

LECTURE IX.

E.M.HALE, M.D.

LESIONS OF THE WALLS OF THE HEART.

**Atrophy of the Heart — Fatty Growth — Symptoms of Fatty Growth —
Fatty Degeneration — Symptoms of—Pathological Effects — Treatment —
Softening of the Heart — Induration of — Rupture of the Heart —
Treatment of the Various Lesions.**

GENTLEMEN: The walls of the heart are liable to various lesions, other than hypertrophy. In this lecture I shall briefly consider these organic affections and their treatment.

ATROPHY OF THE HEART

is a condition in which the muscular substance is diminished, the cavities not enlarged, but actually lessened. The whole heart is smaller than the normal size. Its weight is diminished in proportion to its size, but the organ does not change its appearance in any other respect.

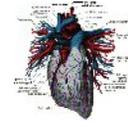
Causes. It generally attends chronic disease where there is gradual progressive emaciation. It has been observed in tubercular phthisis, pericardial adhesions, calcification of the coronary arteries, and an excess of fat on the exterior of the heart. The heart wastes like other muscles when badly nourished.

The *symptoms* are those which denote feebleness of the circulation, but the feebleness of the circulation may have existed prior to the atrophy. The physical signs suffice for the diagnosis. The boundaries of the superficial cardiac regions are within the limits of health, the apex-beat is indistinct or wanting, and the heart-sounds are abnormally feeble, and may be inappreciable.

The *treatment* of atrophy, when due to impaired nutrition, is the same as that adopted for enlargement by dilatation. The remedies in Class III., together with a highly nutritious diet, to which may be added cod liver oil in doses of 20 or 30 drops three times a day.

FATTY GROWTH AND DEGENERATION.

Fatty growth. More or less fat is generally present in health, on the outer surface of the heart, after early infancy, especially on the right ventricle, at and near the base of the organ. It is most abundant between the ventricle and auricle, and around the coronary vessels. A small



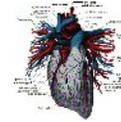
amount of over-accumulation is sometimes found in *post-mortem* examinations, where there had been no symptoms of disease of the heart during life. When the accumulation is excessive it leads to enfeebled muscular action, and consequent weakness of the circulation. It may induce atrophy of the heart. Fatty growth usually occurs after the middle period of life, and in persons of adipose diathesis. It may, however, occur in persons who are not corpulent. You will most frequently find it in persons who are growing fat rather rapidly. The heart has been known to become completely encased in a thick layer of adipose tissue.

Fatly infiltration is another and more serious form. In this disease there is an accumulation of fat between the muscular fibers. The pressure upon the fibers causes functional weakness and atrophy, and leads to dilatation.

Fatty degeneration is much more serious, and differs essentially from the two varieties I have just mentioned. The fat, in the form of oil drops or granules, replaces the muscular substance, and constitutes a form of fatty atrophy. It may be associated with fatty growth of the heart, but it occurs independently of the latter. It affects more especially the *left* ventricle, while fatty deposits *on* the heart affects the *right*. It may be uniformly diffused, but is oftener confined to circumscribed patches or strips. The portions affected assume a yellowish or fawn color, and if it occurs in patches, gives the heart a mottled appearance. Examined with the *microscope*, the striae, or transverse markings of the fibers are indistinct or wanting, and in place of the proper constituents of the muscular fiber, there are oil globules and granules, in more or less abundance, according to the amount of degeneration.

In this disease, fat replaces the muscular substance, and in proportion as this result obtains, the propulsive power of the heart is diminished; it yields more readily to distension, and dilatation occurs. Authorities differ as to the real condition, for while some believe that the muscular substance is *changed* into fat, others believe that the fat is *substituted* for the normal muscular substance. Others teach that it is a chemical, not a vital process.

Causes. As I have before stated, you will not always find either variety in adipose persons. It often occurs in persons who have fatty deposits or fatty degeneration elsewhere, as in the liver or spleen. The etiology may involve both general and local causes. Among the local causes is impairment of nutrition from obstruction of the coronary arteries, from atheromatous or calcareous disease. It may occur from hypertrophy, valvular lesions, emphysema, or Bright's disease. It occurs in connection with the tuberculous and carcinomatous cachexia, also in cases of



pyaemia or septicemia. It may be caused by the poisonous effects of *phosphorus*, *arsenic*, and some other poisons. *Alcohol*, in excess, undoubtedly has a causative influence. In old habitual drunkards this condition is generally found after death.

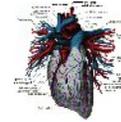
SYMPTOMS AND PATHOLOGICAL EFFECTS.

Although the different forms of fatty disease differ pathologically, their general effects are similar. Both cause weakness of the heart and enfeebled circulation, but not in an equal degree. I have told you which produces the most serious results. Fatty growth, and even degeneration may be present in a large degree, and not suspected up to the moment of death; and rupture of the heart has been known to occur from fatty degeneration, and the patient show no symptoms of the disease during life.

The *pulse* may be very slow, down to 20 or 30, and even 8 or 10, per minute. It will always be deficient in *force*.

It may be intermittent, irregular, very frequent and feeble. A sense of oppression at the praecordia, palpitation, and a tendency to syncope, are commonly observed. Flint has observed, and so have I, a notable degree of capillary congestion of the extremities. In one case which came under my observation, the hands and feet would become intensely red, especially after meals. Dyspnoea is present in this, as in other heart affections.

Certain symptoms referable to the nervous and respiratory system, are supposed to be highly significant of fatty degeneration: (1) The occurrence of seizures resembling apoplexy, but not followed by paralysis. After death no morbid appearances are observable in the brain; (2) A peculiar aberration of the respiratory movements was observed by Cheyne, and Stokes, "It consists in the occurrence of a series of inspirations increasing to a maximum, and then declining in force and length until a state of apparent apnea is established. In this condition, the patient may remain for such a length of time as to make his attendants believe he is dead, when a low inspiration, followed by one more decided, marks the commencement of a new ascending and then descending series of inspirations." This is said only to occur a few weeks before the death of the patient. But this symptom has been known to occur from hypertrophy of the left ventricle, without fatty degeneration; (3) Fatty degeneration of the *cornea*, giving rise to that appearance known as *areus senilis*, has been observed, but I have observed it when no symptoms of heart disease were present.



PHYSICAL SIGNS AND DIAGNOSIS.

You will not find it very easy to diagnose fatty disease of the heart from the physical signs; but if no valvular disease is present, and hypertrophy is not found, and the heart's action is feeble, and the patient is adipose, you may safely *infer* the presence of fatty heart.

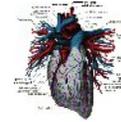
If you suspect fatty *degeneration*, and find that percussion shows moderate or no increase of the volume of the heart, you have a negative point. If you find that the apex-beat is not removed from its normal position, and its beat feeble, or inappreciable—and no impulse elsewhere than over the apex; and if by auscultation you find the sounds of the heart weakened, the first more than the second, and that is short and valvular; and, finally, if you find both sounds extinct, you may safely consider the case one of fatty degeneration.

TREATMENT.

In the treatment of fatty growth and degeneration, you must have three objects-in view, namely:

- I. To obviate and relieve the immediate effects of weakness of the heart.
- II. To increase permanently the muscular power of the organ.
- III. To arrest or limit the accumulation of fat.

I. The immediate effects of the cardiac weakness are, palpitation and pericardial distress, syncope, dyspnoea, and perhaps apoplectiform attacks. These occur in paroxysms, excited by over-exertion, mental excitement, etc. To combat these symptoms, you should use as palliatives, in severe attacks, wine, spirits, ether, or ammonia, and continue their administration until the urgent symptoms disappear or are much relieved. The specific remedies for these symptoms you will find in Classes I. and II., in the treatment of dilatation, with the indications for their use, to which I refer you. In the apoplectiform seizures, especially, you will find *Gelsemium* 6th, or *Acidum hydrocyanicum* 3rd, particularly indicated—the former if the attack was rather slow in coming on, the latter if it was very sudden in its invasion. In general, the two best remedies are undoubtedly *Aconite* and *Digitalis*—the former in the 3rd dilution, the latter in the 1st or mother tincture. Whichever remedy you select, give it as frequently as the urgency of the case demands, until the pulse becomes full and regular, and the condition of the patient has much improved. If the extremities are cold,



advise the mustard foot and hand bath, to divert the blood from the heart.

II. The second object is to increase permanently the muscular power of the heart. This is to be accomplished by the judicious administration of those remedies belonging to Class III. mentioned under "Dilatation," namely: *Ferrum* and its various preparations (the *Iodide* is the best in this disease), *nux vomica*, *ignatia*, *hydrastis*, *manganese*, *aletris*, *helonias*, *china*, *ptelia*, *cuprum*, *platinum*, *plumbum*, the *hypophosphites*, and the mineral acids.

The anti-psorics may be useful to combat the various dyscrasia, and may be advantageously alternated with the remedies just mentioned.

You will find that the lowest attenuation of Class III. will bring about the best results, while the high dilutions of the 9 anti-psorics are most appropriate.

The *diet* of the patient is of great importance. You should aim to produce a healthy nutrition of the affected organ by rendering the blood rich in nutritive materials. All articles of diet allowed should be highly nutritious and easily assimilable. As large a portion of animal food as the digestive powers will permit should be advised. The meat should, however, be lean, tender, and properly cooked. The quantity of fluids should be restricted, in order not to make the quantity of water in the blood excessive. Warm clothing, especially about the extremities, should be insisted on. Excess of all kinds, in eating, drinking, venery, mental occupation or excitement, late hours, etc., should be prohibited. As physical indolence predisposes to this affection, a judicious course of exercise in the open air should be advised. But while exercise is advised, it should not go to the point of causing dyspnoea or palpitation. In order to have exercise do good there must be an interesting object. For this reason, hunting, fishing, botanizing, horseback riding, etc., are the best methods.

HL It is important that you should try to arrest or limit the accumulation of fat in or upon the heart. Although the pathological conditions in the two forms differ, we do not know that the dietetic treatment should differ. All fatty and saccharine substances should be avoided. Starchy food is also inadmissible except in small quantities. The diet should consist of lean meat, bread, non-farinaceous vegetables, and certain kinds of fruit, principally the acid fruits.

Of medicinal remedies, those which act chemically cannot be used with safety and they have been abandoned. The *bromide of ammonium*, in



doses of 5 or 10 grains, three times a day, seems to have the power of diminishing adiposis without injuring the health. I have found that *graphites*, 6th and 30th, used for a month or more, has the same effect. *Phytolacca* appears to have the power of diminishing the amount of fat in the system, when given in the lowest dilutions. It is claimed that the *iodide of potassa* has the same effect. But these remedies should always be alternated with the *ferrum* group.

Baehr says, after recommending *iodine* and *calcareo*, " We have two other remedies which we cannot recommend with sufficient emphasis in heart-disease generally, and more especially in fatty degeneration, we mean *cuprum* and *plumbum*. Both remedies act similarly, except that the action of *plumbum* is more persistent and penetrating." He gives the following indications taken from cases of poisoning:

"*Cuprum*: pulse irregular, small, easily compressible, intermitting, accompanied by excessive muscular debility; the beats of the heart are scarcely, or not at all, perceptible; the sounds of the heart are indistinct; dyspnoea; feeling of anxiety; disposition to faint.

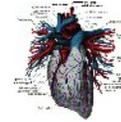
"*Plumbum*: the impulse of the heart is very feeble, or even imperceptible; sounds of the heart indistinct; palpitations, attended with excessive dyspnoea; pulse very soft, easily compressible, intermitting, irregular, 50 to 60 in a minute, less frequently over a hundred, after which it is scarcely perceptible; heart flabby; sudden paralysis of the heart; fainting fits during every exertion, also, attended with slight convulsions, extreme muscular debility, and oppression from the least motion; despondency and dread of death; night mare; edema of the skin."

The *iodide of lead* ought to prove more valuable than the pure lead for fatty degeneration of the heart.

Baehr thinks *aurum* will prove a good remedy.

Phosphorus and *arsenicum* are the two medicines which correspond pathologically to fatty degeneration. Both cause fatty heart, as well as fatty degeneration of the liver and kidneys. The pathogenetic symptoms also correspond, and theoretically they ought to cure this malady, but we have no clinical testimony to substantiate it. I would advise you to try them when indicated, in the 3rd or 6th attenuation, for a sufficient length of time to test their curative powers.

I have sent a few patients, whose adipose growth in general was immense, to a most rigid hydropathic establishment, where a few months' residence removed a large quantity of the abnormal deposit.



SOFTENING OF THE HEART.

I have already called your attention to this condition, when speaking of inflammation of the heart. It has also been considered as incident to fatty degeneration. It occurs during the course of essential fevers, especially typhoid fever and typhus. Sometimes the softening is limited to the left ventricle, and sometimes it extends all through the heart substance.

When softening has taken place the walls are relaxed and feeble; the structure easily torn with the finger; the organ is flaccid and collapses with its own weight, not preserving its natural form, but retaining, like a wet cloth, any shape in which it is placed. When incised, the cut surfaces are, dry and unpolished, and the color of the cut surface is purplish and livid.

Symptoms and physical signs. These are the same as in fatty degeneration. They proceed from weakness of the organ, and loss of muscular power. Stokes gives the best indications for the diagnosis of this affection, especially when it occurs during fever.

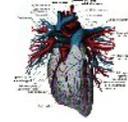
Treatment. The sole indication for the treatment of softening from any cause, is to sustain the failing power of the heart by stimulants, aliments, and restorative remedies. The use of wine, brandy, egg-nogg, beef-tea, wine-whey, aided by *china, hydrastis, ferrum, phosphorus*, and the mineral acids, should be freely used, until the action of the heart denotes such an amount of force as to free the patient from danger. In severe cases the patient must not be allowed to sit up, or make any sudden movements while the heart is very weak. Fatal syncope has been known to occur from such imprudence.

INDURATION OF THE HEART.

This lesion is so rare, and so difficult of diagnosis, that I will not speak of it at length, nor shall I treat at length of

CARDIAC ANEURISM,

a condition rarely met with, but which the older pathologists confounded with hypertrophy with dilatation. Although a rare lesion, Thierman has collected seventy-four cases on record. The aneurismal dilatation forms a tumor, varying in size, in different cases, from that of a small nut to a sac as large as, or even larger than, the heart itself. It contains layers of condensed fibrin, and various forms of coagula like arterial aneurisms. It is sometimes lined or studded with calcareous matter. For a fuller consideration of this subject, I refer you to works on morbid anatomy.

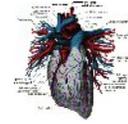


Flint gives five interesting cases which came under his personal observation.

Treatment. No cure can be effected; but the same treatment recommended for dilatation of the heart would be appropriate, and perhaps palliate suffering and prolong life. Some of the early homoeopathic writers recommended *lachesis* and *lycopodium*, but we are in doubt whether they referred to hypertrophy with dilatation or true aneurism.

RUPTURE OF THE HEART.

It is believed that spontaneous rupture of the heart is of rare occurrence; and Flint doubts if it has ever occurred as a result purely of muscular activity of the organ. He believes it is always dependent on some prior morbid condition of the cardiac parieties. I believe, however, that cases are on record where rupture of the heart has occurred from violent mental emotion, independent of cardiac disease. A singular book has lately been published in England, treating of the diagnosis of the crucifixion of Christ. The authors are the eminent London surgeons, William Stroud and Sir J. Y. Simpson. Dr. Stroud, after citing and commenting on a long series of instances of bloody sweat, feels warranted in the conclusion that, "owing to the natural constitution of the human frame, the exciting passions, when violent, and especially when accompanied with agony or conflict, are capable of producing bloody sweat, and when still more intense, rupture of the heart." Among other medical authorities he quotes the younger Gruener, to the effect that it is common for a person whose heart is oppressed by excessive congestion of blood, and who is threatened with suffocation, to "cry out with a loud voice;" and also Dr. Walshe, Professor of Medicine in University College, London, who says, that in case of rupture of the heart, the hand is suddenly carried to the front of the chest and a piercing shriek uttered. Sir James Y. Simpson, whose high rank in the profession has won for him the title of Baronet, adds an appendix to Dr. Stroud's treatise, in which he says, in substance, that usually death very rapidly ensues, in consequence of the blood escaping from the interior of the heart into the cavity of the large surrounding heart-sac -or pericardium, and that in such cases the sac will be found, on dissection, to contain two, three, four, or more pounds of blood accumulated within it, and separated into red clot and limpid serum, or "blood and water." As dissection was not practiced in ancient times, the nature of this rare disease was not understood, if indeed its existence was even suspected. These surgeons agree, therefore, that death was occasioned, not by pain and physical exhaustion, which, in a person in the prime of life, would require two or three days, but by a literally broken heart.



Rupture of the heart is almost inevitably fatal, and death occurs instantaneously. 'Walshe, however, states that one case has been recorded of death from rupture, in which a former rupture was discovered firmly filled by a fibrinous coagulum, adherent to the wall of the heart.

Wounds of the heart belong to the domain of surgery, and I will only say to you, that they are not as fatal as is generally supposed. In the "Surgical Memoir of the War" you will find several cases to substantiate this statement.