which one can draw a conclusion, this consisting of a sella turcica which is small, with the clinoids overlapping or impinging on one another, or invading the cavity itself, with erosion of any part of the bony capsule. The erosion is the important point. It is very difficult at times to determine whether or not the erosion exists, but in most cases it is clearcut and clearly defined. When you get such a sella which is eroded and small, you can rest assured that the headache is produced by the attempt of the pituitary body to enlarge. This headache is quite amenable to treatment.

The type of headache produced by thyroid dysfunction cannot be touched upon here. I am particularly interested in the pituitary type of headache. It is an extremely important indication for glandular therapy.

The next thing for the relief of which parents bring a child or adults come to us is disproportion in skeletal structure. These disproportions are very interesting. Usually they are acromegalic in type, compensatory in nature, and require no treatment. But if you find an underlying cause, this may be treated, and occasionally with satisfactory results. The abnormal structural condition in itself unless very gross is not of any great import either, outside of the chagrin of the bearer, but it means a former uncompensated internal glandular condition or one still in progress.

The types of disproportion which we see may be as follows:

1. That in which the thorax is quite short as compared with the legs. The ratio of thorax, compared with the length of the legs, by the standard used in my service is one half and is measured as follows: The numerator of the fraction is the length of the line from the sternoclavicular articulation to the anterior superior spine of the same side. The denominator is the distance from the anterior superior spine to the external malleolus. These abnormally constructed individuals may show a ratio of one to two and one half or one to three; long legs and short chest; or a long thorax and very short legs, with ratios of one to one and one half or one to one and three quarters.

Then we have with the thorax abnormalities others, such as very small or very large hands and feet. These growth disturbances, especially those in which the thorax and legs are in disproportion, are usually due to two factors, one being that in early youth there is a disturbed thymus, and in the other, a disturbed pituitary. A simple thymus gland disturbance, if such a thing were possible, would usually produce abnormal growth in the skeleton, no matter what the consistency of the bone might be. The increase in length is the remarkable feature, so that we have the so-called thymic giant, who may grow to six, seven, or seven and a half feet. The giant Turner, mentioned by Cushing, is a case in point; his hands and feet were large, but so was his body. In those cases in which there is a thymic subinvolution in addition
and psychotic state, and it is the psychotic state that causes also the distribution of the pubic hair is often ovary—and the clitoris is frequently large and protruding, resembling the male organ. In these cases also the distribution of the pubic hair is often

that of the opposite sex—so that males have an upper horizontal line of demarcation while females have the pyramidal type usual in the male. These patients have difficulty in adjusting themselves to their surroundings and especially as regards companions of the same sex. They recognize their departure from type and a true psychosis frequently develops on this basis.

Finally comes the group of patients who complain of various vasomotor disturbances. Of course many of these disturbances are due to actual cardiovascular disease but there are certain individuals in whom you cannot find such a disease, and they are of all ages, they suffer from paresthesias, and tingleings, and sweating at various times, and they come to us for relief. They may reach the point of having trophic skin disturbances, and they are treated for various types of skin affection, whereas it is actually often a vasomotor condition based upon an endocrine disturbance. These patients usually have a deficient endocrine supply with a low blood pressure, though the blood pressure may not be noticed at the first examination.

If you take the blood pressure of such individuals after you have asked a few questions bearing on their condition and they have become somewhat reassured, it may be practically normal; but if you let the cuff remain in place for a time and engage the patient in a conversation extraneous to his condition, and then take the blood pressure you will find that it is not normal, but may be as low as ninety-five or one hundred systolic. This escaped observation because of the method of taking the blood pressure. These patients have dizziness, lightheadedness, head pressure, with occasional digit mor-tui.

With these vasomotor disturbances we usually have a suprarenal deficiency, and it is accompanied by a condition which renders the patient subject to shock on slight provocation. We not only have
clinical evidence of such disturbance, such as the white line of Sergent, but we also have laboratory findings to support the diagnosis. We may have a low carbon dioxide combining power of the blood; we may have a white cell count with a moderate degree of eosinophiles; a moderate relative lymphocytosis with a small increase in the white cells. The white line of Sergent is produced by stroking the surface of the body with the palmar aspect of a finger. The line varies, depending upon the portion of the body which is stroked. The upper thorax gives a pink line which gradually disappears; if you stroke the abdomen, the pink line is not so much in evidence, or there may be no line; if you stroke the thigh, you will get a faint pink line with a white line following; but if you find a marked white line with no pink, or if you find in the upper thorax a white line after stroking, it is probably due to a lack of adrenalin.

These patients also show other characteristics which are interesting. Such patients are prone to hernia, to varicocele, and to varicosities of the veins elsewhere, to visceroptosis and gastrophtosis; they are subject to bed wetting. Many of the men in the army when examined on account of this condition showed a marked disturbance of the adrenals.

So we have a series of symptoms with which our patients meet us, none of them very bad, just beginning, except perhaps the headache, which they may say has persisted for a year or more. We may see them before there is much structural change. For the most part the symptoms are apparently isolated and we treat them as being due to one or another organ without much success. As soon as we realize, however, that these symptoms are referable to internal glandular disturbances, the conception of the matter changes, and therapy may be advantageously applied. It is surprising to see in most of these patients with structural abnormalities that there are concomitant psychic states. It has always been a mooted question whether such a psychic state precedes the vegetative disturbance or whether the glandular disturbance precedes the psychic state. Possibly sometimes one and sometimes the other. Nevertheless, you make take it for granted that there are psychotic states that accompany these internal glandular disturbances, and it is of great importance to recognize them. If you realize the organic basis of some of these disturbances and treat that organic basis of the abnormal structural condition, the treatment will very frequently be accompanied or followed by a marked improvement in the psychic state, and that is of great importance. Every case of Addison’s disease that you have seen has begun with fatigability; status thymicolympaticus may have begun with bladder weakness, bed wetting. Many of the cases of acromegaly that you see in late life were originally status lymphaticus cases; hemophilia, the spasmodilia, the purpura, have often been traced to early status thymicolympaticus; giantism and acromegaly may be ushered in by intratemporal headaches; exophthalmic goitre by vasmotor instability; many psychoses develop parallel to gonadal deficiencies or inversions; in short, the extreme cases of endocrine disease which we see and which we can rarely help, can be frequently combated in their infancy if we can properly evaluate the seemingly simple initial symptoms.

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