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ZONA, OR HERPES ZOSTER.

CLINICAL LECTURE DELIVERED BEFORE THE SENIOR CLASS OF THE
ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS.

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tologist to the Paris, Alexian Brothers, and Emergency Hospitals, etc.

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Dermatology.

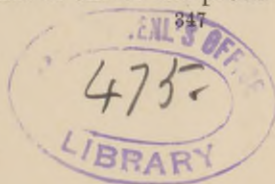
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ZONA, herpes zoster, or shingles, as it is popularly called, is a comparatively common disease, and one which is so marked in its objective characteristics that it is not difficult to recognize if only care be taken to keep in mind the peculiarity of the distribution of the lesions. It is essentially an herpetic disease, characterized by groups of vesicles, which vary in size from a small pin-head to perhaps a split pea, the distribution being along the course of cutaneous nerves. You will find that each vesicle is surrounded by an areola, so that the group of vesicles through the confluence of the areolæ appears as if it were implanted upon a reddened base of a bright color. You will also note that the groups of vesicles are not entirely isolated from each other, but seem to be connected by single or smaller groups, so that the entire eruption appears more or less continuous. In the first case we have an example of a common condition, occurring as it does upon the right side of the chest, and extending from the median line in front to the median line posteriorly, curved in such a manner as to suggest that it follows the rib, or, more exactly, the costal nerve. You will note, furthermore, that where the groups of vesicles are very distinctly marked, the vesicles have not coalesced, but are distinct from each other, and the groups are well defined, following the courses of smaller branches of the cutaneous nerve which seems to be implicated. In this particular case we have objective evidence of one of the promi-



nent symptoms of zona; that is, the neuralgic pain which generally precedes the cutaneous eruption. You will find that upon the right side there are the marks of a belladonna plaster which the patient applied, evidently for the purpose of relieving the intense pain which existed upon this side, and which he said was of a marked neuralgic character. You will also note that where this plaster was the vesicles are smaller and the groups less in number, this being probably due to the anodyne effect of the belladonna, the therapeutic action of the remedy allaying to some degree the nervous trouble. You will find in the other patient that we have an entirely different form existing. Here it is the right leg which is implicated, and in this we find that the distribution of the lesions is along the cutaneous nerves also, and rather diffuse in character. The peculiar grouping of the vesicles is also well shown, and the patient, who has not quite reached adult life, also states that intense neuralgic pains in the affected limb preceded the appearance of the eruption. While the appearance of herpes zoster upon the leg is not a common occurrence, it is still sufficiently frequent to attract some attention. A peculiarity which you will observe in all cases of zona is this: that it is unilateral in distribution. As a rule, bilateral zona is a very uncommon occurrence. The unilateral is the common form. When occurring about the trunk, you will find that the eruption is limited exactly to the median line in front and behind, which is due to the fact that in the development of the embryo we have had, at a certain period, fusion occurring on these lines, and the cutaneous and other nerves do not cross. On this account we do not have herpes zoster crossing the median line, simply because it is connected with a pathological condition of the nerves, and, as they do not cross, the result of their irritation or of changes occurring in them will not go farther than the distribution of those portions which are implicated. You will find that, as a rule, herpetic eruptions in general share in this peculiarity. They are in most part due to trophic changes or irritations, and are consequently limited to the cutaneous distribution of the particular nerves which are affected. In regard to a prominent symptom which is observed in zona, that is, the neuralgia which precedes it, you will find that in children, in so-called infantile zona, we do not have this occurring as a prominent symptom. Children do not apparently suffer from any subjective symptoms whatever in the course of zona; they have no neuralgia, and the only disturbance which may be noted is the so-called zosterian fever, a term applied to it by Landouzy. There is a febrile movement, with some gastric distress, which lasts for a very long



ZOSTER PECTORALIS.
(Note markings of plaster.)



ZOSTER CERURIS.

time, and this may be due to the fact that in infantile life the trophic nervous system is not as yet fully developed. You will find that zona occurs upon the cutaneous surface, follows the course of the cutaneous nerves, as I have mentioned, and on that account may occur upon any portion of the integument, although as a rule it occurs most frequently about the chest and back or in the lumbar region. Still, one arm or one leg may be affected in whole or in part. One particular form which deserves special mention is that which occurs along the distribution of the first part of the fifth nerve. The names which have been variously applied to these different forms depend merely upon the anatomical distribution of the lesions. Thus we have *zoster lumbalis*, *zoster dorsalis*, *zoster pectoralis*, *zoster cruris*, *zoster ophthalmicus*, etc. On the palms and soles it is not observed, this being probably due to the fact that the epidermis is so thick, and that these portions are not subject to the various causes which call this disease into being.

So far as the etiology of the affection is concerned, you will find that it is very obscure. We are told that fright, anger, or any general nervous disturbance may produce it; also that exposure to cold, to intense heat, and to such agencies as may have a decided effect upon the cutaneous nerves may act as an exciting factor in its production. On the other hand, some have gone so far as to say that a febrile disturbance or some internal disease may act also as a cause accounting for the appearance of the trouble. Cases, however, are seen in which no such cause can be elicited, and in which no satisfactory reason can be given to account for the appearance of zona. On the other hand, again, we have cases in which the toxic action of certain remedies will bring forth a zonic eruption, probably through the irritation of certain nerves by the remedy which has been taken. You will find that one of the common causes of zona due to remedies is arsenic. I have had occasion to observe a number of instances,—that the zona is generally thoracic, the objective symptoms are marked, and there is no prodromic neuralgia preceding the eruption. You will find, however, that in this medicinal zona we have some symptoms in common with the disease in general, and these symptoms consist of the intense burning and tingling sensation and the pain produced upon pressure. You will also find that, as in ordinary zona, its distribution lies along the tracks of cutaneous nerves; that the vesicles are grouped; that they are upon an inflamed base, and that they are joined to each other by smaller groups or by single vesicles.

The natural course of the disease is towards a spontaneous cure in

some instances. In other instances, while the general trend is in this direction, you will find that complications arise, from the very nature of the anatomy of the lesions. Thus, through friction of the clothing or some other traumatic cause, the vesicles will burst and pour out their contents, and at the site of each vesicle you will have an ulcerative process taking place, unless there be a condition, no more uncommon in *zona* than it is in all herpetic affections,—namely, a coalescing of the vesicles, forming a sort of bulla. In this process we have a raw, excoriated base, which takes on ulcerative action, and if the individual who is so affected be in a low state of vitality, if his nutrition be impaired, if he be weak and anæmic, you will find that this ulcerative process takes on a severe form, that destruction of tissue is comparatively rapid, and that repair is rather difficult to establish completely and satisfactorily.

Etiologically this affection is one which is quite interesting, and it has not been completely settled, from the fact that certain epidemics of *zoster* have been observed, and it has been argued by those who have had an opportunity to study them that there must be some micro-organic cause at work in order to produce the results which have been noted. Certainly the etiology of *zoster* as it is generally given would scarcely bear out the recorded facts of the occurrence of these epidemics. Such epidemics would go to prove that the disease, at least in some of its forms, is of an infectious character, and that this infection must be aerial, for in the epidemics which have been observed the individuals did not come in contact with each other, in many cases, and still they suffered from the disease. It may be argued, on the other hand, that the telluric or atmospheric conditions which prevailed at the time were such as to act upon the nerves of the different individuals in a similar manner. Investigation has as yet not decided the matter to the complete satisfaction of those who have studied it. The etiology as given by Leloir and Déjérine goes to prove, and does so completely so far as their investigations have gone, that there is an organic change which takes place in the trunks of the cutaneous nerves supplying the areas which are affected by *zona*. We find that the axis cylinder is the portion implicated, and very often tracing the nerve-trunk back to its origin from the spinal cord shows that the posterior spinal ganglion or root of the nerve has undergone certain organic changes, chiefly manifested in a form of softening; in fact, investigations which have been pursued, and in which the nerve which was affected was traced back, showed that the ganglion in direct connection with the nerve was the one in which the change occurred. Thus, in

some cases of zoster ophthalmicus the ganglion of the fifth nerve was found to be affected in its upper portion. Now, it will be easily understood that with such organic changes occurring in the course of the nerve, and at its ganglion, at the point from which it takes its organic origin, trophic symptoms should occur, and the herpetic affections are probably the most common trophic symptoms which are manifested upon the skin, this being probably due to the fact that the impression made upon the nerve-trunks and nerve-ganglia is of a more marked and deep character than we observe in connection with certain sympathetic filaments or branches whose translation upon the integument appears in the form of pigmentation or hypertrophy of the horny layer.

The treatment of zona is one whose variations are so great that it would be impossible to enumerate them. However, the principles upon which it is based should never be lost sight of, and if these be only remembered, a rational method of applying therapeutics to this disease will be attained, and correspondingly good results will follow. You will note in the first instance that in the prodromal state of the disease there is a cutaneous neuralgia, which is referred to the portion which will be afterwards the seat of the eruption. This prodromal symptom is due to the fact that organic changes are taking place within the nerve-trunks, and the neuralgia is of such an intense character that the individual so affected obtains no rest whatever, is in constant distress and pain, and all the local applications which may be made seem to be of no avail so far as the relief of the subjective symptoms is concerned. Another thing in connection with the treatment which these prodromal symptoms obscure is the fact that it is very difficult to predict that zona is going to occur. If, for instance, the neuralgia be about the upper eyelid, the forehead, the temple, and limited to one side, it is just as apt to be taken for *tic douloureux* or some form of ophthalmic neuralgia or other form of cutaneous disturbance as it is for a prodromic symptom of zona. It is not unusual in individuals, especially those who are apt to be attacked by zona, and who do not seem to be in the best of health, to have neuralgias occurring in different portions of the body and referred to the integument, the pain being the most distressing symptom. The skin is painful on pressure, painful if slightly touched, painful if not touched at all, in fact, it is painful all the time, and the pain is of that intense character which is characteristic of neuralgias; moreover, it is the neuralgia which precedes the eruption observed upon the skin. It has one peculiarity not commonly observed in ordinary neuralgias, and this is that it per-

sists; in spite of all external treatment it will continue; it will not abate; and if the patient obtains rest it is purely through sheer exhaustion. He feels uncomfortable all the time, his features become drawn, a scowl continually clothes them, he becomes ill-natured, in fact, is considered a general nuisance by those who come in contact with him. This stage, if left unattended, will continue for possibly two weeks, a little more or a little less. The only treatment to adopt in this stage is such as will relieve pain, and for this purpose narcotics rather freely applied should be given. Hyosecyamus or opium, which is perhaps the best, given in good, marked doses, are among the best anodynes and hypnotics which can be administered internally for the temporary relief of this neuralgia. The bromides are inefficient, unless such large doses be given that the gastric functions be disturbed. And so it is with chloral. The others which I have mentioned can be given in sufficiently large doses without interfering very markedly with the proper functions of the stomach. In addition to this, I always advise taking some general reconstituent measures which are particularly applicable to the nervous system. Phosphide of zinc, while a good remedy, is indicated rather later on, after the appearance of the eruption. Then, given in doses of a quarter or a third of a grain two or three times daily, we will have a remedy which acts very well, which has been highly vaunted, and which can be given with comparative safety. Still, there are situations in which this drug cannot be obtained, and in lieu of it hypophosphites with some arsenic, say the fiftieth of a grain of arsenious acid or two or three drops of Fowler's solution in combination with syrup of hypophosphites, given three times a day, will secure a good result so far as tonic action upon the nerves is concerned. General nerve tonics may be given if indicated by the general requirements of the case.

The local treatment of zoster is one which should not be overlooked by any means. It is, perhaps, the most important in the eyes of the patient, because by this means the pain, the burning and the tingling caused by the eruption can in a great measure be avoided, and because by these external measures a rapid return of the skin to a normal appearance can be accomplished. The most important point in connection with the local treatment of herpes zoster is the dressing which should be applied, and which is important for this reason. As I have mentioned, the vesicles have a tendency to burst, with the formation of ulcers which are chronic in form and destructive in character. If we can prevent the bursting of the vesicles, we will have accomplished a great deal towards shortening the duration of the attack. In order

to do this, perfect protection should be afforded to the vesicles, and this protection can only be accomplished by means of a dressing which in itself will not burst them, and which will protect them from external influences having that tendency. To do this one of two things may be used, either absorbent cotton or absorbent wool. You will find a combination of both still better, and the method of doing this is as follows: take a sheet of absorbent cotton which will cover the entire eruption, lay this upon a sheet of absorbent wool, seeing that the absorbent wool is probably an inch and a half in thickness, the absorbent cotton about a quarter of an inch in thickness. Before applying this to the eruption, you may make one of two applications, either an anodyne liquid to the eruption, or sprinkle an anodyne and drying powder upon the cotton. This latter method is probably the best, but a combination of the two I have found to be very good and quite efficient. For the first, a solution of cocaine of the strength of say five per cent. should be painted over the whole site of the eruption, and for a dusting powder, to be freely dusted over the cotton, use the following:

R Pulv. camphoræ, ℥ijss;
 Cretæ præparatæ,
 Magnes. carbonat., āā ℥j.—M.

The camphor in this powder has an anodyne effect, the carbonate of magnesia gives it lightness, also overcomes any acidity which might result from the accidental bursting of a vesicle, whose contents are of an acid character, and the chalk gives weight and substance to the general combination. This should be freely sprinkled upon the cotton, and then the cotton, with an external layer of absorbent wool, should be applied to the site of the eruption, a bandage being lightly thrown around to keep it in place. You will find that by doing this the vesicles will not burst, as a rule, the patient will have comparative ease, and there will be a rapid return to the normal.

I do not wish in this place to enumerate all the various methods, remedies, and prescriptions which have been recommended for this trouble. Suffice it to say that all of this diversity of recommendation depends upon the fact that efforts have been made to abort the attack as much as possible; that is, to shorten the duration of the period of time through which the trouble lasts, for you will observe that the eruption will last only three weeks, as a rule, sometimes for a little shorter period, sometimes a little longer, depending upon the intensity of the process and upon the amount of surface involved. The treat-

ment, however, should always be governed by the general principles of procuring rest for the patient, alleviating the local pain, and protecting the eruption in the most efficient manner possible. These principles should never be lost sight of, and under these circumstances the choice of remedies is to be largely governed by individual preference, as well as availability in procuring the particular remedies which seem to be indicated in the case.

As far as the prognosis of the trouble is concerned, you will find that in infantile zona there may be some slight febrile disturbance and nausea, but this lasts but a short time, and the child affected by the trouble evinces no particular pain, does not complain of the neuralgia, and recovers rapidly. In the adult it is a different matter. We have here, as I have mentioned, generally a period of three weeks during which the eruption comes to its height, gradually fades by a flattening of the vesicles, a disappearance of the areola surrounding them, and finally a desquamation in which the horny layer of the skin is thrown off, leaving more or less pigmentation of the affected area, this pigmentation leaving only after some considerable period of time. You will find that one of the most dangerous forms of zona is the ophthalmic, because here we have an implication of the structures of the first portion of the fifth nerve, and the danger which is present lies in the fact that the cornea may be affected, and result in a corneal ulcer, followed by leucoma and possibly partial loss of sight through this cicatricial termination. You will also find that in zoster ophthalmicus there is intense pain, the most intense neuralgic symptoms which are ever observable in zona, and there is a very marked reaction occurring in the skin, œdema of the eyelid, either the upper or both, and an excruciating amount of pain, which seems to be unbearable and to drive the patient almost to the verge of insanity. There is also marked exacerbation occurring in this pain, more particularly at the termination of the fibres near the eye; at least the pain is referred to the eye and to the ear,—that is, that portion which is immediately anterior to the external meatus and corresponding about to the location of the ganglion. This form occurs in young adults and old persons. I have never observed it in the young or in infants, whereas the other forms of zoster may occur at any age.

In so far as the prognosis is concerned, there is one point which seems to militate against the theory that it is due to a micro-organic infection,—viz., that, as a rule, one attack of zona produces immunity from any future implication, and the disease seems to be acquired but once in a lifetime. But during the course of an attack you will find that

the eruption does not simply appear and then gradually disappear, but we have another characteristic present, which is common to herpetic troubles, and that is relapses. In zona the relapses are not separated by marked intervals of time; that is, there is not a healing process established and after that a relapse of the disease occurring, but the relapses occur continuously, and while one portion of the eruption is getting well we will find that there are new groups of vesicles occurring, which accounts for the long duration of the disease. Any single patch of vesicles will probably get well in five or six days, but as continual recurrences take place in portions which were not implicated before, we have the time of its duration lengthened by that much. In ordinary herpes you will find that the relapses have a different nature. You will find an eruption of the vesicles occurring. This will get well in a very short time, and probably after a lapse say of a month or more we will have a relapse occurring, occupying in some instances the very same area which was implicated in the first eruption, and the first relapse getting well you may have another relapse occurring, and so on; but in zona, as I have stated, the relapses seem to have a continuous nature, and once established will continue for several days, then cease, and by the time the lesions of the last relapse have disappeared you will have a complete cure of the entire disease. These relapses are probably due to the fact that the organic changes taking place in the nerves are still going on, and when the limitation of the changes has been reached, the cutaneous translation of this change will also cease.

So far as sensation and general sensibility of the skin is concerned after recovery from zona no particular abnormality has been observed. It would seem that the nerves which are originally changed become regenerated. They regain their organic as well as their functional qualities, and the portions which were implicated do not suffer in any function of any character. No atrophy follows. Nor is there any evidence whatever that there was ever any organic change in the nerves or the nerve-trunks supplying the portions which were implicated.

Some cases are seen in which ulceration has occurred. You will find here the treatment somewhat changed. You will find that besides protection it will also be necessary to use means and methods which will bring about a *restitutio ad integrum*. The dressings to be applied to these ulcers should be of a stimulating and astringent nature,—stimulating because the tissues are below par, astringent in order to bring about a rapid contraction and diminution in the size and volume of the

ulcers which have formed. A solution of bichloride of mercury one in one thousand as a wash should be succeeded by an ointment of the following nature :

R Acid. tannic., gr. iii ;
 Aristol., ℥j ;
 Hydrarg. chlor. mit., gr. x ;
 Ung. aquæ rosæ, ℥j.—M.
 Sig.—Use as directed.

This should be applied upon small cloths and placed in contact with the ulcers, and the rest of the dressing should be as has already been indicated for the treatment of the eruption. You may find it occasionally necessary to treat these ulcers as you would chronic ulcers of any kind. One of the best methods is simply to scrape them with a sharp spoon and then apply aristol in powder form. You will find that this will stimulate very nicely and induce a rapid healing process, just as it does in varicose ulcer. But remember that in these cases you will always have scars follow, and you may have an implication of the cutaneous nerves if the ulcers be very deep, the terminal filaments being caught in the scar, and inducing thereby a constant neuralgic pain, which can only be helped by cutting out that portion of the scar-tissue embracing the cutaneous structure within it. I call your attention to this in order that you may be able to guard your prognosis when giving an opinion in regard to the future course or future termination of a case of zona.

In uncomplicated forms you may very safely predict that the trouble will terminate in about three weeks, and that that will be the end of it. When, however, it is complicated by ulcers or by a breaking down of the vesicles, you should always be guarded, for the reasons which I have given. The ulcers may not heal as kindly as you expected, and should they heal, the final nervous implications may be such as to give results not much better than the original trouble, so far as the subjective sensations of the patient are concerned. In infants and children under ten years of age the prognosis is always good, both as regards the objective and the subjective symptoms. The child will never suffer. Its sleep will never be disturbed, and the worst that can happen will be a little febrile and gastric disturbance, lasting possibly one or two days, yielding readily to the simplest measures, and not re-appearing again. In zoster ophthalmicus the most dire results may or may not occur. There is such an amount of uncertainty about cases of zoster in this region that it is best to give a very guarded prognosis of the case. Anodynes and hypnotics should be pushed to their limit,

in order to prevent as much as possible implication of the cornea. After this has occurred, the ordinary treatment for corneal ulcer should be vigorously pushed, in order to diminish the destruction to as great a degree as possible, and to prevent the formation of leucoma as much as can be effected by the measures at our command.

