wall plastered with feces before coming to an appearance of mucous membrane. An interesting thing with most of these people, not all of them, but most of them, is that they have toxic symptoms. I have no term for the condition. One may accept it as an infective condition of the mucous membrane from which there are toxic bodies that get into the circulation by way of resorption into the inferior hemorrhoidal veins. Not a few of these people have definite symptoms of some sort anywhere in the body. It is not an uncommon type of case, I am sure, and I merely want to mention it in connection with these various infective pathologic changes and to say that it has clinical significance as a producer of symptoms and that usually the patient is readily cured with a few enemas containing hydrogen dioxide.

DR. EMMETT H. TERRELL, Richmond, Va.: Both Dr. McKenney and Dr. Hirschman are proctologists and they can readily recognize this disease which they call cryptitis. Most of the physicians here, I take it, are gastro-enterologists, and probably the term "cryptitis" is not quite clear. Cryptitis occurs at the bottom of the little anal valves and may occur from the retention of seed or of fecal matter. This does not remain a simple cryptitis very long. After the infection exists there for a while, the valve becomes thickened and hypertrophied, which one recognizes as a papillitis. Soon the infection will pass beneath the mucocutaneous membrane, between it and a thin layer of fascia outside of it, producing what I term an anal sinusitis. An infection of this sort is frequently recognized when one is making a digital examination, being manifested by a marked spasm and irritability of the sphincter muscles.

DR. B. J. DRYFUSS, New York: I wish to say just a few words in regard to the etiology of this factor. One sees numbers of foreign bodies of all kinds, and today with the newspapers and magazines and radios all broadcasting the use of bran, psyllium seeds and colonic irrigations, it is a wonder that almost every one hasn't some sort of fecal infection. Any one who has done any amount of proctoscopic work, I am sure, will feel as I do, that these things, bran, psyllium seeds and roughage, which I am using in contradistinction to residue, work damage; and no one will be surprised to hear what Dr. Hirschman as well as Dr. McKenney said. I think it is a duty obligatory on us here as gastro-enterologists and proctologists and proctoscopists to start some sort of investigation to find out exactly the proportion and the value or lack of value of these irritants. Their pathologic results are evident to any one who has done any of that work and I feel sure it doesn't stop in cryptitis and proctitis but extends even further into carcinomatous conditions, diverticulitis and the rest, all of which have greatly increased in number in the last few years.

DR. DESCUM C. MCKENNEY, Buffalo: Regarding what has been said about the use of the anoscope and probe in making examinations, a sinus can easily be made by the latter when none is present, unless care is used. There will be less need for these instruments if one will first bimanually evert the anal canal, often thus exposing the anal pockets, showing signs of redness and inflammation, pus pouring from a pocket or even a sinus. One should follow this by palpation of the same region, which may reveal swelling or induration of the crypts. After this the instruments mentioned may be helpful in the diagnosis. There is no doubt that the upper part of the intestinal tract is responsible for a lot of anorectal trouble. I have seen, as Dr. Bassler has said, many times, dry particles of feces in the intestinal tract and have regarded it as abnormal but haven't quite understood what it was. I have thought it was an atrophic condition of the mucosa. Dr. Dryfuss has said what I tried to say, only said it so much better that I hope it will bear fruit, because I am sure, as I intimated, the use of bran and psyllium seeds is certainly doing a lot of harm. There was a question as to how to soften stools. I think the best thing of all is plain agar and liquid petrolatum used properly; and, when necessary to get the bowels to move, small cool enemas, given through a male catheter, as needed, are most helpful.

DR. LOUIS J. HIRSCHMAN, Detroit: I want to remark about the examination of the anus in order to disclose the presence of anal crypts. Dr. Fansler states that he has had better results in examining with a bivalve speculum. I use cylindric instruments. The first one used is about the size of the little finger, with an oblique opening, so that on withdrawing it one has a large field and sees two or three crypts in view but by dilating the anus, one doesn't get a second chance examination. I have seen patients with definite colonic dysfunctioning who have been entirely relieved when the focus and irritant were found in the first inch of the anal canal and were removed and the offending crypts drained. If we have done nothing more in these two papers than remind some of the men that there is a highly important area of focal infection here which is often originated by trauma such as mentioned in Dr. McKenney's paper, and we have reiterated that the examination of the anal canal is not only digital but must also include a visual examination, no matter what instrument one chooses to use, I think the papers have accomplished their purpose.

RECURRENT HYPERTHYROIDISM, NEUROCIRCULATORY ASTHENIA AND PEPTIC ULCER

TREATMENT BY OPERATIONS ON THE SUPRARENAL-SYMPATHETIC SYSTEM *

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Civilized man has many diseases and infirmities in common with primitive man and the lower animals—accidents of birth, irregularities of adolescence and nutrition, cancer, infections and infectious diseases. On the other hand, there are certain diseases such as hyperthyroidism, neurocirculatory asthenia, peptic ulcer, diabetes and other less clearly defined diseases that are peculiarly the lot of civilized man. One should expect to find, then, that the mechanism the disturbance of which produces these diseases would be the mechanism on which civilized man's characteristics depend. The one characteristically human organ is the brain; the rise of the brain and its dominance has won for man his place in nature. It is characteristic of civilized man that his life is projected on rational lines, that it is full of work and worry as compared with that of the lower races of man and the lower animals.

One would expect, therefore, that hyperthyroidism, peptic ulcer, neurocirculatory asthenia, diabetes, and the like would be found most commonly among the most active, most striving, most worrying men and women. And this is a well known fact.

Now although the mechanism of the suprarenal-sympathetic-thyroid group was functioning before the dominant power of the brain was achieved, this frontal lobe has gained a certain amount of control over the suprarenal-sympathetic system. Certainly the expression of the emotions, the defense against infection, the heavy struggles of life are possible of execution only by the aid of the suprarenal-sympathetic-thyroid group. Since excessive worry and work, as well as infection, are common exciting causes of these diseases, one would expect that if the suprarenal-sympathetic system were to be separated from direct control of the brain there would be an abatement of the diseases mentioned as being bred in the drive of that mechanism. The most vulnerable point of attack would be the suprarenal link of the chain.

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* From the Cleveland Clinic.
* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

About nineteen years ago I tested the effect on these kinetic diseases of removing one suprarenal gland. The results gave promise but in some cases the good effects tended to wear off in time, just as in unilateral thyroidectomy for hyperthyroidism the clinical results are good at first, then tend to become less noticeable. In some cases thyroid resections and resections of the cervical sympathetic ganglions were added. After observing these cases long enough to find that this procedure had merit, my associates and I finally devised the operation of denervation of the suprarenal glands—first one, then the other—about a week apart.

From the foregoing considerations, one should expect that bilateral denervation of the suprarenal glands should sufficiently dissociate the suprarenal-sympathetic system from the organ of civilization—the frontal lobe —to effect a cure.

In selected cases of recurrent hyperthyroidism, cases in which there is often little thyroid remaining, we have divided the suprarenal nerves at intervals of a week or more with good results. Among these cases we have seen the entire exophthalmic goiter picture disappear after operation, including hyperplasia and increased metabolic rate.

Here is a new clinical fact of first importance, for it would seem that exophthalmic goiter is made up of fractions of pathologic physiology of a group of diseases including neurocirculatory asthenia, diabetes, myocardial disease and occasionally peptic ulcer.

If suprarenal denervation will cure this protean disease—hyperthyroidism—consisting of a number of fractions of diseases, then in the absence of an increased metabolic rate, if there is present one or more of these fractions, e. g., residual hyperthyroidism, neurocirculatory asthenia, diabetes, peptic ulcer, and the like, one would expect that suprarenal denervation would abate or possibly cure these fractions which form a part of the entire exophthalmic goiter syndrome.

We therefore logically employed the principle of dekineticizing this great system. We found that in neurocirculatory asthenia denervation of the suprarenal glands specifically abated or cured the disease, the results appearing as promptly and in about the same sequence as after thyroidectomy for exophthalmic goiter.

Neurocirculatory asthenia seems to be a milder form or an analogue of exophthalmic goiter, and, based on the results to date, denervation seems to be as specific a cure for neurocirculatory asthenia as thyroidectomy is for exophthalmic goiter.

We cannot yet speak with equal certainty as to the results of denervation in cases of peptic ulcer, but one point is certain; namely, that the symptoms are immediately relieved, and from analyses made by Dr. Lehman at the Cleveland Clinic, it has been found that the acidity has been reduced in all cases thus far studied.

Thus far we have performed 104 operations on the suprarenal-sympathetic system. My first unilateral suprarenalectomy among a series of forty-six was performed, Oct. 1, 1913—eighteen years ago.

At that time we held that in diseases due to excessive energy tranformation the drive of the so-called kinetic system could be diminished by partial thyroidectomy, by unilateral suprarenalectomy and by excision of the sympathetic ganglions. We soon realized, however, that the value of thyroidectomy was limited strictly to cases of hyperthyroidism, that both lobes had to be resected or recurrence would ensue, and that in this disease occasional recurrences were seen. The same principle of compensatory function was soon noted in unilateral suprarenalectomy. Better results were obtained by a general dekineticizing operation; namely, the removal of one suprarenal, resection of the thyroid, and the excision of the cervical ganglions at the time of the thyroidectomy.

Following these patients over a period of years and projecting new lines of investigation, it was found that a more commanding operation was a bilateral denervation of the suprarenal glands, the second denervation being performed a week or more after the first one.

The technic of denervation requires meticulous care. It necessitates the precision of Frazier's technic on the gasserian ganglion. A bloodless kidney incision, long enough to introduce the hand, is made and carried down along the upper border of the kidney including the upper pole, near which and deeper will be found the suprarenal buried in a special fat. On the right side the suprarenal lies among an important group of organs which include the diaphragm, the liver, the duodenum, the head of the pancreas, the vena cava and the kidney.

The suprarenal is soft; it cannot be subjected to traction or pressure; it has three arteries, which are not easily visualized, and it has from thirty to forty nerves. The suprarenal is the spider in the sympathetic web. It is not believed that regeneration of the nerves of the suprarenal will take place, as these nerves are, we believe, efferent, not afferent. During the manipulation the blood pressure rises sharply; sometimes it is even doubled. Spinal anesthesia is exceptionally effective in denervation, and if the operation is carried out with exact technic the risk is slight.

While operative measures are the only effective treatment in recurrent hyperthyroidism and in neurocirculatory asthenia, in peptic ulcer there are well established lines of nonoperative as well as operative treatment. Denervation is not indicated in peptic ulcer if there is obstruction at the pylorus, with retention. In a case of this type gastro-enterostomy, as Balfour has repeatedly stated, yields almost perfect results. But here is usually a healed ulcer and the operation overcomes a complication rather than cures the ulcer. Balfour has stated that gastro-enterostomy is of doubtful or no value in young, high-strung, nervous, excitable subjects. Therefore, if any operation is to be undertaken, resection of the stomach in experienced hands gives the best results. The Finney type of operation yields good clinical results in those cases in which gastro-enterostomy is indicated and especially in the borderline group which in age and in nervous tension lie between the gastro-enterostomy zone and the resection zone.

For the present, denervation for peptic ulcer is reserved for those cases in which recurrences would ensue after any type of operation or for those patients for whom a Finney operation or a gastro-enterostomy is not suitable and in the case in which for any reason resection is not to be done. Denervation should not be undertaken until nonoperative management has educated the patient into ulcer behavior. Then denervation will result in fundamental improvement which, when supplemented by management, will give relief. Of one thing we are certain; denervation results in immediate relief of symptoms, but without careful postoperative management, recurrences are seen. These conclusions are based on the results of various forms of treatment of 2,250 cases of peptic ulcer in the records of the Cleveland Clinic.

SUMMARY

It is clear that denervation will relieve and probably cure recurrent hyperthyroidism; it will relieve and probably cure with equal promptness neurocirculatory asthenia, which is a unit of pathologic physiology analogous to exophthalmic goiter. In the diseases in which emotional states, nervous strain, worry and overwork are dominating factors, such as peptic ulcer and diabetes, the principle of the operation may apply; and while the results thus far are encouraging they are not yet worked out as completely as are those for recurrent hyperthyroidism and neurocirculatory asthenia. Time and critical examination of clinical results will bring the final verdict.

Our endeavor, at this early stage, is to present the conception of an energy system which involves a group of organs that collaborate in the transformation of potential into kinetic energy. The excessive driving of this energy-controlling group or kinetic system we designate as pathologic physiology, and the surgical interventions leading to a lessening of the pathologic drive we call a dekineticizing operation.

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NEUROGENIC FACTOR IN CHRONIC PEPTIC ULCER *

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The etiology of peptic ulcer and its pathogenesis are yet to be determined. There is evidence to show that bacterial infection, endarteritis, traumatism, toxic substances, hyperchlorhydria, improper diet, alcohol, tobacco, reflex disturbances, and certain constitutional diseases will, under certain conditions, be associated with the development of ulcers, both acute and chronic. In predisposed individuals, these and other causes seem to be capable of producing chronic peptic ulcer of both the duodenum and the stomach, and of activating ulcers that have apparently healed. Most observers admit, however, that there is some predisposing cause yet unknown. Since Virchow, in 1853, expressed the belief that peptic ulcer may be due to faulty blood supply in the stomach wall, most observers, in seeking to account for the pathogenesis of the disease, have given due prominence to possible disturbance of the circulation in circumscribed areas of the wall of the stomach and duodenum. whatever the exciting cause or causes may be.

Reeves,[1] in 1920, demonstrated by injection of the arteries that the areas in which ulcers commonly occur have a poorer blood supply than the rest of the stomach and that the capillaries do not anastomose in these areas. This, however, does not explain why the commonly accepted exciting causes will produce ulcer in one individual and not in another.

I wish to emphasize that the ulcer bearing individual belongs to a distinct type and from birth is predisposed to the development of chronic peptic ulcer. This type is the high-strung, emotional, so-called vagotonic individual, with sensitive nervous system and certain physical peculiarities which clearly distinguish him from the opposite, or sympatheticotonic, type, showing marked visceroptosis, and subject to melancholia, lassitude, headaches, atonic constipation—an easy victim of morbific influences in general. Many observers have emphasized the importance of the nervous element in the production of ulcer. Berg of New York has stated that ulcer is prone to occur in vagotonic individuals. Few surgeons, if any, however, have observed that typical chronic peptic ulcer rarely occurs in the opposite, or so-called sympatheticotonic, type. Draper, Dunn and Seegel [2] state that there is a special physical type of individual that predisposes to peptic ulcer. A. B. Rivers,[3] in seeking to account for ulcer, suggests that nervous imbalance prevents normal pyloric function and that all conditions which produce a state of excitement and its consequent disturbance of pyloric function should be avoided and the patient made as comfortable and happy as possible. Eusterman [4] observes, "There is a possibility of a relationship between ulcer and a nervous imbalance."

L. D. Snorf [5] mentions two chief predisposing factors of ulcer as being disturbances of the sympathetic system, resulting in the spasm of blood vessels and local muscles, and some peculiar disturbance of the blood vessels to the stomach and intestine.

Irving Gray [6] says: "Ulcer of the gastroduodenal tract remains secondary to some primary condition, the exact nature of which is unknown. We must conclude, therefore, that the syndrome of ulcer, especially duodenal ulcer, is a vegetative, neurotic complex, as emphasized by Westphal and Katch."

Frank Smithies [7] seems to think that peptic ulcer is usually the local expression of a systemic condition. He [8] says, "In more than 95 per cent of instances, peptic ulcer is a visceral lesion, formed as a complication of systemic, constitutional, toxic or environmental disturbances.

E. S. Judd [9] says: "Experience seems to show that there is a tendency to the formation of ulcer in certain individuals, and that no matter what treatment is undertaken, recurrence is almost certain to take place. The factor responsible for this has not been determined, and its discovery will yield valuable information concerning the etiology and pathogenesis of ulcer."

Typical peptic ulcer is apt to begin in youth, or even in childhood, at the time of life when the commonly accepted causes of the disease are not present. The young ulcer bearing person is rarely ever the type one expects an invalid to be. He recovers readily from acute diseases and from injuries, and is apt to be active, alert and enthusiastic in both work and play. In spite of this, he has a nonhealing, peptic ulcer. The diagnosis of ulcer in youth is becoming increasingly more frequent.

Rivers and Eusterman [4] make the significant statement that a result of the analysis of Mayo Clinic cases shows that the average age of patients when symptoms first occur is surprisingly low. Twenty per cent have symptoms suggesting ulcer before the age of 20, and 61 per cent have well developed symptoms before 30. They also observe that certain types of persons seem especially predisposed to reform ulcer. These include, in part,

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