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A CLINICAL LECTURE ON

HERPES ZOSTER.

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A CLINICAL LECTURE ON HERPES ZOSTER.*

By William Oliver Moore, M.D.,

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Gentlemen:—This morning I will call your attention to one of the most interesting neuroses affecting the eye, and the patient to be presented later is a fine example of ophthalmic "shingles."

Herpes, from ἕρπω, I creep; Fr., *Herpès;* Ger., *Flechte;* Zoster, from Ζώνη, a girdle. Herpes Zoster, called by the French, *zona;* by the Germans, *Zoster* or *Gürtelrose.* In early times it received various names, as *Feu de Saint Antoine, Ingis sacer,* and *Dartre phlycténoïde en zone.*

Herpes zoster is an acute inflammation of the skin, occurring along the course of a cutaneous nerve, and is produced directly by nervous influence. One of the most remarkable characters of herpes is its occurrence on one side of the chest, where it forms a half-girdle or belt, which but rarely encircles the entire thorax. This peculiarity has gained for the affection the various names of zona, a woman's girdle; zoster, a man's girdle or belt; and our popular expression of "shingles," which Dr. Johnson derives from the Latin, *cingulum,* a girdle.

That zoster may occur on both sides of the body simultaneously cannot be denied, yet it is extremely uncommon.

Etiology.—Herpes zoster may be produced by either

* Being remarks made in connection with a case of ophthalmic zoster presented to the Eye and Ear class of the New York Post-Graduate Medical School, May 18th, 1886.

traumatic or pathological influences. Traumatic zoster is the more rare form, and usually results from a heavy weight falling on some portion of the body, as in the case reported by Dr. Taylor,* in which traumatic neuritis of the cervical plexus on the left side caused severe zoster on the skin areas to which the nervous filaments were distributed. An injury sufficiently severe to produce neuritisof a cutaneous nerve-trunk will, as a rule, be followed by an eruption of vesicles along its course, cases of which have been reported by S. Weir Mitchell, Rouget,† and Oppolzer.‡

The pathological influences that produce the vesicular eruption of zoster are many and diverse. Bazin § considers many cases to be due to an arthritic influence, and, when occurring in children, always so.

Exposure to cold often occasions its development, and has a marked influence on the arthritic variety.

Strange as it may seem, an indirect cause of the affection is sometimes found in the emotions, such as sudden joy or grief. This influence, felt in the central nervous system, is reflected to some of the peripheral cutaneous nerves, and nutritive changes in the skin are the result. Cases are on record in which the pain of zoster has been felt immediately after some exciting emotion of this nature. Mr. Hutchinson,‖ of London, has reported a number of cases in which the cause seemed to be the internal use of arsenic, and other observers, both in England and the United States, have noticed the same thing. In all these cases the arsenic was administered for the relief of some chronic skin affection. In 1871, when I was in charge of the New York Dispensary for Diseases of the Skin, I saw a patient, aged 50, with acne of the face; after treatment for a month by the use of external remedies, liquor potassæ arsenitis was ordered in doses

* New York Medical Journal, vol. xxxix., No. 24.

† Journ. de Physiolog., 1859.

‡ Allgem. Wien. Med. Zeitung, 1866, No. 48.

§ "Affections Cutanées," Paris, 1860.

‖ Medical Times and Gazette, 1868, 1869.

of three minims after each meal, to be gradually increased; after continuing this for two weeks, she complained of pain on the right side between the sixth and eighth ribs, midway between the spinal column and the vertebral border of the scapula, and examination revealed the vesicular eruption of zoster in the painful region. So many cases have been reported from this cause that I think their occurrence must be more than a coincidence.

According to Erb, zoster is only the local manifestation of a constitutional malady derived from an external cause, viz., the deposition of an infectious germ. This applies only to the so-called spontaneous zoster, and has nothing to do with the traumatic or secondary forms, which, if the theory be accepted, must be regarded as differing essentially from genuine herpes zoster. All writers admit that zoster is very apt to become epidemic, especially in hospitals devoted to skin diseases; and this circumstance, never hitherto intelligibly accounted for, is attributed by Landouzy to the prevalence of atmospheric conditions favorable to the ripening of the specific germ. Believers in the germ origin of the disease hold that the specific microbe produces an irritation of the spinal ganglia, and the cutaneous symptoms are simply an indirect consequence of trophic disturbance due to an irritation of the nerve-elements. The special germ has thus far not been discovered.

Dr. Gerne * thinks that an analogy exists between this disease and the eruptive fevers, and this view, although he does not so express himself, favors the germ theory of the disease. I am, however, not yet willing to accept this view of the nature of zoster.

Syphilis has been known to be the exciting cause, and when so produced the eruption of vesicles is bilateral. Bärensprung and Charcot,† as a result of their many investigations, conclude that: 1. Inflammation of spinal ganglia anatomically characterized by a well-marked vascular in-

* Concours Méd., Feb. 2d, 1884.

† Duchenne: "Electrization localisée."

jection and a proliferation of the perineurium, without lesion of nutrition, produces in the portion of the skin which receives innervation from the parts affected a special lesion of nutrition of the nature of zoster. 2. The neuralgia which accompanies or precedes the eruption is the result of excitation of the sensitive nerve-filaments passing through the ganglion. 3. The spinal ganglia contain the trophic nerve-filaments of the skin. . . . Zoster appears to be due to disease of the ganglionic system more often than dependent on affections of the spinal cord; it occurs infrequently as a reflex neurosis.

*Anatomical Characters of the Vesicles of Zoster.**—In a horizontal section we find the epidermis raised, the corium more or less laid open, and septa spread out between the two in such a manner as to subdivide the vesicle. The external covering of the vesicle consists of the non-nucleated cells which make up the epidermis, arranged in layers one upon the other; these cells do not stain with carmine. The next layer is made up of cells containing nuclei, which do stain with carmine; these are flat and arranged in layers, the innermost adhering to the superior surface of the stratum Malpighii.

The interior of the vesicle is divided and subdivided by thick septa which traverse it in all directions; these septa consist of different layers of tightly packed, long, spindle-shaped cells, which show a nucleus when carmine is added. On the superior surface of the corium in many places long cells adhere, which are separated by epithelial and other cells, mostly round, and only partially stained by carmine; these are like those of which the corium is made up. In the puffed-up areolar tissue of the corium are a few round, granular cells, as large as white blood-corpuscles, which assume a rosy tint when stained by carmine. The vessels of the papillæ are enlarged and contain many blood-globules.

When a vesicle is becoming changed into a pustule, the

* "Ueber Blasenbildung bei einigen Hautkrankheiten," von Dr. D. L. Haight, aus New York, 1868.

rose-colored cells, the cells on the corium, and those in the septa increase, and by this process push apart the epithelial cells on the floor of the vesicle. The cells are often so enlarged as to contain two and three nuclei, and those upon the corium arrange themselves along the blood-vessels as far as the subcutaneous areolar tissue, where they surround the nerve-trunks and sharply press upon the nerve-covering. They cause the neurilemma to puff up and the white substance of Schwann to disappear, leaving the axis-cylinder alone. This pathological fact makes easy the explanation of the severe attacks of neuralgia that not only accompany, but usually precede, the eruption of vesicles.

In addition to the appearances found in the vesicles of zoster and of the nerves, as studied by Haight, similar and even more marked changes have been noted by other observers.

Danielssen * gives an account of the autopsy of a person dying of pneumonia, who had had the pains of zoster in the left side of the chest for two months before death. The sixth intercostal nerve was greatly swollen throughout all its ramifications to the skin.

The swelling was caused by a hard transuding substance poured out into the neurilemma: the axis cylinder was, however, normal.

Bärensprung † reports the autopsy of a patient dying of zoster, in whom there was gangrene of the skin between the sixth and ninth ribs. In this case, the ganglia at the commencement of the sixth, seventh, and eighth intercostal nerves, as well as the portion of the nerve beyond, were infiltrated with pus.

Bärensprung believes that zoster is dependent on affections of the ganglionic system, rather than upon alterations in the peripheral nerves themselves; this latter view is held

* Danielssen und Boeck : "Recueils d'Observations sur les Maladies de la Peau," Schmidt's Jahrbücher, 1857, Bd. xcv.

† "Beiträge zur Kenntniss das Herpes Zoster," Charité-Annalen, 1863.

by Curshmann and Eisenlohr,* and is apparently substantiated by the following case: The patient had zoster of the forearm and arm; some small nodules, which were noticed along the branches of the axillary and other nerves, were examined microscopically, and proved to be a perineuritis acuta nodosa, originating in the blood-vessels of the nerve sheath and perineural connective tissue. The nerve substance itself was intact. At a subsequent post-mortem examination, the spinal ganglia were found normal in appearance.

Symptoms and Course.—Herpes zoster possesses points of interest which are peculiar to itself, and which transcend those referring merely to diagnosis and treatment. It is an instance of an acute inflammation of the skin produced directly by nerve influence. Probably there are many other forms of inflammation, both of the internal organs and of the surface of the body, that are thus produced, yet "shingles" is by far the best example.

In traumatic zoster the symptoms usually come on in a few hours after the injury, and the eruption occurs along the course of the cutaneous nerves arising from the nerve or plexus injured.

When appearing idiopathically, it is usually preceded by general malaise, fatigue, nausea, and headache; in some cases there is elevation of temperature. In the skin about to be the seat of the eruption, a sensation of warmth, or oftentimes a severe neuralgic pain, is felt. On removing the clothing to discover the cause of this warmth or pain nothing will be seen, not even redness of the skin. In a few hours, varying from twenty-four to forty-eight, on the painful area of skin red points, arranged in oval groups, will be found, and very soon each point shows a vesicle, the largest of which is about the size of a millet seed. These are at first very clear and pellucid, and often are found grouped together, not exactly confluent, but very closely associated; sound skin exists between them, in which respect the affec-

* Deutsches Archiv f. klin. Med., Bd. 34, Hft. 4, 1884.

tion differs from erysipelas, for which it has often been mistaken. The vesicles may, at a later period, contain blood-stained serum, and afterward opaque pus. The eruption runs a more or less definite course of from ten days to a fortnight, at the end of which time the scabs fall off, leaving generally deep cicatrices like those from variola. The eruption will be found, as a rule, upon one side of the body only.

If the fifth cranial nerve is the one affected, the eruption occurs upon the forehead; if one of the intercostals, then on the side of the chest or abdomen. If on the trunk, the eruption generally begins from behind at the spinous processes of the vertebræ, the vesicles arranging themselves in a curved line, passing obliquely downward and forward on the trunk, and approaching the median line in front, beyond which they very rarely extend.

Zoster occurs, as a rule, but once in the same person.

Sometimes, in rare cases, papules, bullæ, or pustules may appear instead of vesicles. In other cases, the neuralgia may be intensely severe before, during, and after the eruption; and occasionally the eruption is bilateral. Zoster may occur at any period of life, and the two sexes are equally liable.

A recurrence of zoster is exceedingly rare. An interesting case of this sort has been reported by Tilbury Fox.* The patient, a male aged thirty-three, had his first attack in June, 1868; the second in the same month in 1869; and the third attack in June, 1870; at this latter date he was seen by Dr. Fox. The eruption was an interrupted band of well-marked vesicles crossing from front to back over the point of the right shoulder, and also a crop of vesicles upon the gluteal region of the same side. Kaposi† reports a case in which the eruption appeared five times, within a comparatively short period, always in the same region over the right cervico-brachial plexus; the sixth

* British Medical Journal, August 6th, 1870.

† Wien. Med. Wochenschr., 1874, 1875 to 1877.

time it occurred in the lumbo-sacro-crural region on the right side; while in the seventh, eighth, and ninth outbreaks the eruption was found in the left cervico-brachial region.

Sometimes the eruption does not appear within two weeks, but continues over the implicated nerve-twig from three to six weeks. If the patient scratches the affected skin, deep ulcers are formed, which, on healing, leave deep and ugly scars. Occasionally ulcers occur without scratching, and in Bärensprung's case quite extensive gangrene of the skin took place. This certainly points to the trophic nature of the disease. The nervous symptoms in zoster may be of a motor nature, as in the case reported by Broadbent,* in which an old woman had a permanent partial paralysis of the arm following zoster, and other observers have seen the same; these motor disturbances are, however, quite rare.

We will adopt the following classification: Zoster facialis, z. cervicalis, z. brachialis, z. thoracalis, z. abdominalis, z. lumbalis, and z. sacralis. Herpes labialis is not included in this classification, as it is not painful, is usually bilateral, and occurs frequently in the same person, following some febrile attack.

Zoster facialis.—In this variety the fifth cranial nerve is the one affected.

Zoster frontalis seu ophthalmicus is the variety under this group that is most interesting, and Hebra says of it, "that often the eruption appears upon the forehead and scalp in the course of the supra-orbital nerve, passing from the supra-orbital notch upward to the top of the head. In some of these cases, the eye is also affected, the vessels of the conjunctiva being injected, severe pain being also complained of, and the mobility of the iris being so much impaired that the disease may simulate iritis." The nerve most frequently affected is the supra-orbital, and next the supra-trochlear, though the latter never suffers alone; both

* British Medical Journal, 1860.

are often affected without the other branches of the fifth nerve being involved, and when this happens the eye is not so apt to become inflamed. The nasal nerve, a branch of the fifth which finally divides into the infra-trochlear and external branches, and supplies the middle and tip of the nose, is said to play an important part in the eye-symptoms of ophthalmic "shingles." Mr. Hutchinson,* of London, says he has never seen the whole side of the nose covered with vesicles without also witnessing inflammation of the eye, and has never seen the eye inflamed from herpes, unless vesicles were also visible on the side of the nose. He considers the nasal nerve the trophic nerve of the eye. This view, advanced nearly twenty years ago, has recently been brought forward again by Badal, who, calling this nerve the trophic nerve of the eyeball, advises stretching of the infra-trochlear, one of its branches, for glaucoma, and also for painful ocular neuralgias. Careful observers have confirmed Hutchinson's views. I have, however, frequently seen the eye inflamed when the eruption did not occur over the course of the nasal nerve.

The following case may serve to give a clinical picture of the disease: This patient, a man aged thirty-four, came under my notice one week ago, having for two weeks previously complained of severe pain on the left side of the forehead, nose, and scalp, as far back as the frontal suture. When first seen there was great swelling of both upper and lower eyelids, but mostly the upper, severe conjunctivitis with chemosis, pupil irregular, and some superficial keratitis; the eye symptoms were most marked at the time of the greatest eruption of vesicles. The cornea was anæsthetic, and the keratitis was of the neuro-paralytic variety. The eye symptoms were very severe, and the sight is now lost in consequence of the extensive changes which have taken place in the cornea. The eruption of vesicles follows the course of the supra-orbital and nasal nerves.

The eruption is always limited to one side, and never

*Ophth. Hosp. Reports, 1866.

crosses the median line of the forehead or nose; it seldom affects the cheek, although there may be some œdema of the part, produced by the surrounding inflammation. It invariably leaves deep scars, by the arrangement of which it is usually easy to recognize a case years after its occurrence. If the eye becomes inflamed when the eruption first appears, the organ is generally very severely affected, but the inflammation is of a mild type if it occurs toward the termination of the attack. When the disease has subsided the eyeball is left somewhat anæsthetic, and the skin is often complained of as being numb and stiff, like parchment. Occasionally an eye is lost by general inflammation of the globe (panophthalmitis), as in the patient before us.

Zoster Cervicalis is that variety of zoster which is found distributed upon the portions of skin supplied by the superior cervical nerves. Their points of emergence are near the middle lateral portions of the neck. It is an unusual form.

Zoster Brachialis generally begins in the median line posteriorly, in the region of the first dorsal nerve; a few vesicles may appear upon the median line, then some along the course of the circumflex nerve, and, when very extensive, it may appear upon the forearm and hand.

Zoster Thoracalis is the most common variety, and the one from which the name zoster seems to have originated. The dorsal, intercostal, and thoracic nerves are the ones affected. The widest part of the eruptive zone is in the dorsal region; the anterior part of the zone may occupy the mammary region, or may extend to the umbilicus. In sixty-five observed cases—thirty-nine males and twenty-six females—the right and left sides were equally affected.

The pain which precedes the eruption in this variety may be often mistaken for acute inflammation of the pleura, the pain being more severe in this form by reason of the respiratory act. The eruption is usually unilateral, though it may occur on both sides at once.

Zoster Abdominalis.—Here the eruption follows the

course of the perforating thoracic nerves and the cutaneous branches of some of the lumbar plexus. The eruptive zone occupies the region of the umbilicus.

Zoster Lumbalis.—The eruption here is distributed along the branches of the lumbar, crural, external femoral, and internal saphenous nerves.

The vesicles occur upon the genital organs and inner surface of the thigh.

Zoster Sacralis.—The eruption is distributed along the cutaneous branches of the sacral and sciatic nerves, and the vesicles may extend as far down as the heel. This form is of rare occurrence, and the pain may at first be taken for sciatica.

PROGNOSIS.—The prognosis of ordinary uncomplicated zoster is favorable, and no danger is to be apprehended. The severe pain that frequently follows the healing of the vesicles generally ceases in a few weeks. When the disease occurs in old and cachectic persons, in whom gangrene of the skin has been a complication, the prognosis is more grave and the disease is apt to terminate fatally. There is a vulgar but erroneous notion that the disease proves fatal when the eruption surrounds the body or trunk. This idea is as old as the time of Pliny.

In ophthalmic "shingles" the eye often suffers serious damage, the cornea being the seat of deep ulceration, and permanent impairment of vision sometimes results.

TREATMENT.—The treatment consists in local and internal medication, and is mostly of the expectant character. Local treatment is directed especially to the protection of the vesicles from irritation by the clothing; this is best done by anointing the parts with carbolic ointment or vaseline. Painting the parts with collodion makes a very good protective agent for the vesicles; in some cases, however, it temporarily increases the pain by contracting the skin in the vicinity. Hypodermatic injections of cocaine hydrochlorate over the nerve supplying the painful area will be of immense service. Ointments containing cocaine and morphine may also be applied to the vesicular patches.

For the painful neuralgias occurring after the healing of the vesicles, oleic acid containing some drug, such as morphine, cocaine, atropine, or daturine, may be used as an inunction. Static electricity * has also been found extremely useful in allaying the severe pain, applied both over the course of the nerve and at its origin.

In ophthalmic shingles the eye symptoms are treated in the usual way. Internally, quinine and iron are the principal remedies used.

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* Personal Communication by Dr. F. B. Carpenter, New York City.