Original Articles.

CLINICAL NOTES ON HERPES ZOSTER.¹

BY F. B. GREENOUGH, M.D.

THERE can be no question but that during the last few years many more cutaneous eruptions have been classified under the head of neuroses, that is to say, as being caused by some trouble of the nervous system, than formerly. This being the case, herpes zoster, the neurotic origin of which has for a long time been concealed, assumes a special interest.

Having the records of quite a large number of cases noted in the case-books of the Dermatological department of the Boston Dispensary, a large proportion of which have come under my own observation, I have thought that from their tabulation and comparison, some facts of interest might be obtained. It is true that a certain number of these records, and not a small one, only give the sex and age of the patient with the date of the occurrence of the disease, but on the other hand, in several, more complete records have been made, and in quite a number the anatomical distribution of the efflorescence is given, as also the existence or non-existence of pain.

The whole number of cases of zoster recorded is 255, during a period of sixteen years, that is, from July 1, 1873 to June 30, 1889. Those 255 cases of zoster occurred in 17,741 cases of skin disease, that is to say, the ratio of zoster to general cutaneous trouble is, on our books, a little less than $1\frac{1}{2}\%$. Of the 255 cases 140 were males and 115 females, which would make the ratio about 55% males and 45% females. The statistics resulting from the tabulation of the ages of the cases were rather a surprise to me as it appears from them that the disease is decidedly more frequent between the ages of ten and fifteen, than at any other time, and not only that, but the general average of age in the cases recorded is much younger than I should have expected to find it.

I have divided the patients according to age into groups (of five years up to twenty years old and from there to eighty) of ten with the following result. Up to five years of age 14 cases, the youngest ones being 1 of three months, 1 of two and one-half and three years each.

5 to 10	32	40 to 50	12
10 to 15	59	50 to 60	18
15 to 20	38	60 to 70	17
20 to 30	31	70 to 80	7
30 to 40	26	Over 80 (being 88)	1

From this table it will be seen that 143 of the 255 cases $\frac{2}{3}$ occurred in patients under twenty years old.

In addition to the data of sex and age, the whole number of cases have a record as to what time of year they were observed, and I have thought that it might be of interest to see whether zoster was more frequent at one season than another, I have, therefore, drawn up the following table showing the number of cases which are recorded as having been observed during each year, which is divided into quarters of three months and I have taken the natural division by seasons, namely: winter, December, January and February; spring, March, April and May; summer, June, July and August, and autumn, September, October and November. From this examination it is found that of

the 255 cases 64 occurred during the winter months; 76 during the spring months; 59 during the summer months, and 56 during the autumn months.

It will be noticed that a decidedly larger number of cases are found in March, April and May than in any of the other periods of three months. Besides the question of a greater prevalence of zoster at one season over another, it seemed to me that it would be worth while to see whether it was marked more frequent in one year than in others or whether its percentage was about the same through a period of years, and in order to determine this point I have drawn up the following table. The first two entries are not of a year each and need explanation.

I first made a statistical tabulation of the cases at the Boston Dispensary when they reached the number of 5,000, which they did on November 26, 1876. From that time to July 1, 1878, I tabulated 2,494 cases and from July 1, 1878 up to July 1, 1889, I have reported the statistics yearly to the Committee of this Association. A reproduction of these reports gives the following results as showing the percentage of herpes zoster to general skin diseases during the mentioned periods of time.

July 1, 1873, to Nov. 26, 1876,	5,000 cases,	99 of Zoster, or	-2%
Nov. 26, 1876, to July 1, 1878,	2,494 "	30 "	or +1.5%
July 1, 1878, to July 1, 1879,	872 "	18 "	or +2%
" 1879, to " 1880,	872 "	10 "	or -1.5%
" 1880, to " 1881,	808 "	12 "	or -1.5%
" 1881, to " 1882,	885 "	17 "	or -2%
" 1882, to " 1883,	646 "	10 "	or -1.68%
" 1883, to " 1884,	841 "	11 "	or -1.2%
" 1884, to " 1885,	1,025 "	13 "	or +1.25%
" 1885, to " 1886,	1,094 "	21 "	or -2%
" 1886, to " 1887,	974 "	11 "	or +1.1%
" 1887, to " 1888,	1,072 "	19 "	or -1.4%
" 1888, to " 1889,	1,158 "	16 "	or -1.33%

GENERAL AVERAGE.

July 1, 1873, to July 1, 1889, 17,741 cases, 255 of Zoster, or -1.5%

From this table it would appear that during sixteen years the percentage of zoster has not varied largely, the extremes being $+2\%$ and $+1\frac{1}{10}\%$, which is certainly not a large enough variation to warrant the conclusion that during that time anything like an epidemic of the disease had occurred. On the contrary, it seems to have kept as close to the average, $1\frac{1}{2}\%$, as could be expected to be found in any of the records of average occurrence of disease deduced from statistics going over so long a period, which was not liable to be influenced by marked epidemic increase in certain years. This seems to me to be of especial interest, as if, as my statistics show to be the case, the months of March, April and May show a decidedly larger number of cases of zoster than any other three, we must assume that the disease is influenced by certain factors which must be more prevalent during those three months, and if such is the case, one would suppose that said factors, especially in our New England climate, might be much more prevalent some years than others. I am entirely begging the question as to what these factors may be, but merely want to state that if a certain season of the year seems to be especially productive of zoster we are justified in thinking that certain years ought to be much more so than others, which, according to my statistics is not the case, and although these are not very large in number, an average of over 1,000 cases a year, for a period of sixteen years, ought to give some approximation to the general truth. In view of the result of the investigation as to possible epidemics of zoster, so

¹ Read at the Annual Meeting of the American Dermatological Association held in Boston, September 17, 18 and 19, 1889.

to speak, I was much interested by hearing from my friend, Dr. Bowen, that at the service at the Massachusetts General Hospital he had lately had many more cases than usual and also that they seemed to be of an especially severe type. I thought it well to overhaul the Boston Dispensary records from July 1st, up to which time my tables extend, and found that during July and August three cases were recorded in 231 of skin disease, that is an average of $1\frac{1}{3}\%$ which is close to the general average of my sixteen years, that is $1\frac{1}{2}\%$. Dr. Bowen was kind enough to look up the record of the Massachusetts General Hospital and found that the number of cases of zoster reported in January, 1889, was three; in February one; in March one; April one; May one; June two; July two and in August seven.

This is certainly a very large increase, especially when we consider the great regularity of the numbers running through the preceding seven months, and what is more, the cases were exceptionally severe in type.

These statistics, with regard to the ratio of zoster to general cutaneous affections, the comparative frequency of the disease in the two sexes, the relative frequency of it during the different seasons of the year, the average of its occurrence yearly for the period covered by the records, and the comparative frequency in which it is found in the various periods of age, are all that can be deduced from the 255 cases as a whole. This is due to the fact that during the first few years of the dermatological service at the Boston Dispensary, these facts were the only ones recorded. Later, more complete notes on each case of zoster were made, and we have the anatomical distribution of the efflorescence given, and also in a smaller number of cases, the presence or not, of pain noted. It may be said that the two chief reasons for assuming a connection between zoster and some nervous lesions are, first, that in a rough way the eruption is found to be distributed over the branches of certain nerves, and that, in too large a proportion of cases to be considered merely a coincidence, it is preceded, accompanied or followed by a pain, which is decidedly of a neuralgic character, and not to be confounded with the soreness which might be attributed to the eruption itself. Statistics as to these two conditions, therefore, are important in considering this subject.

In 160 cases the situation of the eruption is given, and from a tabulation of them and a classification into groups that covered about the same regions of the cutis, it appears that they were distributed as follows:

Occlipital and clavicular region.	3	Clavicular and deltoid	1
Occlipita, sternal and deltoid	1	Breast, shoulder and arm	1
Frontal and scalp	1	Brachial	6
Nucha, brachial and breast	1	Brachial and pectoral	1
Facial	11	Digital	1
Cheek and ear	4	Base of thumb	1
Aural	3	Costal	73
Submaxillary	1	Abdominal	8
Cervical	11	Abdominal and crural	1
Cervical and scapular	4	Lumbar	1
Shoulder	4	Lumbar and iliac	1
Scapula, axilla and clavical	2	Iliac	1
Scapula, axilla and pectoral	1	Penis and crural	1
Scapula, axilla and brachial	1	Penis, scrotal and crural	1
Scapula and deltoid	2	Crural	6
Scapula and brachial	1	Leg	3
Scapula and pectoral	1	Gluteal, calf and sole of foot	1
Scapula and costal	1		
Back	1		160
Pectoral	1		

From this table it appears that by far the largest number of cases in any one region are costal, nearly 50% of the whole; next in frequency comes those in

which the eruption is situated in the cervical region, branching on to the occiput, the ear and face, clavicle, deltoid and scapular, then the scapular cases, extending over the shoulder to the clavicle, or in the axilla and onto the pectoral region, or down the arm; then the abdominal, with the lumbar and iliac, and last those found on the lower extremities.

With regard to neuralgic pain as a concomitant symptom of zoster, I regret that I only have records in 73 cases, but comparatively small as this number is, some interesting facts are shown by an examination of them. In 17 of these cases, there was no pain; in 37, pain existed; in 19, severe pain was felt.

From clinical observation, I should have said that pain, in cases of zoster, was very apt to be in proportion to the age of the patient, that is to say, that the older the patient was, the more likely was pain to accompany an outbreak of zoster, and it was with much interest that I went through the process of taking the age of each patient in whose case a record on this subject was made, and figuring out the average, which resulted as follows: The 17 cases in which no pain was reported, —19 years; the 37 in which pain existed, +28 years; and the 19 in which severe pain was felt, +44 years.

The general result was satisfactory, but I was rather surprised at the wide range of age in each class, which, while as a whole confirming what I felt sure from observation must be true, showed what great variations are to be found of general laws, in individual cases.

The ages of the 17 cases without pain were, 3, 4, 5, 6, 6, 7, 8, 13, 13, 16, 16, 17, 22, 34, 45, 47 and 62; average, —19.

Of the 37 cases in which pain was a symptom, 4, 5, 6, 8, 9, 11, 11, 11, 12, 12, 16, 17, 19, 19, 20, 20, 20, 24, 25, 27, 27, 30, 32, 34, 38, 38, 40, 40, 45, 51, 56, 65, 65, 67, 70; average, +28.

Of the 19 cases in which severe pain was noted, 18, 21, 22, 27, 29, 31, 31, 35, 42, 45, 45, 50, 50, 52, 55, 64, 65, 72, 74; average, +44.

It must be understood that these 73 cases are the only ones in which any record as to pain was made, and not be supposed that in the much larger proportion of the 255 cases entered on the books, no pain was felt because not noted. This is due to the fact, that it was not until the department had been running for some time, that records on the subject of pain were made, and even after that, they were omitted occasionally both by myself and by my colleagues who had the service when I was away. I think that the above ratio, therefore, of 73 cases, may be considered a fair one; namely, no pain in 17 cases, some pain in 37, and severe pain in 19. And what seems to me especially interesting, is that the average age of the cases in which a record on the question of pain is made, shows that age does have a decided influence on it.

Assuming that the pain, which in a by no means insignificant proportion of cases of zoster, is found as a symptom, is due to some lesion, or at least, a functional impairment of the nerve over the course of whose cutaneous terminal branches the eruption is developed, the question naturally arises as to whether the sensitive fibres of such nerves are only affected, or whether the nerve as a whole is temporarily in an abnormal condition, that is to say, its motor fibres also having their functions interfered with. As the great majority of cases of zoster are found over the superficial cutaneous branches of nerves, whose motor fibres might be

paralyzed without any evidence of such being the case being noticeable, it is not to be wondered at that the lesion of the sensitive fibres is noticed, and that of the motor fibres is not. In two cases that I have known of, however, marked facial paralysis was due to this cause. The first of these cases is one I saw and reported in full, twenty years ago.² The patient was seen through the kindness of Dr. John Homans, and the history of the case condensed, is as follows: He had had some thoracic acute trouble which was undoubtedly pneumonia, and which had left some consolidation of lung tissue. During the last part of October, 1868, he had been troubled much with neuralgic pains on the left side of his face and neck. On November 1st, an eruption appeared on the left side of his neck, which he described as consisting of "blisters," some of which he pricked, and a clear, transparent fluid oozed out, the pain continued, but not so severe after the eruption was developed. On November 11th (the eleventh day), he felt a "numbness" of the left side of his face, he could not close his left eye, and his mouth was drawn to the right. He was much troubled by his food getting between his gums and his left cheek, from whence he had to remove it with his fingers. The left eye became congested and painful. I first saw him on November 19th (nineteen days after the eruption had appeared), and found on the neck extending to the thyroid cartilage in front, and running backwards to just below the occipital protuberance, with an extension upwards, behind the ear, several patches of what evidently had been vesicles, some of them being covered with crusts, and others, where the crusts had been removed, showing superficial ulceration, with an angry red areola surrounding them. The left eye could not be closed, the left nostril was flat, and the mouth was drawn to the right. This facial paralysis gradually improved, and when I last saw him, he had recovered the full power of his facial muscles. The eruption, however, left decided cicatrices.

The other case of facial paralysis is one that I did not see until over a year from the time of the eruption, but the case had been under the care of a physician whose diagnosis of zoster, would be accepted by any of his colleagues, even if the history of the case did not confirm it. The patient, a young lady, had not been feeling well, and for two or three days had been troubled with pain in her left ear, something like a sore throat, and a "weakness" in her left eye. Her mother urged her to call in their family physician, and he found no evidence of anything more than a feverish cold—this was on a Wednesday. Her left ear continued to be quite painful, and on Saturday morning when she arose, she found that her face was "twisted," her mouth being drawn to the right. Her physician when he called found an eruption of zoster about her left ear. The facial paralysis has improved somewhat, but it is still quite marked.

Both these cases of facial paralysis due to, or at least coincident with an outbreak of zoster, seem to me to be especially interesting from the fact that the efflorescence was not in the region of the motor nerve (that is, the facial), which supplies the muscles that were paralyzed, but in the neck and more especially about the ear. The connection between the fibres of the cervical branches, the auricularis magnus more especially, with the facial, explains it. In both cases

the auditory nerve showed sympathy with the facial nerve.

These are the only cases in which I have felt sure that actual paralysis of motor fibres could be assumed although I have seen a case of crural zoster in an elderly lady where I was in doubt whether the inability to move the limb was due merely to the pain and soreness, or whether there was actually some loss of power in the motor nerves. Zoster ophthalmicus is more likely to come under the observation of the oculist than the dermatologist and in the dispensary cases I have reported there was only one that approximated to that serious trouble. It was one of the cases classified as "facial" where the eruption was on the forehead and cheek and for two or three days there was a violent conjunctivitis which passed off, however, without any evidence of deeper seated trouble. The anastomoses between the fibres of the cervical nerves (mixed nerves, that is sensory and motor) through the superficialis colli, the auricularis magnus and occipitalis minor with the facial (a motor nerve) and the trigeminus, the ophthalmic and superior maxillary branches of which are sensory while the inferior maxillary not only has sensory and motor fibres but also one branch of the gustatory or lingual belongs to the nerves of special sense and in addition the connection by ganglia with the sympathetic are such as to make it not improbable that impairment of function of one of these nerves coexistent with a lesion of another one, might be conceded as cause and effect. It is on this account that I have thought it worth while to report rather in full the two cases I have seen where zoster in the auricular region was accompanied by facial paralysis.

In looking back over the cases of zoster I have seen, there are a few points that seem to me worth mentioning. Unilaterality is always stated as being one of the characteristics of this eruption, that is to say, that it does not extend beyond the median line. In some cases of costal zoster on inspection this does not seem to be the fact. I have seen several where the efflorescence appeared to extend beyond the median line on the back. A careful examination, however, has shown that in these cases there was a slight lateral curvature of the spine, enough to throw the spinous processes out of the perpendicular and although the eruption appeared to extend beyond the median line, it was on its own side (so to speak) of the spinal column. One of the cases reported as facial is also reported as having the eruption on both sides of the nose. One case was unique, I think, it was that of a boy five or six years old who had a well-marked zoster on his scapular deltoid and clavicular pectoral region on one side, and lumbar iliac and abdominal on the other. I thought that I had put this case on record with an outline showing the distribution of the two-sided eruption, but I cannot find it, and it must be that I spoke of it at some society meeting and drew the outline on the blackboard. I should not be willing to say that I had never seen a case in which one or two vesicles extended slightly beyond the median line in the sternal region, neither should I be willing to say that I had. I have seen two or three cases where I was in doubt on the subject, but the over-lapping, if any, was so slight that only the most careful and accurate measurements could have determined this point.

From my statistics it appears that nearly one-half of the cases of zoster seen are costal, and I should say that a large proportion of the costal cases are distri-

² Boston Med. and Surg. Journ., Jan. 28, 1869.

buted somewhere between the fifth and eighth rib, the bulk of the eruption being apt to be on the side of the thorax with usually a few vesicles near the median line behind, and also, but not so frequently I should say, the same in front, although when the crop of vesicles is closely crowded together, they are apt to coalesce. The individual vesicle of zoster does not show the tendency to increase in size that other vesicular or bullous eruptions do. At times we see a hemorrhagic tendency in the vesicles, and it is different in appearance from any other hemorrhagic bleb I have seen. The color is rather a blue, or at most a purple one, than red, and although I should say that such cases suffer more from soreness of the skin lesion, I have not been able to convince myself that they show any evidence of more neuralgic troubles than others. Another fact that I have noticed is that the extent or size or angry-looking condition of the efflorescence cannot be taken as an indication of cicatrices being left. Of course, the question as to whether the eruption does or does not leave scars is dependent on whether the papillary layer of the cutis has been destroyed or not, but I do not think that this fact can be determined by the character of the eruption during its vesicular stage.

On the extremities zoster seems to follow the course of the cutaneous nerves, in most cases being confined to the upper part of the extremity and then generally connected with some manifestations on the trunk also, as in the case of the upper extremity, scapular, clavicular or pectoral, and in case of the leg, lumbar, iliac and gluteal. Two cases, however, showed the eruption only at the terminal end of the brachial nerves, one at the base of the thumb and one on one finger. The only case in which the eruption extended below the knee, was the one recorded as gluteal calf of leg and sole of foot.

While the difference between typical cases of zoster and the other two divisions of herpes, that is, facialis and progenitalis is well-marked clinically I think we see some that are not so easy to classify. I can remember a case of herpetic eruption on the shaft of the penis in a patient whom I had treated for relapsing herpes progenitalis, that if I had not known of his previous attacks, I should have called zoster, and I have seen a case of herpes labialis, or rather facialis as it was not confined to the lips, coming on in connection with a febrile catarrhal attack, which if there had only been one vesicle besides those on and just about one side of the mouth, on the cheek, neck and ear, anybody would have diagnosed as zoster.

In this connection I want to state a personal experience. Last winter, after suffering from severe neuralgic pains on one side of my face due to the filling having come out of a bicuspid that had become carious at and below the level of the gum, I had that peculiar feeling of numbness and fulness of the mucous membrane of the lower lip at the corner of the mouth which precedes an attack of herpes labialis. This was so marked that I told a friend that evening that I was in for about as nasty a "cold sore" as one could have, and I was much astonished on rising next morning to see that the mucous membrane was normal and had not been raised by a large vesicle. This has been repeated twice since. Of course, the feeling as though a vesicle was there and one really being there is a very different thing, but it seemed to me interesting as connected with well-marked neuralgic pain of known origin.

With regard to the treatment of zoster, I have very little to say beyond that it should be symptomatic, that is to say, that I do not believe the course of the eruption can be aborted or shortened, or that cicatrices can be prevented by any application or the administration of any drug. It is important to prevent any friction or irritation of the skin, at the seat of eruption. With regard to the vesicles I should say decidedly that it was best to let them alone as they do better by being allowed to dry up and scab over than by being emptied artificially, in this respect, I think, being different from most eruptions of a vesicular character with a tendency to become pustular. The eruption can be protected from the air and friction from the clothes in a degree by the use of powders, such as oxide of zinc and starch, or oleate of zinc and starch, or plain flour, for that matter, or by ointments of zinc or boracic acid, etc. I have found in costal cases a large plaster made by spreading diachylon ointment on a piece of linen the right size and shape and put on to be kept on permanently, to work well. When neuralgia exists I do not believe that any topical application will control it, at least I never have been able to do so, neither have I ever got any benefit from quinine or other anti-neuralgic remedies. I must admit, however, that in the cases reported, the fact of their being Dispensary out-patients makes them of not much value as examples of the result of any special treatment. What I have said, however, is borne out by the result of my experience in the very much smaller number of cases of zoster that have come under my observation in private practice. I have not used cocaine but I should doubt whether its use externally would control a really severe case. When necessary, we have always at least a temporary relief in a hypodermic administration of morphine. In cases where pain persists afterwards, and cicatrices are formed, a circular incision around them deep enough to go through the cutis and divide any nerve filaments that might be bound down by cicatricial tissue, might be of value.

I have not attempted in this communication to give any resumé of what is known at the present time of such a thoroughly understood disease as zoster, but having records of quite a number of cases I meant to simply deduce what statistics I could from them. Having done that, there were a few points which had struck me as interesting during my observation of the cases and I have in a brief and hurried way referred to them. The only excuse, however, for my having occupied your time, is the fact of my having quite a large number of cases from which to calculate certain ratios and averages which however uninteresting they may be to listen to, may furnish data for important work in the future.

— The Paris correspondent of the *American Practitioner* gives an account of a case of syphilis of the mouth of unusual origin. The patient, a girl of twenty years, had for three months had superficial lesions of the lips, at first supposed to be eczematous, but afterwards shown to be chancre. The patient was a factory girl, and there was working in the building a young man who had sores about his lips. He, as well as the girl and several others, frequently used the same speaking-tube. It is probable that by placing his lips on the mouth-piece and leaving on it virus, that he infected the others, who also pressed their mouths against it.