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DISCUSSION ON THE NATURE OF VISCEROPTOSIS—USUALLY DESCRIBED AS GLENARD'S DISEASE

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Dr. HEAD AND GENTLEMEN,

It is very pleasant to return to the London Hospital and see round me so many familiar and happy faces. My visit is made easy for me by your having chosen the subject of discussion—viz., the subsidence, or sagging of the abdominal and thoracic viscera—a condition not uncommon in adult men and women. The little I know of the matter was learned in the dissecting room of this College, for the office I now hold offers few opportunities of studying the condition.

My attention was drawn to the study of viscer-optosis in the following manner. In a fairly large number of the dissecting room subjects the liver was seen to be remarkably flattened so that its lower margin projected one or two inches below the ribs into the right lumbar region, part of it often attenuated so as to form a Riedel's lobe. On the projecting part was situated the gall bladder, usually containing gall stones. The flattening of the liver was usually accompanied by a downward displacement of the right kidney, an elongation of the stomach, and a diverticulum was often to be seen in the second stage of the duodenum, near the point of entrance of the common bile duct. The condition, although a very common one, had received very little attention

from either the clinician or anatomist, at least so far as I then knew.

During the period I was collecting observations on the condition to which I have just alluded, certain points regarding the action of the diaphragm—especially the movements of its central part—occupied my attention. The use of X-rays had just been introduced, and it thus became possible to see and study the movements of the diaphragm, especially of the central part, which at that time was supposed by many to be an almost fixed platform. The very extensive respiratory movements of the liver, kidneys, stomach, spleen, and of all the upper abdominal viscera, became very apparent, and it was seen that they were loosely fixed and designedly shaped to permit these movements to take place easily. They moved downwards and forwards, as the diaphragm contracted they were replaced at each breath by the contraction of the belly wall muscles—especially the muscles of the epigastric and lumbar region. The diaphragm could not be studied alone, its action became plain when it was studied with its natural antagonists, the muscles of the abdominal wall. When I first observed the condition of visceroptosis I thought the diaphragm had overcome its antagonists—the belly wall muscles—and pushed the viscera down; in short, the opinion I formed at first—one which I now know to be wrong—was that visceroptosis was the result of a disturbance in the mechanism of respiration.

One of the problems I wished to settle then was—What is the normal level of the diaphragm? In the majority of students examined I found that a line drawn across the chest at the level of the sterno-ensiform joint—usually marked by a sharp depression or notch—was the best indication of the respiratory position of the diaphragm; in extreme inspirations the diaphragm was seen to

descend 1½ to 2½ inches below this line; that level seemed to be the furthest to which the diaphragm could descend. When I began to plot out my observations on the level of the diaphragm made on dissecting room subjects, I found there were several in which the diaphragm was situated from 1½ to 2½ inches below the sterno-ensiform line—seen more frequently in women than men, and chiefly in old people. It was plain that in these subjects the abdominal viscera had sunk into a permanent inspiratory position, and so had the diaphragm. How did such people breathe?

By good fortune I had formed a friendship with Professor Wenckebach, of Groningen—chiefly over heart work. He offered to show me a number of cases of visceroptosis under the X-ray screen if I would come to Holland, when I went he had five cases to show me. The first was a man who complained of dyspnœa, this patient breathed by extending his back and lifting his thorax, as it were, off his abdomen. Under the X-rays the diaphragm and abdominal viscera were seen to have sunk over 2 inches below the sterno-ensiform plane, and occupied an inspiratory position. Wenckebach had already recognised visceroptosis as a cause of dyspnœa.

Some time before going to Holland I got to know of the observations which had already been made on the Continent regarding visceroptosis. I found that, away back in the "eighties," Landor, of Berlin, had described and investigated the flattening of the liver and the deformation of the abdominal viscera, which had attracted my attention in the dissecting room. I found that Glénard, a French physician practising at Vichy, had recognised a subsidence or sinking of the viscera as a clinical entity ten years before my attention was drawn to the condition. Glénard found it in a great number of the gouty, neurasthenic, dyspeptic, idle people, that sought a cure

for their ailments at Vichy. Amongst some thousands of such patients he found that "enteroptosis," as he named it, occurred in 30 % of men and 40 % of women. He regarded all those as subjects of "enteroptosis" who showed the following signs:—(1) A contracted or spasmodic condition of the transverse colon; (2) a prolapse of the lower border of the liver; (3) a palpable descent of the right kidney; (4) a stomach which descended to or below the level of the umbilicus. I, on the other hand, had observed all the signs mentioned by Glénard, and yet, with all of them present, the diaphragm and the sub-diaphragmatic viscera were in their normal position, and that therefore there was no subsidence of all the abdominal viscera. When I published my Hunterian lectures on visceroptosis in 1903, pointing out that in true subsidence of the abdominal viscera there was necessarily also a sinking of the diaphragm, Glénard replied and named this which I had termed true visceroptosis as "phrenoptosis." The truth is that Glénard included, under the term enteroptosis, two, if not three, different conditions. These conditions are the following:—(1) Complete visceroptosis, where all the abdominal and thoracic viscera sink down; (2) a partial enteroptosis, caused by a natural or artificial deformation of the body-cavity, whereby—as is seen in women who wear tight corsets—the hypochondric regions are compressed and the viscera occupying these regions displaced and deformed. The flattening of the liver and the correlated deformities I had observed in the dissecting room were of this nature. The confusing of partial enteroptosis caused by compression, with the complete form due to a general sagging of the abdominal contents, has greatly retarded a right appreciation of visceroptosis as a clinical entity. In complete, or true visceroptosis the diaphragm occupies permanently an inspiratory position, in partial or false visceroptosis its position is normal.

A true conception of how the viscera are maintained in position is the first step towards the explanation of their occasional prolapse. I, for one, had grown up with the idea that the liver and other organs were suspended in the abdominal cavity like clothes in a cupboard, each hanging from its fold of peritoneum, and this conception was shared by many. This idea of course is wrong, when the dead body is lifted into the upright position all the viscera fall down two or three inches below the position occupied by them in life; they fall down as far as their ligaments will allow, the ligaments are purposely long to allow free respiratory movements; peritoneal folds and ligaments are not for suspending viscera but for limiting their movements. Then again it was taught, and is taught, still in several Universities and Medical Schools, that the viscera are kept up by atmospheric pressure, the moment the liver, stomach and spleen attempt to sink down, a vacuum is produced between them and the diaphragm, which immediately prevents their descent. A little investigation will show that the atmosphere has nothing to do with the matter, for when a dead body is placed in the upright position the viscera fall down just as freely with the abdominal walls intact as when they are opened, the yielding epigastrium and diaphragm fill up the space vacated by the viscera.

An investigation of the pressure or tension which is found to exist within the abdomen makes it very clear that in healthy, normal people, the viscera are maintained and supported by the constant tonus and contraction of the musculature of the body wall. In the upright posture the muscles of the belly wall are in a condition of reflex contraction, pressing the one viscus against the other, the lower organ supporting the one above it; withdraw the muscular support and the viscera sink down until they are suspended by their ligaments and vessels, the abdominal contents forming

a semi-fluid mass. In the upright position this mass is rendered more or less rigid by the contraction of the abdominal walls, especially when a severe muscular effort is being made; in such conditions the intra-abdominal pressure may rise to 90 or 150 mm. of mercury.

It is clear then that the cause of visceroptosis must be sought for in a disturbance of the supporting mechanism of the belly wall. Concerning this mechanism little is at present known. There is clearly a nerve complex between the viscera and muscles of the abdomen; clinicians have accumulated a great deal of evidence showing that such a nerve mechanism must exist. With disease of certain organs, certain muscular segments of the belly wall become painful when used or pressed, a localized visceral affection may call forth a localised spasm or contraction of the muscle. Change in posture causes an involuntary contraction of the muscles which support the viscera. Dr. Hill has shown that the condition of the abdominal musculature is co-ordinated with the blood content of the abdomen. More important than the actual contraction, for the subject of this discussion, is that condition of the muscles known as their tonus, a condition at present being illuminated by the researches of Sherrington. The tonus of the belly wall muscles is regulated reflexly, the afferent impulses which regulate the tonus apparently come from end-organs situated in the abdomen. Now there is within the abdomen an extensive series of end-organs of most obscure import—the Paccinian corpuscles—found in abundance in the mesenteries of all the abdominal viscera, and scattered freely by the sides of the venous plexuses of the abdomen. Similar bodies are situated at points of compression throughout the limbs, and are the stations at which afferent impulses arise to regulate the tonus and contraction of the limb and body muscles. The Paccinian

corpuscles occupy positions at which they would readily feel all changes in visceral and blood tension. One may provisionally—until their real function has been the subject of experiment—regard them as the end-organs that regulate the tonus and reflex contraction of the belly wall muscles. In visceroptosis this nerve mechanism is disturbed, but of the exact nature of that disturbance we know at present nothing. Francois Frank found visceroptosis occurred immediately in dogs when they were anæsthetised in the upright posture. It may be that a substance is produced in states of malnutrition which affects the viscero-muscular reflex of the abdomen.

Regarding the actual position and condition of the organs in visceroptosis I have said nothing, I have sought rather to bring before you what is known regarding the cause of the condition. The recognition of visceroptosis depends entirely on a physical diagnosis—the recognition, by percussion, palpation and transillumination—that the viscera occupy a low position and are distorted in form. Especially important is the recognition of true or general visceroptosis from the "partial," "false," or compression form.

As regards treatment I have no experience, but there is a remarkable unanimity among clinicians as regards the efficacy of applying supports to the belly wall; indeed some go so far as to say that the relief given by belts and corsets is diagnostic of the condition. There can be no doubt that operations have been attended by success, but it is difficult, on our present knowledge, to explain the manner in which such cures are effected.