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Intestinal Auto-intoxication.

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INTESTINAL AUTO-INTOXICATION.

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THE term auto-intoxication has undergone many changes of meaning in the short time since it has been introduced into medicine. It has as yet not been definitely agreed upon. Auto-intoxication through the intestinal canal consists of the retention of normal and abnormal material in the intestines. The result of the stagnation of such material is the decomposition putrefaction and fermentation of the ingesta. The products of carbohydrate fermentation give formic, butyric, lactic, acetic and succinic acids, gases etc., while the products of albuminous decomposition give NH_3 , CH_4 , H_2S , leucin, tyrosin, cystin, phenol, indol, skatol, aceton, etc. In a paper on Diarrhoea and Bacteria published in THE NEW YORK MEDICAL JOURNAL, May 8th, 1897, I cited several authorities who have shown that vast numbers of microbes within the intestinal canal generate poisonous ptomaines and toxins which are rapidly absorbed. With the superabundant production and the retention of all these substances in the intestinal tract, a series of symptoms presents itself, suggesting a diseased condition of the digestive tract, of the respiratory system, of the circulation, of the kidneys, and, above all, of the nervous system. There is no positive proof that these symptoms have some definite relation with the poisons retained in the intestinal tract. Still, since a condition of auto-intoxication clearly exists, inasmuch as the symptoms disappear when the poisons are removed, we may safely assume that the symptoms presented are due to auto-intoxication.

It is a well known fact that there is a certain relation between affections of the digestive tract and diseases

of the nervous system. The ancients went even so far as to charge certain forms of vertigo to disturbances of digestion. The term *hypochondria*, originally the name of that part of the body situated between the xiphoid cartilage and the navel, implies that it was supposed that the abdominal cavity was the seat of the pathological condition.

Intestinal auto-intoxication can become manifest through the nervous system, through a derangement of metabolism, through the circulatory system and through the skin. Vertigo, which appears also in other forms of poisoning, as through alcohol, nicotine and various alkaloids, is a constant symptom of intestinal auto-intoxication. We also find headache, pressure in the head, neuralgia and cerebral vomiting. Psychic disturbances are often particularly marked. Depressed spirits, feeling of disgust, aversion to work, disinclination to social intercourse and melancholia are observed in these patients. All symptoms which are present in neurasthenia are present also in intestinal auto-intoxication. While we were formerly inclined to look upon the disturbances of digestion in neurasthenia as secondary symptoms, experience teaches that the symptoms of the digestive tract precede neurasthenia. In certain cases there is a disturbance in the organs of sense, darkening of the field of vision, hallucinations, ringing in the ears and deafness.

Bouchard has demonstrated the toxicity of the urine in neurasthenic cases, and it is absolutely certain that poisonous products get into the blood. Indicanuria nearly always suggests auto-intoxication. Constipation is not necessarily co-incident with auto-intoxication, for it has been shown that the more fluid-like the contents of the intestine are, the more rapid is the absorption of poisonous material. Accordingly the

urine in diarrhetic condition has been found to be most poisonous. In cholera the absorption of toxins is continuous despite frequent energetic evacuations of the bowels. It appears that patients in states of auto-intoxication feel better when constipated than when their intestines are filled with semi-solid materials. Again, we have an auto-intoxication in an obstruction of the bowels, for the natural outflow of the waste material is arrested, excretion is imperfect and absorption of the poisonous materials which are present takes place quite rapidly. The eclampsia of children with digestive disturbances is more easily explained in terms of auto-intoxication than on lines of the reflex-theory.

Boix of France has published a book on "Cirrhosis of the Liver Produced by Auto-Intoxication of Gastro-Intestinal Origin." He proves that in addition to alcohol as a cause for hepatic cirrhosis, there is an auto-intoxication of gastro-intestinal origin which frequently causes cirrhosis. The author demonstrates that there is a peculiar form of hypertrophic cirrhosis which is caused by the passage through the liver of toxic substances produced in the alimentary canal, and he calls this a dyspeptic liver, so as to differentiate it from alcoholic liver, which designates another form of cirrhosis.

To the class of cases in which we have a derangement of metabolism due to auto-intoxication we may add many cases of chlorosis. In certain cases of chlorosis we resort to anti-fermentative therapy and this implies that we believe that there is some pathologic connection between it and auto-intoxication. While I do not wish to maintain that every case of chlorosis is traceable to auto-intoxication, I must mention the fact that Bouchard, Rosenbach, Couturier and others have shown that intestinal auto-intox-

ication has considerable significance in chlorosis.

Such disturbances of the circulation as excitability of the heart, tachycardia, and various other forms of vasomotor disturbances are often due to intestinal auto-intoxication.

Auto-intoxication frequently becomes visible in certain kinds of skin affections, such as urticaria, which is produced in many cases by the eating of lobsters, cheese, etc. It was formerly regarded as an idiosyncrasy, but we now know that it is an intestinal auto-intoxication. Pick of Vienna has proven that attacks of urticaria can be prevented in susceptible patients by cleansing the intestinal tract. Singer has verified this, and adds that there is always an increase of indican in the urine.

Asthma dyspeptica, which consists chiefly of dyspnea, can be attributed to auto-intoxication, but this has not as yet been proven. The symptoms of collapse produced by obstruction of the bowels, either acute or chronic, are no doubt due to auto-intoxication. The kidneys being compelled to eliminate the poisons which have been absorbed through the intestinal tract are in this way injured. Albuminuria found in an intestinal stenosis and the disappearance of the albuminuria when the obstruction is removed are probably due to auto-intoxication.

Posner has gone even so far as to maintain that nephritis may be superinduced by bacteria which, having been absorbed by the intestines, have found their way to the kidneys and there cause an inflammatory condition. The bacillus coli communis especially is apt to behave in this way.

From all that I have cited it seems to me clear that auto-intoxication through the intestinal tract is a frequent phenomenon, leaving it to future investigators to add to the meagre information we have at present.

