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LECTURE VIII.

EFFECTS OF INFLAMMATION ON THE TISSUES:  
ULCERATION.

*Atrophy from Inflammation, probably in part dependent directly on the Inflammatory Process, though seldom entirely so: Softening, sometimes the only evidence of Inflammation discoverable after death,—not the mere result of œdema, or of impaired nutrition, but a direct effect of Inflammation; Softening from other causes. Cases in which Softening from Inflammation most quickly occurs; Chronic softening, Yielding of Bones, Ligaments, &c.; Interstitial Absorption witnessed in Bones and Cartilages.—Ulceration, nature of the process; its difference from Suppuration; Healing by Granulation, Cicatrization, and Contraction; advantages and disadvantages of the latter; Peculiarity of Ulcers in the Cornea, and in Cartilage; Classification of Ulcers into Inflammatory, Phagedenic, and Atonic; Inflammatory Ulcers, proportionate in their progress to the Accompanying Inflammation; may be Acute or Chronic; Acute Ulcers; Chronic Ulcers; causes of their frequent occurrence in the Skin of the Legs, their General Characters and Treatment; their frequent Relation to Disordered state of Constitution; Ulcers under Thickened Cuticle.*

The destructive effects of inflammation are most quickly produced, and are most marked in those tissues which are endued with the greatest vascularity and delicacy of structure, such as the nervous centres, the internal organs, mucous membranes and the skin; and, secondly, in those tissues whose vitality is naturally low, such as the fibrous membranes and bone, or whose nutritive and reparative energies have been reduced by some former disease or accident. They are most marked in corresponding ages and habits of body, that is to say, in infants, and persons of excessive fineness and delicacy of physical formation on the one hand, and in the aged, the debilitated, or the infirm on the other. They consist of atrophy, softening, interstitial absorption, ulceration, and mortification.

The first of these, atrophy, we cannot often distinctly attribute to the direct and unassisted agency of inflammation; for inflammation is so commonly associated with suspension of function, and so quickly produces other alterations of structure, which in their turn affect the nutrition of the part, that we are generally obliged to refer to a combination of causes the atrophy attendant upon the inflammatory process. Thus, atrophy of the eyeball sometimes follows deep seated inflammation of the organ, but it takes place only when the internal tunics of the eye have been so changed as to destroy vision. The wasting of the testicle, occasionally resulting from hernia humoralis and other inflammatory affections, is probably always associated with an impervious condition of the vas deferens, or of the tubes of the epididymis and rete testis; and a shrunken state of a liver or kidney which has been long subject to inflammation, seems to result in great measure from the pressure exerted upon the structure of the organ by the contracting lymph effused into its substance, or deposited on its exterior. Indeed, the atrophy consequent on inflammation is so generally associated with some other structural change or variation of function, which may be regarded as the direct cause of it, that I can scarcely adduce to you a fair instance of inflammatory atrophy strictly so called, unless we reckon as such some of the cases presently to be mentioned, in which interstitial absorption has taken place in inflamed cartilages and bones. Nevertheless, it is probable that atrophy from suspension of function, effusion of lymph, and other causes, takes place most rapidly when the organ affected is or has been the seat of inflammation; and we may remark, that wasting of the eyeball does not follow the loss of vision occasioned by opacity of the cornea, unless the deeper tissues of the eye have been inflamed. Moreover, diminution of size, and imperfection of structure, are such frequent results of inflammation, and are so closely connected with it that we can scarcely fail to admit, though it may not be easy to prove it unequivocally, that an impairment of nutrition, or atrophy, is one of the effects directly resulting from that modification of the nutritive processes which constitutes inflammation.

The first perceptible change which usually occurs in the texture of an inflamed part is owing to a diminution of the cohesive force of attraction between its component particles, and consists in a loosening or softening of its structure, so that it rends easily, and gives way under slight pressure of the fingers. We have frequent

opportunities of observing this change in the delicate internal organs when they have been the seat of inflammation, and sometimes it affords the only means of deciding the nature of the disease which has been going on during life. The other phenomena of inflammation may have passed away; the congested state of the vessels often subsides in the last hours of life, or, if congestion be found, we cannot always rely upon it as an evidence of inflammation, because it may have been occasioned by mechanical causes operating after death. But a softened condition of an organ, provided decomposition has not commenced, is a pretty sure sign that an inflammatory change has been going on. Some time ago, I examined the body of a lady who had died after a brief, but severe illness, during which, the prominent symptoms had been fever, with pain in the right hypochondrium, and the only trace of disease I could find was a softened condition of one part of the liver. Nearly one half of the organ was reduced almost to a diffuent pulp. There was no change of colour; no lymph or pus to be discovered; merely a softened state of the texture of the gland, and had it not been for this softening, it would have been impossible to discover the nature, or even the seat of the disease.

The state of softening is usually accompanied by the effusion of a preternatural quantity of serum, or some other product of inflammation, which, separating the fibres of the part affected, increases the softening, or rather, renders it more apparent. It must not on that account be supposed that softening depends merely upon the presence of an unusual quantity of fluid; for if it did, simple œdema would be sufficient to cause it. Something more than a mere variation in the amount of the fluid which moistens the tissue of an organ is necessary to occasion its softening. The imperfection or suspension of nutrition consequent on inflammation may in part account for it, especially in vascular and highly organized structures where the mutation of particles is rapid; but this is scarcely sufficient to explain the softening which is not uncommonly found in the harder organs, the bones, cartilages, and ligaments, where the function is of a passive nature, and the processes of waste and repair go on but slowly. There must be some other cause in operation to effect this change in the inflamed part, besides the presence of a preternatural quantity of fluid in its interstices, or the suspension of its function. There is, probably, in addition to these, some alteration in the vital and physical properties of the textures, directly resulting from, or associated with the inflammatory process, of a kind similar to that which, in the more severe stages of inflammation, gives rise to ulceration and mortification.

That softening of some organs, more particularly of the brain, may result from impaired nutrition, is shown by the cases in which it has been occasioned by a deficiency in the supply of blood. Thus, softening of one hemisphere of the brain is no uncommon sequence of a ligature of one carotid artery, and we lately examined a case in which softening of the medulla oblongata was attributable to the obstruction

of one vertebral artery at the point where it enters the cranial cavity, the other vertebral having been rendered impervious near its origin by disease at a former period. The paralysis of old people sometimes depends upon softening of a part of the brain, with a diseased condition of the arteries leading to it. It is well to bear in mind, also, that softening of the nervous centres may be occasioned by mechanical injury, and may closely resemble the softening which proceeds from inflammation or impaired nutrition. Indeed, it is often not possible to decide from which of these three causes (inflammation, impaired nutrition, or mechanical injury,) the softening of a brain or spinal cord proceeds.

In many persons who have passed the middle period of life, the textures become soft and flaccid. They yield easily to slight mechanical forces, so that a gentle blow will occasion a severe bruise. The heart's action becomes feeble, its walls thin and flaccid, perhaps fatty, and the pulse is irregular and unequal, sometimes intermitting. Such persons bear the remedies usually employed to combat inflammation, very indifferently; they are easily prostrated, and the effect of the disease in producing softening and destruction of the tissues is especially remarkable in them. The lady in whom the softening of the liver occurred, to which I just alluded, was of this temperament; she had indulged freely in the pleasures of the table, had been bled rather largely at the commencement of the attack, and all the organs were remarkable for the looseness of their texture and the ease with which they could be torn. I need not say that in other cases where there is a predisposition to softening from deficient supply of blood, or from mechanical injury, a slight degree of inflammation will be sufficient quickly to induce it.

We have frequent opportunities of observing another effect of softening when it takes place more slowly under the influence of chronic inflammation affecting the harder parts of the frame, in consequence of which they become weakened and rendered unfit for their mechanical functions. The bones, long subject to chronic inflammation, may bend beneath the weight of the body or under the pressure of surrounding muscles. Here are specimens of bones which have yielded in this manner. You observe in this tibia a sudden bend at the part where there is thickening, some ulceration, and other evidences of inflammation. This is a different disease from rickets, which generally affects the whole skeleton in a greater or less degree, and depends rather upon imperfection of the developmental processes, than upon disease occurring subsequently. In rickets, the bones do not acquire their proper strength with a rapidity proportionate to the growth of the rest of the frame, and therefore yield under the increasing weight of the body; but the affection we are now considering is due to the softening effects of inflammation operating, it may be, upon bones which have attained their full strength and size.

The ligaments suffer in the same manner as the bones, and when they have been for some time inflamed lose their tension and force of resistance. Hence, in some measure arises the looseness and sensation of weakness so often experienced in chronic inflammatory

affections of these parts. The relaxation and lengthening of ligaments thus weakened sometimes proceeds to such an extent, that they yield to the constant traction exerted upon them by the surrounding muscles or the weight of the limb, and may permit actual dislocation of a joint to take place. Here are specimens in which dislocation of the knee has ensued in the course of long-continued disease of the joint; the ligaments are all entire, but they have yielded so as to permit displacement to the extent you see. There are in the museum of St. Bartholomew's Hospital, some interesting specimens of lengthening of the capsule of the hip-joint, in one instance to such an extent, that the head of the thigh bone having escaped from the acetabulum rests upon the dorsum of the ilium. Some time ago there was a lad in this hospital in whom the same lengthening of the capsule of the joint appeared to have taken place during inflammation, for, though he was able to bear some weight upon the limb, the head of the thigh bone slipped in and out of the acetabulum. It occasioned him no pain and he rather enjoyed the exhibition of his new feat. We took a good deal of pains to provide an apparatus which should prevent the displacement when he walked, but I am not confident that we succeeded at last, and I have for some time lost sight of the boy. You may have observed, that in inflammation of the wrist joint, the muscles and tendons ceasing to brace the joint, and the ligaments becoming softened by the inflammation and yielding to the weight of the hand, which is usually kept in the prone position, the carpus, after a time sinks upon the pillow, and leaves the lower ends of the radius and ulna prominent on the dorsal aspect of the limb. This relaxation of the ligaments and consequent displacement of the articular surfaces in cases of severe and long-continued disease of a joint, is no infrequent event, and unless you were acquainted with the real nature of the change you might imagine that ulceration or destruction of the ligaments had taken place. Surgeons who are not in the habit of dissecting these cases often assert that the ligaments of a joint are gone, but you will generally find upon examination, even where very great displacement has taken place, that the ligaments though stretched are entire. I speak more particularly of the knee and wrist joints, for in the other instance in which much displacement occurs in the course of disease,—viz., the hip, the capsule of the joint is usually ulcerated through before the head of the thigh bone and escapes from the acetabulum.

The staphylomatous bulgings of the cornea and sclerotic occasionally following long-continued inflammation of those tunics, are in like manner due to this softening influence of the disease, which weakens and renders them unable to support the pressure of the aqueous and vitreous humours.

Another effect of inflammation is interstitial absorption, which is nearly allied to softening, and occupies an intermediate position between it and ulceration. By this process the parts covering an abscess and intervening between it and the surface are removed, as I before explained to you; and the rapidity with which

an abscess advances to the surface, is proportionate to the acuteness of the attendant inflammation. The effects of interstitial absorption are most evident in the bones, because in consequence of the hardness of their texture, the vacancies occasioned by it do not so easily escape observation. Thus we often find bones becoming preternaturally porous under inflammation, and sometimes they are rendered so delicate as well as soft, that a scalpel may be passed through them without turning its edge. In this specimen of an inflamed thigh bone the cancellous texture has been entirely removed from the interior of the shaft, and the same change is commonly found to have occurred in the sequestra of necrosis. In the bones lying on the table, the outer compact walls of the shafts have been rendered porous and rough, so as to look as if they had been worm eaten; and the new bony deposit which has taken place on their circumference has been run into some of these holes and crevices while it was in a soft and fluid state, and solidifying there, has acquired a firm connection with the old bone. The reunion of broken bones is in like manner effected by a slight degree of inflammation, followed by interstitial absorption and roughening of the fractured ends, at the same time that a new cementing material or callus is poured in between and around the surfaces thus prepared for it. The cement is in this manner intimately blended with each of the broken ends, and concreting or ossifying, forms a firm bond of union between them. The transverse connecting rivets uniting the laminæ of an inflamed bone may also be absorbed, and the laminæ themselves may be separated from one another by the effusion of serum or lymph between them. These interposed products becoming afterwards ossified occasion induration and permanent thickening of the bone.

The interstitial absorption, consequent on inflammation, may also occasion the removal of the cartilages, and may alter the shape of the articular ends of bones. The gradual destruction of cartilages and the strange distortions which the hip and other joints undergo in the course of chronic rheumatism are remarkable examples of this. Recent lymph formations are particularly liable to this effect of inflammation, and so are parts already predisposed to interstitial absorption by a deficient supply of blood or a failure of the nutritive powers, such as the bones of old people. I am at this time attending a man, aged 86, whose humerus snapped in the middle as he laid old of a friend to help him to walk up stairs. For some weeks previously he had complained of pain in this part of the arm, and it is probable that some slight inflammatory attack, weakening and causing absorption of the bone, was the immediate cause of the accident.\*

If the same influence which engenders softening

\* This old man is since dead. The humerus was light, porous, and fragile; no attempt at reparation had taken place; the broken ends were rough and worm eaten on the surface for some distance above and below the fracture. This condition of the ends of the bone was probably due to the inflammation consequent on the injury, which was soon followed by its destructive results, but failed altogether to induce any reparative effects.

and interstitial absorption be exerted in a severer form it will, on a surface, occasion an actual breach or solution of continuity—in other words, it will give rise to an ulcer. The process of ulceration consists in the diminution of the cohesive force of the tissues at the part affected, to such an extent that they are disintegrated, and particle after particle becoming detached, pass off with the serous ingredients of the blood effused among them and constitute the discharge. Some of the atoms of the ulcerating tissues are, no doubt, returned into the circulating current in the same manner as in interstitial absorption, but a considerable quantity of dis severed fragments escape with the discharge, and beneath the dirty serous fluid which moistens a spreading ulcer, may be seen a thin layer of greyish or dark, or otherwise discoloured tissue in process of disorganization. We may, therefore, regard ulceration as the progressive or atomic death of a tissue occasioned by inflammation. It is not dependent simply on the arrest of nutrition, but it is the result of some destructive influence directly resulting from the inflammatory process, whereby a premature dissolution and disintegration of tissue is engendered.

You will perceive that ulceration does not depend any more than nutrition upon a peculiar action of the vessels of the part; it may take place in the same manner as the other effects of inflammation, in textures which are scantily supplied with vessels, or entirely devoid of them,—for instance, in cartilage, and in the cornea; neither is it the result of the erosive influence of a particular fluid, generated by the inflammatory process, for there is no evidence of the existence of any such fluid; it consists merely in the molecular death and separation of the components of the structure, in consequence of some direct influence on their vitality exerted by inflammation. Hence it follows that parts which, in consequence of the feeble state of their vital powers, can least resist the disturbing influence of inflammation, are most prone to fall into ulceration, and we are thus able to explain the frequent occurrence of ulcers, in feeble and emaciated persons, on the lower extremities, and on parts which have been weakened by injury or disease.

The processes of suppuration and ulceration are evidently very different, inasmuch as the former depends upon a change being wrought in the particles of the blood effused among the tissues, of such a nature that they cohere together into little masses called pus-globules, which have no ability to undergo any further organization, and therefore act as foreign bodies; whereas ulceration consists in the premature death and separation of the molecules of the tissues, whereby a solution of continuity is effected. Though suppuration very commonly follows ulceration, the two seldom proceed together at the same spot; so seldom, indeed, that the formation of pus is a pretty sure sign that an ulcer has ceased to spread. The cases in which an ulcer heals in one direction, and spreads in another, do not constitute an exception to this statement, because even in them ulceration and suppuration do not go on together at the same part of the ulcer.

So long as an ulcer continues to increase its margin

is sinuous and uneven, and its surface is foul, ragged, and covered with the disorganized remains of dead and decomposing tissues, fragments of which, mixed with the serum, constitute the discharge. The first sign of improvement, and of the cessation of the ulceration, is a diminution of this foul dirty covering,—a cleaning of the ulcer as it is called. The exposed surface of the ulcer becomes red, and some pus-globules are intermixed with the discharge. The reparative processes next commence with the formation of granulations over the surface of the ulcer. These are composed of lymph, organized and vascular; they form at the bottom and sides of the ulcer, fill up its cavity, and reach, or even sprout, beyond the level of the surrounding skin; at the same time the margin of the ulcer which had previously been jagged, becomes even, and the size of the ulcer begins to be diminished by the contraction of the granulation structure forming on its surface. This latter change takes place in accordance with that contractile property of lymph which I have so frequently alluded to.

The granulations are of pointed and conical shape, and being set closely together at their bases, they give to the surface of the ulcer an uneven granular appearance. As soon as they have reached the level of the skin, and sometimes before, the granulations which are in immediate contact with the skin become gradually converted into a structure called cicatrix, having a resemblance to the cutis, and bearing a cuticle upon its surface; it seems as though a fine, delicate, reddish pellicle were projected from the skin over the granulations, and this pellicle gradually advances towards the middle of the ulcer, till at length the whole is covered by it, or healed.

While the surface of the ulcer is thus closed in by cicatrix, its size continues to be diminished by the contraction of the healing medium, and this property of contraction exists in the cicatrix no less than in the granulations that precede it. It is by the combined influence, therefore, of these two forces, contraction and cicatrization, that an ulcer is healed. The share which each of them has in the cure varies according to circumstances. Where the surrounding textures are loose and unadherent, the ulcer is quickly diminished by the contraction of its granulations, and the cicatrix is small in proportion to the size of the gap which has been closed. Where, on the contrary, the surrounding textures are tough and resisting, or the skin fixed to the parts beneath by adhesions or other cause, contraction can take place to a less extent; the healing must be in greater measure effected by cicatrization, and is proportionately slow. The closure of the last or middle part of a large ulcer is always very tedious; partly because contraction has taken place nearly to its full extent, and can offer but little further assistance towards the completion of the cure, and partly because the reparative work of cicatrization is languidly accomplished in proportion to the distance from the point at which it commenced. It has been already remarked that the fibrin of delicate and scrofulous persons, though deficient in contractile power, quickly admits of organization, and you may have observed how little

the ulcers of these persons are closed by contraction, but that, nevertheless, they sometimes skin over very rapidly—in an imperfect and unsound manner, I grant—for the cicatrices thus quickly formed are large, weak, and very liable to ulcerate again.

The new medium by which an ulcer is closed is always inferior in vital, as well as in physical, qualities, to the texture whose place it occupies. The contraction of an ulcer has, therefore, this very important advantage, that by diminishing the gap it renders a smaller surface of the new medium requisite. Some comparatively slight disadvantages, it is true, result from it, such as the formation of strictures, the unsightly puckering of integuments, and even the distortion of limbs. These evil consequences are, however, only occasional, and are not sufficiently frequent to counter-balance those good effects of contraction, the influence of which is universal. The disposition to contract often continues for a considerable period after the complete healing of the ulcer, but it diminishes gradually, and altogether ceases after a time, when the cicatrix becomes soft, supple, and paler even than the surrounding skin.

The indisposition of parts to heal is, no less than their liability to ulcerate, proportionate to the feeble state of their vital energies; hence the difficulty of curing ulcers on the lower extremities of old people, and on limbs, where, in consequence of a varicose condition of the veins, the circulation is sluggishly conducted. Hence, too, the ulcers occurring on a limb which has been weakened by disease or injury are very troublesome, and the sores occasioned by unequal pressure upon a broken limb are often particularly so; for a limb which has been so severely injured, and has been, in addition, kept for some time in a constrained position, is long in recovering its natural force of nutrition, as well as its proper physical powers. Your recollection will supply numerous instances of the slow healing of ulcers under similar circumstances, such as the bed-sores, occurring in emaciated persons, and the ulcers on paralysed limbs. We fear to make incisions into the oedematous legs of the dropsical patient, because we know that tedious ulcers, if not mortification, are likely to be the result of such meddling surgery.

The cornea, and the cartilages covering the articular ends of bones, differ from most other tissues in the density and toughness of their structure, and more particularly in being in their natural state destitute of blood-vessels. Each of these tissues is also subject to a peculiar kind of ulceration. The acute ulcer of the cornea corresponds with ulcers in other parts. It has a flocculent grey surface, and the clearing of the dirty opaque coating from the ulcer is a sign that the disease has been arrested. But the peculiar ulcer of the cornea to which I wish to direct your attention is of slow formation, not attended with much inflammation, and quite clear and transparent, so that it is very likely to escape observation. A child is brought to you who is observed to avoid the light, perhaps to cry at times with pain in one eye, which waters, and is kept partially closed. You notice some redness of the conjunctiva, and finding no other disease upon a slight inspection,

regard the case as of little importance. No improvement being derived from your prescriptions, you are induced to examine the eye more carefully, when you discover a slight inequality in the surface of the cornea; it looks as if a thin slice had been planed off at one part, or there may be a little indentation as if a small semicircular piece had been chiselled out with a sharp instrument. Such ulcers are of common occurrence, though they often escape observation. They continue sometimes for a considerable period, penetrating deeply into the cornea, and resisting the ordinary remedies used for inflammation of the eyes, I believe the best local application to be a strong solution of nitrate of silver, placed upon the ulcer with a camel-hair brush. When they are healing, these ulcers become slightly opaque, and their cicatrices resemble those of ordinary ulcers.

The acute ulcers of articular cartilage are, like those of the cornea and other parts, uneven and roughened by the fragments of tissue which are being loosened from it and dislodged piecemeal. There is, however, a chronic ulcer of cartilage corresponding with the state of the cornea just described, in which the particles of the tissue seem to be separated in very minute fragments, as well as slowly, so that no distinct layer of them in a disintegrated state can be seen upon the ulcer. At any rate, the surface of the ulcer is quite clear, and it looks as if a portion had been sliced off from the cartilage, or scooped out from it with a sharp instrument. These ulcers are found combined with the acute ulcers in amputated joints, and they sometimes exist alone. I have seen similar ulcers upon the opaque indurated wall of an ovarian cyst, and upon a vagina which had been long subject to inflammation.

The healing of ulcers in the cornea, and in cartilage, probably takes place without suppuration, and without the formation of that structure intermediate between lymph and cicatrix, which we call granulation. It appears that the lymph shed upon the surface of the ulcer is at once converted into a toughish opaque fibrous substance, which fills up the little chinks in the chasm, and forms the cicatrix.

All ulcers are, probably, more or less directly dependent on inflammation, and most of them are, in the rate and extent of their progress, proportionate to the severity of the inflammation which induces them. Some are more rapid in their increase than the attendant inflammation is sufficient to explain, and the disproportion between the cause and effect seems to depend upon some peculiarity in the ulcerating process. In others, again, the disproportionate rapidity of the ulceration depends upon a want of proper resisting power in the tissues to withstand the destructive tendencies of the inflammatory process. These three conditions enable us to group the various ulcers which fall under our notice into three great classes. The first we will call the inflammatory; the second, the phagedenic; and the third, the atonic.

Of the inflammatory ulcers some are acute and some are chronic, but all are dependent on the surrounding inflammation for the rate of their progress, and are proportionate to it; and, in the treatment of them, we

rely almost entirely upon measures calculated to reduce the inflammation. Of all the different varieties of ulcer the acute inflammatory is the simplest and most manageable; it commences at the point where the inflammation is most acute with a small blister or pustule, which, bursting, leaves an abrasion of surface or an ulcer. The ulcer continues to increase so long as the surrounding inflammation remains unabated. As soon as the inflammation subsides under the antiphlogistic regimen, with rest, and the application of fomentation or poultice to the part, the ulcer begins to clear, assumes a healthy aspect, and generally heals up quickly. In some particular cases, leeches, or even general bleeding, may be required. I would advise you not to apply the leeches upon the inflamed integuments surrounding the ulcer; they will do more good if placed at a greater distance, and the leech bites are less likely to be troublesome. These acute inflammatory ulcers are often the results of injury,—a contusion, abrasion, or laceration of the integuments, which is followed by inflammation and ulceration. They are frequently observed in healthy persons, and, for the most part, yield readily to appropriate treatment.

In chronic inflammatory ulcers, the ulceration and the attendant inflammation are slow in their progress, often remaining stationary, or advancing but little for months, so that the surrounding integuments and other structures become altered in colour, indurated, and adherent together, from the deposit of lymph into and between them. These changes may extend deeply into the limb, causing thickening of the bones, and adhesions of tendons to their sheaths. Chronic ulcers are sometimes the remnants of acute ulcers, or the consequence of neglected wounds, but very frequently they owe their existence to some disordered state of the constitution. They are most commonly met with in persons who have attained or passed the middle period of life, are far more frequent in the lower extremities than in other parts of the body, and they are often associated with a varicose state of the cutaneous or subcutaneous veins.

The liability of the lower extremities to ulcers and other chronic inflammatory affections, is, no doubt, dependent upon their comparatively imperfect organization and the proportionate languor of their circulation. It may be also, in some measure, related to the fact that they are in their development behind most of the other parts of the body, for, as a general rule, parts which are last developed are the first to fail. The decay of the body is foreshadowed by that of the teeth, the wisdom teeth being first, and the incisors last to go. The senile death of the lower extremities sometimes precedes that of the rest of the body by a considerable period, and we cannot wonder that parts which are thus at a comparative disadvantage, both as regards development and nutrition, should often suffer from the destructive effects of inflammation.

The relative facility with which the supply of blood is conveyed to the different parts of the body may be demonstrated by injecting the arteries of the dead subject from the thoracic aorta, as it is usually done preparatory to dissection. The injection first finds its way into the arteries of the trunk, head, and face, then

into the upper extremities; and it reaches the legs and feet last of all, and with the greatest difficulty. This comparative disadvantage with regard to the distribution of the blood, associated as it is with deficiency of nutritive force, must increase the liability of the lower extremities to inflammatory attacks and must render them inferior to other parts in the power of resisting the destructive effects of inflammation, as well as inferior in the ability to repair the breaches caused by inflammation and other causes.

Again, the ulcers on the legs are often associated with varix of the saphena and other veins—a condition which still further impedes the circulation through the integuments, at the same time that the distended and tortuous veins are a perpetual source of irritation, frequently exciting inflammation, and therefore directly predisposing to ulceration. These various causes,—viz., the late development and imperfect nutritive energies, the natural languor of the circulation, increased as it often is by a varicose state of the veins together with much exposure to injury, combine to render the lower extremities, particularly the skin of the legs, so much more susceptible of chronic ulceration than other parts, that, in its simple form, it is an affection almost peculiar to them. We very seldom see a chronic ulcer in the head, trunk, or upper extremities except it be of specific nature, or in a scrofulous patient.

These chronic ulcers of the legs form a considerable proportion of the cases admitted into our hospitals, and they present a great variety of appearances. The most characteristic features are an oval or circular shape, an excavated, dirty, grey surface, mottled with small reddish spots, and surrounded by raised indurated integuments which, at the margin of the ulcer, are often covered by a thick, soft, white layer of cuticle. These ulcers commonly furnish a large quantity of thin dirty fluid. The leg is generally œdematous, especially if the patient continue to walk about upon it, and the veins are frequently varicose, either in their minute cutaneous ramifications, or in the larger trunks which pass beneath the skin, and not infrequently in both situations. Sometimes the ulcers are covered with large, pale, flabby granulations, which reach or exceed the level of the surrounding skin; the discharge is, in such cases, also copious, and the integuments for some distance round the ulcer are blueish or livid. At other times the ulcer is more painful, its surface red, its circumference angry and irritable, and the discharge is red. It is useless to attempt a description of the various appearances these ulcers present, for scarcely any two are alike. They are confessedly tedious troublesome cases to manage, and you will see various means of treatment employed. We generally place the patient in the recumbent posture, and apply poultices to the part till the surrounding inflammation is abated, and the surface of the ulcer cleaned from the foul discharge and the dirty substance which usually covers it; afterwards water-dressing is employed, or stimulating lotions, if the ulcer be languid in appearance and progress. Pressure by means of a bandage, or with circular strips of adhesive plaster carefully applied, is sometimes very serviceable. The good effects of strap-

ping are especially observed when the ulcer is callous, as it is called,—that is to say when its edge is raised, indurated, and white. You will be surprised to see how quickly ulcers of long standing will sometimes heal up under moderate pressure, with well applied strips of plaster. The great success attending the employment of this plan of treatment in some cases has led to its indiscriminate adoption, and has necessarily caused it to fall into some disrepute. It does not answer when the ulcer is angry, or the surrounding integuments red and irritable. The emplastrum plumbi spread on calico may be sometimes advantageously substituted, when the skin is likely to be fretted by the resin of the emplastrum adhesivum. It is not always necessary to keep the patient in bed while under this treatment; indeed, the exercise of the limb and of the body may occasionally assist in the cure.

When the ulcer is angry, irritable, and painful, and the patient restless and unable to sleep, great benefit is often derived from the employment of opium, in doses of half a grain or a grain, given two or three times a day. If the surrounding integuments be adherent to the subjacent parts, and shiny from former inflammation or ulceration, the cure has to be effected by cicatrization alone, unaided by contraction,—is consequently very tedious, and the case is most unsatisfactory, because the ulcer is sure to break out again as soon as the patient walks upon the limb.

An ulcer which has shown little disposition to heal, will sometimes close up rapidly after an attack of erysipelas, or any other illness; and the sudden healing of an ulcer which has lasted for a long time is very likely to be followed by some other disease,—a cutaneous eruption, indigestion, or even apoplexy. When you inquire into the history of a chronic ulcer, you will often find that it was preceded by some disorder of the health, which subsided upon its appearance; and, if the ulcer has been at any time healed, the patient will often state that during that period he felt unwell, suffered under easy sinking sensations at the pit of the stomach, diarrhœa, loaded condition of the urine, loss of appetite, indigestion, giddiness, or some other disorder of the system. Sometimes the ulcers occur in women at the time of the cessation of the catamenia, and are a substitute for the flushings and other ailments often attendant upon that change. It is the more important to inquire into the particulars of all these cases, because during the time that the patient is under treatment, on account of the ulcer, these various constitutional symptoms are not generally present, and we are, therefore, likely to fall into the error of regarding the ulcer as the only ailment, and to imagine that in healing it we are curing our patient.

Attention to the constitutional symptoms forms, therefore, an important item in the treatment of chronic ulcers, and you should consider, not merely those symptoms which exist at the time, but those also which preceded the ulcer, and those which, from your observation of the patient's constitution, are likely to follow if it be closed. The particular course to be adopted in reference to these symptoms must vary with the circumstances. When the ulcer is of long standing, it is not

wise to close it up completely, for no course of general treatment can ensure your patient against the occurrence of some other disease. Even the imitation of the plan which nature has adopted,—viz., the furnishing a vent by means of a seion or issue answers but imperfectly, and the patient is often content to bear an ailment which has become habitual, rather than encounter a new disease under the name of a remedy.

A very troublesome ulcer with indolent, granular, or warty surface sometimes forms under the cuticle of the fingers, or palm of the hand, where it has been thickened by pressure, or under a corn upon the sole of the foot or at the heel. The only plan of treating, these cases which I have found effectual has been, after paring away the thickened cuticle, to apply nitric acid to the surface of the ulcer, so as to destroy the warty structure, and present a fresh surface, upon which the healing processes may do their work.

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## ON THE TREATMENT OF HERNIA WITH OPIUM.

By BUTLER LANE, M.D., M.R.C.S.E., Ewell

In the *Provincial Journal* of April 21st, 1847, I published a paper advocating the treatment of hernia with opium, and I now again take an opportunity of advertising to the subject, with the view to urge my professional brethren to give a more general trial to this simple and efficacious mode of treatment. The striking case related by Mr. Mayo, of Winchester, in the *Journal* of June 16th, 1847, and the editorial reference to other cases successfully treated by the opiate plan, I hoped would have elicited some further communications. Such, however, has not been the case, but if those who have given the opiate treatment a trial, whether successfully or unsuccessfully, would inform me on the subject, I should be happy to embody the results of their experience for the general advantage.

Since my former communication the two following cases have occurred to me:—The first was one of inguinal rupture in a young man. On a former occasion, some months previously, I had reduced it with some little trouble, but now, from over exertion in bell ringing, it was forced down into the scrotum, and presented the volume of a small orange, firm and elastic to the touch, and affording the usual impulse on coughing. The taxis failed in its reduction, as also did the application of cold. There was then no sickness, and the pulse was quiet. An aperient was given, and the bowels were relieved, but, as I doubted whether action had taken place through the entire course of the alvine canal, it was repeated. The second dose operated three times, and caused much burning stinging pain in and at the neck of the tumour. It was thus evident that the hernia was incarcerated, but not yet strangulated. The next day the tumour was found the same. An attempt at reduction was again made by myself, and subsequently by my friend Mr. Allan, of Epsom, without success. Towards evening some