

INDICATIONS AND CONTRA-INDICATIONS FOR DENERVATION OF THE ADRENAL GLANDS

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THERE are certain diseases that are caused by the excessive activity of the brain-thyroid-adrenal-sympathetic system among which may be included neurocirculatory asthenia, hyperthyroidism, peptic ulcer and possibly diabetes.

It is found that this excessive activity can be lessened by denervation of the adrenal glands. This involves the principle of pathological physiology. We have applied this conception in 326 cases of pathological physiology of the adrenal-sympathetic system with the following results:

We have found that even more effective than bilateral denervation is unilateral denervation with section of the major and minor splanchnic nerves.

First of all, I should cite certain end-results of continuous activity of the brain-thyroid-adrenal-sympathetic system in which this operation is not effective.

Hypertension.—In established cases of hypertension, the end-results of adrenal denervation are negative. In cases of early hypertension in young subjects, however, there is evidence that denervation may stabilize the process.

There is evidence also that even in late cases the blood-pressure becomes stabilized against the violent uprushes that occasionally occur in hypertension. This should lessen the percentage of vascular accidents. On the whole, however, denervation in cases of hypertension has given disappointing results.

Raynaud's Disease.—The results of adrenal denervation in the treatment of Raynaud's disease do not as yet justify the use of this method of treatment. Our thesis that kinetic diseases may be cured by some form of dekineticizing procedure still holds true, however, as this disease is cured by the excision of sympathetic ganglia. It may be questioned also whether this is truly a kinetic disease.

Psychoses.—In the presence of psychoses, neurasthenia, or any condition in which the seat of disturbance is in the brain, adrenal denervation is contra-indicated, but these are not kinetic diseases as the adrenal-sympathetic system is not involved.

In all forms of true kinetic disease, however, with the exception of hypertension and Raynaud's disease, adrenal denervation is proving to be almost a specific method of treatment.

Neurocirculatory Asthenia.—Our 120 operations on the adrenal glands in cases of neurocirculatory asthenia include seven adrenalectomies and 113 denervations. This series includes forty-three cases in which the neurocirculatory asthenia was complicated by psychoneurosis. A recent follow-up shows improvement or cure in 93 per cent. of the uncomplicated cases. In some

cases the beginning of the improvement is delayed, but when once started it progresses steadily.

Hyperthyroidism.—Of the seventy-nine operations on the adrenal glands for hyperthyroidism, eleven were adrenalectomies and sixty-eight were denervations. There has been improvement or cure in 100 per cent. The improvement has been manifested by an average gain in weight of twenty pounds as contrasted with a pre-operative average weight loss of thirty-one pounds; a reduction of the average basal metabolic rate from plus 33 to plus 3 per cent.; a reduction of the average pulse rate from 120 to 80. It should be emphasized that adrenal denervation is not advocated as a substitute for thyroidectomy in the treatment of hyperthyroidism. In certain cases, however, especially when there appears to be an element of neurocirculatory asthenia associated with the hyperthyroidism, or in cases in which impairment of the voice would mean an economic loss as in the case of a singer or preacher, adrenal denervation may be substituted for thyroidectomy.

In cases of recurrent hyperthyroidism, thyroidectomy or at least a lobectomy should be performed first to be followed by adrenal denervation, since the fact of the recurrence shows that more than a local attack is required to cut down the hyperactivity of the thyroid-adrenal-sympathetic system.

When a psychosis is associated with the hyperthyroidism, adrenal denervation will accomplish no more than will thyroidectomy. By either operation the objective symptoms of the disease may be abated or cured, but the psychosis will remain.

Peptic Ulcer.—As the result of our thirty-nine operations on the adrenal glands for peptic ulcer, of which thirty-four were denervations, 10 per cent. have been improved and 86 per cent. cured.

A consideration of our case histories brings out three significant facts:

(1) That it is almost as illogical to expect an ulcer in a young and temperamental subject to be cured by a local operation as to expect Raynaud's disease to be cured by the amputation of a finger.

(2) That the clinical results of adrenal denervation tend to improve with the lapse of time.

(3) That even a unilateral denervation, though not so potent as bilateral denervation, may so modify the general state of the patient that ordinary therapeutic measures will keep him relatively comfortable.

In a number of cases in which the ulcer has recurred repeatedly after local operations, adrenal denervation has given the first real relief from the symptoms. It follows that denervation is specifically indicated in cases of peptic ulcer in which medical and surgical treatment has failed.

Epilepsy.—Since epilepsy involves rhythmic hyperactivity of the entire energy system, muscular system and glandular system, and since the execution of such a body-wide activity involves the glands that govern energy as well as the brain and the nerve ganglia, one might expect that denervation of the adrenal glands and excision of nerve ganglia might mitigate the severity of the attacks; might convert a major into a minor epilepsy; might even effect

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a cure. Even if it were only possible to convert attacks of grand mal into those of petit mal, it would be well worth while. We have treated forty-four cases of epilepsy by various types of dekineticizing procedures, thirty by denervation. Sixty per cent. of these patients have shown improvement or cure. In five cases not included in the above percentage, the operation was performed too short a time ago for any judgment to be formed regarding the end-results.

Diabetes.—It is difficult to evaluate the cases of diabetes as most of them were associated with hyperthyroidism, but we can say definitely that of the eight cases in which adrenal denervation and thyroidectomy have been performed, the diabetes has been ameliorated or cured in all.

Polyglandular Disease.—In seven cases of polyglandular disease, manifested especially by hirsutism and obesity, denervation has been followed by disappearance of the hypertrichosis and restoration of a normal habitus.

Just as the results of adrenal denervation in cases of hyperthyroidism and of peptic ulcer demonstrate that these diseases do not originate in the thyroid gland or in the stomach, so the results of this operation in cases of polyglandular disease demonstrate that this disease does not originate primarily in the ductless glands, as had also been demonstrated by the fact that in these cases, at least, replacement therapy has been ineffective.

It would appear that polyglandular disease, like hyperthyroidism, peptic ulcer and neurocirculatory asthenia is the result of a pathological physiology of the adrenal-sympathetic system.

Our cases indicate that the former conception that polyglandular disease originates primarily in the ductless glands is not supported. That such a conception is incorrect has received further support from the fact that replacement therapy has heretofore failed to bring relief. Since in these cases the only effective treatment consisted simply of lessening of the pathological activity of the adrenal-sympathetic system, it would appear that in each case the disease was a pathological physiology of the sympathetic system and that the glandular disturbances were end-effects. In three subsequent cases of this disease which have been treated by denervation only, similar relief was obtained.