

when pus is present for seven to eight days undisturbed. I have never seen any trouble from leaving them too long, but, on the other hand, have observed serious consequences from their too early withdrawal. They are never changed while the patient is distended, except as a last resort. After seven or eight days, a fairly firm sinus tract of granulation tissue has formed, and the original wick may easily be replaced by a smaller one of gutta-percha tissue to an equal depth. The gradual shortening of wicks is not practiced. When the discharge has become small in amount the wick is removed entirely, perhaps by the tenth to the twelfth day, depending on the nature of the case. Drainage through the wound, usually at the lower end, with suture of the upper portion, has been found very satisfactory. The occurrence of secondary hemorrhage from the epigastric vessels, which was seen twice in this series, once it was of trifling extent only, might be claimed to be due to the presence of the drain, and urged as an argument against the method. It can be obviated by ligating those vessels in all drained cases, when they are exposed at the edge of the wound. When residual pelvic abscesses occur, as they will occasionally, in spite of all precautions, I wish to emphasize the value of vaginal or rectal drainage. This has been considered in previous papers.<sup>5</sup>

Of the 245 patients who survived the operation, data are at hand as to their condition in 86 cases at the end of one year. There were 4 cases of hernia in the scar; 1 case reported as having a weak scar and 3 bulging. In 4 cases there were inguinal hernias, in 1 case there was double hernia. Two cases had persistent sinuses. One patient had pain in the side and 2 complained of weakness in the side. In the remaining cases the results were entirely satisfactory.

The study of this series of cases has brought out nothing new. It merely emphasizes certain points already familiar, but which perhaps cannot be too often reiterated. The great factor in the mortality of acute appendicitis is delay; delay in making the diagnosis; also to a less degree, delay after the diagnosis is made. A second factor is the practice of giving a purge during the acute attack. There is still need of preaching these doctrines to the laity and the profession. A temperature above 102.5 in acute appendicitis is distinctly rare. In the few cases in which it occurs it is of bad prognostic import. Ochsner treatment has a distinct field of usefulness. The operation in cases involving peritonitis should be directed to removal of the primary focus if accessible, and to securing of drainage with as little disturbance as possible of the general peritoneal cavity. The use of rubber tissue or gutta-percha wicks, rectal saline, Fowler's position, the avoidance of catharsis by mouth, and the leaving of wicks undisturbed, have simplified and safeguarded the after-treatment enormously.

## REFERENCES.

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- <sup>3</sup> Braun: Deut. med. Woch., Vol. xxxix, p. 2324, 1913.
- <sup>4</sup> Neuhof: Surg., Gynec. and Obst., Vol. xvi, p. 481, 1913.
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**OBESITY AND MALNUTRITION.\***

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*Scope of Paper.*

IN considering this subject, only what might be called primary obesity and primary malnutrition will be discussed—that is, these conditions occurring as complications or sequelae of other diseases will not be considered.

The two conditions really belong under one heading, as in both the question is simply one of ratio of amount of nourishment ingested to the amount burned up by the bodily activities. The undernourished individual takes too little of the right kind of food, and the fat person takes too much.

## MALNUTRITION.

We may, then, consider malnutrition as a condition due to a continued undersupply of nourishment, in either amount or kind. Our type case is a thin, active, nervous, constipated young woman with a poor appetite, often suffering with headaches, perhaps with indigestion, and in some cases having a visceral ptosis. She is usually a wage earner, and has frequently consulted physicians to see if she has tuberculosis, cancer, or some blood disease. She has been given iron, cod liver oil, malt, and Fellow's Syrup of Hypophosphites, and may have been accused of having latent tuberculosis, or, if she has consulted a strictly up-to-date practitioner, intestinal stasis.

*Etiology.*

The etiology of this condition is primarily a continued undersupply of suitable food, taking into consideration the energy out-put of the patient.

Frequently appetite is variable or entirely absent. In some cases the strenuous life is to be blamed. The patient sleeps in the morning until the last possible moment, hurries through breakfast or omits it altogether, takes insufficient time for lunch, (perhaps imbibing it at the soda fountain), and is so tired at dinner time that she cannot eat and perhaps is not able to digest a "square meal." Social activities may claim time in the evening that should be devoted to rest.

\* Read before the Fall River Medical Society, February 3, 1915.

Ignorance of food values and of bodily needs frequently plays a part, and nature's requirements are neglected with the usual result.

#### *Pathology.*

Strictly speaking, there is nothing pathological in these cases. There is simply an insufficiency of adipose tissue, and perhaps a mild anemia.

#### *Diagnosis.*

In the type mentioned above we must first rule out all chronic disease. A careful history and searching physical examination, with such laboratory aids as may be indicated, will definitely dispose of all question of tuberculosis, nephritis, syphilis, malaria, the primary anemias, and hemorrhage from a peptic ulcer, the uterus, or hemorrhoids. Careful computation of the daily caloric intake will settle the diagnosis, as a rule.

#### *Prognosis.*

The prognosis is good, with proper treatment.

#### *Treatment*

The general indications are—to increase the caloric intake and, if possible, decrease the energy output.

1. **STUDY OF CASE.** The first step in the treatment is a careful study of the dietary and other habits of the patient, including the amount and kind of exercise; the number of hours of sleep and, in general, the ordinary daily régime of the patient.

2. **CALORIC INTAKE.** The next step is to increase the caloric intake. Insist upon a hearty breakfast, whether it is desired or not. Most of our tastes are merely habits, and may be changed with surprising ease, if we persevere. Sufficient time must be taken for luncheon and dinner. Attention must be paid to the caloric value of foods. The patient must be taught to take plenty of butter on bread and vegetables, cream whenever obtainable, and the fatter kinds of meat and fish. Roast beef, for instance, has nearly three times the caloric value of chicken, and mackerel almost exactly twice that of haddock. A glass of milk or a raw egg may be taken immediately after finishing each meal, and on retiring. Luncheons should not as a rule be given between meals, as they lessen the appetite for the next meal.

3. **PROTEID.** Proteid should be given to exceed slightly the amount required to maintain nitrogenous equilibrium—say 70 to 90 grams—as many of these patients are slightly anemic.

4. **DRUGS.** Drugs help in stimulating the appetite and act as general tonics. The bitter tonics and hydrochloric acid before meals are valuable to stimulate the appetite, and iron and arsenic are indicated, if the patient is anemic.

5. **SLEEP.** At least nine hours' sleep should be insisted upon, and if possible a short rest after luncheon and dinner should be taken.

6. **EXERCISE.** Only moderate exercise should be prescribed, and that should be taken out-of-doors. Riding and walking are the best forms.

7. **EDUCATION.** The most important factor of all is to teach the patient how to live, as the best results are impossible without hearty co-operation of physician and patient. Under such favorable circumstances, a patient should gain on the average, about one pound per week.

I mentioned above the fairly frequent occurrence of ptosis of the abdominal viscera in this class of patients.

Ptosis, if present, is not necessarily an important factor. Unless there is definite stasis, the condition need not as a rule be considered in treating the case. If the stomach is dilated and does not empty properly, or if there is a prolapsed and dilated caecum, with stasis at this point, the patient does not belong in this class. The x-ray settles this question.

#### **OBESITY.**

At just what point obesity begins is very hard to define. Without trying definitely to settle this point, we may say that obesity is an increase of adipose tissue beyond the needs of the organism. Fat is stored-up nourishment, and a certain amount is conducive to the best working of the bodily activities. An excessive amount throws extra and unnecessary work on the various organs, both as a dead weight that must be carried about, and as an obstruction to many bodily functions.

Our type case here is a middle-aged person who is gradually reducing his physical activities as his income increases. He takes just as much food, and of a rather richer quality than formerly. He may ride where formerly he walked. Sometimes he takes pleasant but stimulating drinks of high caloric value, where formerly water sufficed. Quite as frequently the patient is of the female sex, but the factors producing the increase in adiposity are the same.

#### *Etiology.*

Habitual excess in the ingestion of nourishment, together with lessened physical activity, are the usual etiological factors. Rarely other causes may be found, such as atrophy of the thyroid, with the resulting myxedematous condition; disease of the posterior lobe of the hypophysis,<sup>1</sup> castration, and menopause. Some authorities cite a racial factor, as the Jewish people seem inclined to adiposity, but it is a question if this is not due to habits of eating, rather than to any unusual metabolism. Lastly, some authorities ascribe a perverted metabolism as the cause in some cases. If this is ever a causative factor it may be disregarded in treatment.

### Pathology.

Leaving out the question of just where pathology begins, we may describe the conditions resulting from gradually increasing obesity in three classes.

1. In the early stages there is a deposition of fat in the subcutaneous tissues, mediastinum, abdomen, pericardium, between the muscles, and in practically all the bodily tissues.<sup>2</sup>

2. As the supply of fat increases, the muscles, including the heart muscle, become infiltrated and somewhat weakened. The action of the heart and diaphragm are mechanically interfered with, and the result is the so-called fatty heart. New blood vessels are formed to nourish the fatty tissue<sup>3</sup>, and the amount of tubing through which the heart must force the blood is increased, thus increasing the work of the heart, and consequently raising the blood pressure<sup>3</sup>.

3. As the accumulation of fat continues, there is finally produced a condition of fatty, or fibro-fatty, degeneration of the heart and blood vessels, and skeletal muscles.<sup>4</sup> In these cases the damage done is irremediable. The fat may be removed, it is true, but the damaged muscles, viscera and blood vessels can never be rejuvenated.

### Sequelae.

Let us consider briefly some of the sequelae of this excessive accumulation of fat. Respiration is interfered with by the fat above and below the diaphragm, and oxygenation suffers. The heart is embarrassed and its work increased, both by the extra weight carried about by the patient and by the formation of new blood vessels in the fatty tissue. The blood pressure is raised. As the heart becomes slightly incompetent, there develops a congestion of the great viscera, and oedema of the dependent parts, with resulting interference with the capillary circulation. Two of the early signs of heart strain are nocturia (Strauss) and pitting of the ankles on pressure. Many of these patients are "bilious," which simply means that they are overloading their digestive apparatus, and the congested stomach, intestines and liver are protesting.

The congestion of the kidneys is manifested by a slight amount of albumen, rarely with a few casts, which disappears when the congestion is relieved, conclusively differentiating this condition from the chronic nephritis that these patients are so often accused of having.

Arterio-sclerosis may develop as a result of the increased blood pressure<sup>5</sup>, and atheroma from the deposition of fat in the musculature of the arteries. In extreme cases there may develop a cardiac cirrhosis of the liver, or chronic interstitial nephritis, from the long continued congestion of the liver and kidneys, or a degenerative myocarditis, due to the fatty degeneration of the heart muscle<sup>6</sup>. Diabetes, gout and a sort of vascular rheumatism, due to the impoverished blood supply of the relatively non-vascular tissues about the joints (Smith), are

frequent sequelae. A very common and relatively early complication is a mitral regurgitation, due to a slight dilatation of the heart and a stretching of the papillary muscles or mitral ring. A systolic murmur may often be brought out by a little exercise. In some cases this entirely disappears when the strain on the heart is removed.

A patient with slight dyspnoea, a little oedema of the lower legs, a little albumen in the urine, and a blood pressure too near the 200 mark, is often told by his family physician that he has Bright's disease, and must take a light diet, *i.e.*, he must eat very little meat, and live chiefly on bread, cereals, vegetables, milk and eggs. This is the worst possible treatment, as a diet of this kind still further increases the accumulation of fat, and aggravates the trouble.

### Symptoms.

The symptoms of increasing obesity are those of increasing cardiac strain. We may divide the cases into three classes, corresponding roughly to the three classes made in the discussion of the pathology.

1. The first class are those with the early symptoms of heart strain—slight dyspnoea on exertion, noticed particularly on going up stairs, walking up hill, or after any extra exertion, such as running a short distance for a street car. The blood pressure is slightly elevated. These patients acquire an increasing reluctance to the taking of physical exercise, and as the habits of eating are fixed, there is a decided tendency to take on weight still more rapidly.

2. The second class comprises those who have dyspnoea on slight exertion, nocturia, and slight pitting of the shins on pressure, with markedly increased blood pressure. As these patients have a slight cardiac decompensation, with the accompanying visceral congestion, they are apt to be "bilious," and often go to the physician complaining of indigestion. They are sleepy, especially after meals, and apt to be quite averse to physical exercise. Many of them have rheumatic pains about the joints.

3. The third class are those with the marked pathological changes noted above. There is cyanosis, marked dyspnoea on the slightest exertion, perhaps orthopnoea, and cardiac asthma—in short the classical symptoms of a badly broken cardiac compensation, with degeneration of the myocardium. The blood pressure may be high, or if there is much dilatation of the heart, it may be below normal. There may be sugar in the urine, and there will assuredly be albumen, and probably casts. Ascites may be present if there is a cardiac cirrhosis.

I want to emphasize the point that all of these conditions may develop without any other predisposing factor than the strain on the vascular system and great viscera from excessive and long continued obesity. The end result is a so-called cardio-renal complex.

*Diagnosis.*

The diagnosis of obesity is made with the office scales and measuring rod. Any marked excess of weight for a given height is obesity. The tables used by the insurance companies<sup>7</sup> are useful as average figures, but the build of the patient should be taken into consideration. The large-boned, broad-shouldered type should be allowed more weight for a given height than the small-boned, narrow-chested type.

*Prognosis.*

The prognosis is good for class 1 and class 2 for an absolute cure, if the superfluous weight is removed. Class 3 may be relieved, but the ultimate prognosis is bad. Very stout patients who have not developed marked symptoms are frequently told by physicians that there is no need of reducing as long as they feel well. This doctrine tends to overcrowd class 3. Any great excess of fat should be immediately removed, before the vascular system and great viscera undergo degenerative changes.

*Treatment.*

The treatment of any obese patient is an individual and specific problem, and must be prefaced by a careful study of the dietary and other habits of the patient. Chronic disease must be diagnosed or ruled out, as we must vary our treatment according to the presence or absence of chronic nephritis, diabetes, serious heart trouble, etc.

The general indications are:

1. To reduce the caloric intake, and
2. To promote oxidation.

Contrary to the statement frequently made in the text-books, advanced age is not a contra-indication for reduction. There is no age limit that we have to consider in the treatment of obesity<sup>8</sup>.

*Diets.*

**PROTEIDS.** The amount of proteid given is the first and most important consideration. As the carbohydrates and fats are cut down the proteids must usually be increased to maintain nitrogenous equilibrium. If the kidney function is normal, there is not much danger of a patient taking too much proteid. Chittenden demonstrated that a person of average size may get along on 40 to 50 grams a day<sup>9</sup>, but did not demonstrate that 90 or 100 grams is harmful.

**FATS.** The fats are reduced. Cream and the fat of meats are prohibited. Small amounts of butter and cheese may be taken. The leaner meats are ordered—veal, lamb, white meat of chicken or turkey—and beef, mutton, goose, etc., allowed occasionally for variety.

**CARBOHYDRATES.** Sugar, pastry and sweets are prohibited, and the patient is encouraged to get over the sweet habit, if he has it. Bread of all kinds is given very sparingly, and the patient is taught to eat in its place potato, and fruits and vegetables of low percentage carbo-

hydrate content. The patient may be assured that if he will adhere strictly to his diet list, he will soon enjoy his food just as well as he did under the old régime.

If the patient is very fat and very oedematous with considerable dilatation of the heart, he should be put to bed for one or two weeks, and be given eight ounces of skimmed milk every 2½ hours, with the whites of 4 to 6 eggs, and some cooked fruit added each day. The oedema disappears in a surprisingly short time, and the weight will drop from one to two pounds daily. Solid food should be given three or four days before the patient is allowed to sit up. On the ordinary diet the patient should lose on the average about two pounds per week.

*Drugs.*

Drugs are of little use in taking off weight. In some cases small doses of thyroid may be given, but it is a dangerous drug, and should never be given unless the patient is under close observation. Ovarian extract and potassium iodide are not of much use, in my experience. In the cases with cardiac disease, digitalis, and the other heart stimulants are indicated just as in any patient. Cathartics should be used with judgment. Violent catharsis is never indicated. Patients with oedema may be given moderate doses of the salines with benefit. Patients without oedema need no cathartic if the bowels move daily.

*Exercise*

Most of the obese patients should take very little exercise. If we remember that all of these patients have overtaxed hearts, we shall see the logic of limiting their exercise until at least part of the superfluous fat is removed. When the heart becomes entirely compensated light exercises may be prescribed.

*Baths and Spas*

A cool sponge bath with a brisk rub down should be taken on arising, and a tepid bath on retiring. These act as mild vascular stimulants, and promote oxidation. Spas are never indicated for therapeutic reasons. The same, or better, results may be obtained at home. "Boiling out" at the hot springs, or the vigorous catharsis at the sulphur springs, are not important factors in reducing adiposity. The spas that obtain good results in these cases have a carefully regulated regimen of diet and exercise, which is the important factor.

*In General.*

There are some general considerations that I wish to mention in the treatment of these cases.

*Hypertension.*

I have already mentioned the effect of adiposity on blood pressure. The increased weight carried by the patient, the formation of new blood vessels in the fatty tissue, the mechanical interference with the heart and diaphragm, and, in cases with oedema, the interference with the

capillary circulation, seem to be the main factors in imposing extra work on the heart, and hence the immediate causes of the hypertension. As these causes are removed, the blood pressure falls as a matter of course. If it does not fall, there is present some trouble other than obesity—chronic nephritis being the most common one.

#### *Individual Treatment.*

Each patient must be considered as an individual. There are no general rules that apply to all patients. Careful study of the case, and an intimate knowledge of food values<sup>10</sup> and general metabolism, are indispensable factors in successful treatment.

Every patient should be supplied with a written list of instructions, and the lists should always be made as liberal as is possible under the given conditions.

#### *Psychic Factor.*

The psychic factor must not be neglected. Get the patient to make a fad of following instructions to the letter.

Lastly, when things don't seem to be going right, find the reason—there always is one.

#### REFERENCES.

- <sup>1</sup> Cushing: The Pituitary Body and Its Disorders, p. 257, *et seq.*
- <sup>2</sup> Strumpell: Text-Book of Medicine, fourth American edition, Vol. 11, p. 134.
- <sup>3</sup> *Ibid.* Page 135.
- <sup>4</sup> Dieulafoy: Text-Book of Medicine, Vol. 11, p. 1939.
- <sup>5</sup> Strumpell: Vol. 11, p. 135.
- <sup>6</sup> Dieulafoy: Vol. 11, p. 1939.
- <sup>7</sup> Table of Heights and Weights, Northwestern Mutual Life Insurance Co.
- <sup>8</sup> Smith: What to Eat and Why, p. 55.
- <sup>9</sup> Chittenden: Physiological Economy in Nutrition, p. 455, *et seq.*
- <sup>10</sup> Locke's "Food Values" is a complete and valuable compendium.

## THE RELATION OF ALCOHOL TO ACCIDENTS.\*

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THERE are about 40,000 patients treated each year at the Haymarket Relief Station. These patients come from the emergencies arising in three general groups. There is the Industrial Group, the Transportation Group and the Residential Group.

The Industrial Group, in a general way, includes shops and manufacturing. Here, in the heart of Boston, there are no groups of factories such as are found in Lynn and Brockton. There are no groups of mills such as are found in Lowell and Lawrence. But there are many separate shops and factories. Numerous candy factories, tailor shops, metal-working shops, etc., are in the district covered by the hospital.

The carriers comprise the Transportation Group. These are the elevated, surface and sub-

\* Read at the annual meeting of the Massachusetts Society of Examining Physicians, Boston, Dec. 19, 1914.

way railways, railroads, waterborne transportation, both freight and passenger, and the street traffic. The district covered by the Relief Station extends from Sullivan Square, Charlestown, to, and beyond, the new Commonwealth Docks in South Boston; and from Park Square to the North End waterfront. During each working day there are over 600,000 people in this district. The South Station handles 200,000 passengers each working day; the North Station handles 100,000; the Park Street Subway handles 96,000; the Sullivan Square Station handles 130,000 each working day. There are ten miles of busy waterfront in this district, with numerous steamship lines. The Boston harbor excursionists numbered 1,086,000 passengers in 1912. One harbor steamship line alone carried almost 900,000 passengers that year.

The transportation on our city streets, whether motor, horse drawn, or foot passenger, moves under the disadvantages and dangers attendant upon congestion in narrow, crooked streets,

Under the Residential Group are included the homes. These vary widely. Beacon Hill, North End, Chinatown, and Charlestown all lie within the district. Other hospitals care for some of the emergencies, but the Haymarket Relief Station cares for most of them.

With this brief survey of the scope of our field, we can now consider the relation of alcohol to accidents as it has come under our observation.

It may be stated, based upon our experience, that:

- a. Alcohol causes accidents.
- b. Alcohol obscures the diagnosis.
- c. Alcohol increases the danger of infection at the time of the accident.
- d. Alcohol prevents adequate treatment.
- e. Alcohol increases the danger of intercurrent complications.
- f. Alcohol retards the process of repair.
- g. Alcohol gives a poorer end result.
- h. Alcohol increases the mortality in accidents.

#### *a. Alcohol causes accidents.*

Under the influence of alcohol, a man falls on the sidewalk, or from a wagon, and injures himself. The probability is present, but extremely small, that he would have so injured himself if he had not been under the influence of alcohol. A longshoreman improperly slings a package of merchandise which falls and injures himself or his workmates. A carpenter improperly fastens a scaffolding which collapses and injures himself or a person passing by. Again, a teamster or a chauffeur, while under the influence of alcohol, injures himself or others in the highway. The intoxicated person turns off the gas in the bed room, then accidentally turns it on. Gas poisoning, explosion or fire follows.