

the importance, in the practice of their profession, of many of the standard climatic data which are now available for most health resorts. It is unnecessary on this occasion, to make anything like a complete list of such data. The following may be mentioned as illustrations: the intensity and duration of bright sunshine; the periodic and non-periodic diurnal range of temperature; the mean diurnal variability of temperature; mean temperatures of the different hours of the day; frequency of temperature changes of certain amounts; relative humidity of the different hours, or at least of a morning, afternoon and evening hour; number of rainy days for each month; duration of snow cover; number of days with snowfall; number of clear, fair and cloudy days, by months; number of days with fog; distribution of fog throughout the 24 hours; daily period of wind velocity; occurrence and distribution, in time, of any special or local hot or cold winds, and so on. These are mentioned, in passing, as examples of data which are all more or less critical in determining the climatic characteristics of any locality; which have important relations to health, and which are usually wholly disregarded by the majority of physicians.

A few years ago, in a course of lectures on the principles of climatology, given before a medical audience in one of our large cities, I was bold enough to say that the trouble with my hearers was that they knew practically nothing about climatology beyond a general idea regarding the relations of climate to the treatment of tuberculosis, and that they were, therefore, not in a position to give the general run of their patients sound advice as to the choice of the best climate for the treatment of other diseases. There was a distinct reaction on the part of my audience to this very frank and somewhat impolite challenge, and a good deal of murmured comment, but I could detect no evidence of any general feeling that the statement was exaggerated. At the close of the lecture, one of my hearers, a medical practitioner of more than nation-wide reputation as a specialist on lung diseases, said to me: "You gave the medical profession a hard knock when you said that, but it is true, and we deserve it."

It seems to be clear, then, that it is our business to impress upon the authorities of our medical schools the importance of offering some instruction in the principles of climatology as a part of the regular curriculum for all medi-

cal students. There are many professional meteorologists in the United States who are competent to give this instruction if, among the available teachers in the medical faculties there should happen to be none who feel themselves qualified to do the work. That we must, in most cases undoubtedly, give such instruction without any remuneration will not, I feel sure, in any way militate against our doing our part in this important work, if opportunity offers.

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- ² S. Edwin Solly: A Handbook of Medical Climatology, Embodying its Principles and Therapeutic Application with Scientific Data of the Chief Health Resorts of the World. 8 vo. Philadelphia, 1897 (pp. 185-354 on North America).

Original Articles.

HEREDITARY OEDEMA (MILROY'S DISEASE). A REPORT OF THREE CASES.

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In 1892, under the title, "An Undescribed Variety of Hereditary Oedema," Dr. W. F. Milroy¹ brought to the attention of the medical profession a type of case of which no previous accounts had ever been published. He sent his report to Professors William Osler and William H. Welch, of Baltimore, who stated that this disease was absolutely new to them and that they were unable to find any literature on the subject.

Milroy's case was typical of the disease and interesting both from the pathological, as well as the geneological standpoint. He presented the case of Mr. H., a middle-aged clergyman, whose legs were obviously enlarged from birth, but caused him no inconvenience other than local weight and clumsiness. The most interesting facts, however, were the apparent hereditary characteristics which were fortunately found in this particular case, a table of which follows:

In this list there are six generations comprising ninety-seven individuals, twenty-two of whom had this deformity. Of the twenty-two cases, twelve were males, seven were females, and the sex of three was unknown.

It was also noted that in later generations the

TABLE OF GENEALOGY OF MR. H., WITH LESIONS MENTIONED

I	II	III	IV	V	VI
		1. Unknown			
		2. One leg	{ 6 children 3, foot each	{ 11 children 2, foot each	
		3. Normal	{ 8 children 1, foot	{ 9 children normal	
		4. One leg			
		5. Normal	{ 5 children 1, leg	{ 9 children 1, both legs 1, a foot	
Relative of Mrs. H. (One enlarged leg)	{ Joseph W. Both legs enlarged	6. Both legs	{ 4 children 1, leg	{ 4 children 1, foot	{ 6 children 1, a foot 1, both legs
		7. One foot and ankle	{ 3 children 1, foot		
		8. Unknown			
		9. One foot and leg	{ 4 children 1, (the appli- cant) both legs enlarged	{ 13 children normal	{ 2 children normal

same frequency prevailed, but the oedema was much less in extent. Reversion to familial types is seen after a normal generation.

There were three exceptions to the congenital characteristic of the disease:

1. Normal extremities until, in adult life, a carriage accident caused the enlargement of one leg.

2. Normal extremities until the twelfth year when, without any obvious injury, an ankle became red, painful, and swollen. The first two symptoms rapidly subsided leaving a permanently enlarged ankle.

3. An enlarged foot until maturity, when testicles became involved. One testicle was so large that it was removed by operation whereupon the foot returned to normal size and remained so.

Dr. William Osler² reported Dr. Milroy's case in his book, "Modern Medicine," but does not cite any cases of his own.

In 1898, Meige³ described eight cases appearing in four generations.

In 1902, Rollston⁴ reported three cases in two generations.

In 1908, Hope and French⁵ reported thirteen cases occurring among forty-two individuals in five generations, some of these cases appearing in adult life and associated with sudden onset with fever, pain and redness. No new theories were advanced as to cause or treatment. All cases apparently showed the same symptoms.

Since 1908 little has been heard of further cases, nor has much been said regarding the disease itself.

5738, Miss L., July 6, 1920. A strong and unusually healthy Irish girl appeared at the office with her right leg very much enlarged, causing her much mechanical inconvenience.

This condition had come on gradually from puberty; beginning in the lower leg and extending into the thigh. The foot was not involved. She was otherwise perfectly well and had had no injuries which could have caused this growth. At no time had she ever been in the tropics. She came from Ireland to New York, and thence to New England, where she had lived for some years. She worked as a cook in a family. She knew of no other instances of a similar nature in her family.

Local Examination—The right leg, beginning at the ankle and extending well up to the groin, was symmetrically about four inches larger in circumference than the left. It was hard and pitted with difficulty. The circulation was somewhat sluggish and the foot was cold. There was no indication of varicose veins.

This patient was referred to an internist who, after careful examination, was unable to find any cause for the enlargement.

She was advised to bandage the leg and to have periodic courses of massage. No benefit had resulted when last seen.

5765, Miss W., July 20, 1920. A young Jewess of 20 years, who has always been well up to five years ago, and so far as any constitutional symptoms are concerned, is still perfectly well.

Five years ago she went to bed one night perfectly normal and woke in the morning with the left lower leg considerably swollen and the thigh moderately so. There was no pain or congestion. It gave her no particular inconvenience. It gradually increased in size for a few months. At present she tires easily because of the weight which she is obliged to carry around. No family history obtainable.

About four years ago she entered the Peter Bent Brigham Hospital in Brookline, Mass., for observation. The examination was entirely negative. The Wassermann was negative. She states that at the present date her leg is somewhat smaller than usual, but that frequently, without warning, it swells to enormous size.

Local Examination—Left leg, at mid-thigh is $19\frac{1}{2}$ inches in circumference, as against $18\frac{3}{4}$ on the right; at patella is $16\frac{1}{4}$ as compared with 15 inches on the right; at the calf is $16\frac{3}{4}$ inches as against $14\frac{1}{4}$ inches on the right. The foot is $10\frac{3}{8}$ inches over the instep as against $9\frac{1}{2}$ inches on the right. Abdominal examination was negative. X-ray of the pelvis was negative; of the affected leg was normal except the increase in the shadows of the soft parts. She was advised to bandage and massage the leg, but no relief was obtained from this treatment.

5782, Mr. W., July 30, 1920. A middle-aged man who states that eight years ago he began to notice a slight increase in the size of his right leg and that the growth has increased slowly ever since. It sometimes swells to enormous size so that a 35-inch pant at the knee is required to hide the deformity. There is no pain and only a discomfort due to size and weight. Some months previous to the first appearance of this trouble he had typhoid fever. He was sick for a month and then developed pneumonia, but recovered quickly. He was a ball player when young, and received many hard knocks in and about the knee-joint, but was never seriously injured. To the best of his belief there were no lesions of this kind in his family.

Local Examination—Right leg slightly larger than the other because canvass stocking which he has worn for two years has kept the leg within normal limits. Pits very slightly on pressure. No congestion. No varicosities. There is a definite brawny sensation over the whole leg. Advised to massage and to use a vibrator. Not seen since.

These three cases, the only cases so far available, appeared at this office within a period of a month. All three cases were apparently normal at birth. Two cases appeared about the time of puberty. One case appeared late in life, that is, at the age of thirty-five. One case developed over night and the other two very gradually. All three gave the same complaint, namely, mechanical discomfort. All three were perfectly healthy. But, unfortunately, all three were unable to give any light on the question of heredity.

Race, sex, age, and climate seem to be no factor in this malady. Undoubtedly, if family pathology could be traced back two or three generations, more, probably many such cases could be found.

Dr. Osler placed this disease in the category of angioneurotic oedemas. These are allied in so far as they are probably hereditary and are oedemas without the usual causes, such as cardiac, renal, etc., but they differ in many ways.

In the first place, this type of oedema is confined to the lower extremities. It is also permanent where found, and is not associated with any systemic disturbances. Finally, hereditary oedema has been unassociated so far with any neurosis. Certainly the three cases reported above were far from neurotic. Previous reports are also conspicuous because of the absence of any mention of nervous phenomena.

At the time of writing, another case has appeared at this office which may be included among border line cases; that is, between the angioneurotic type and the hereditary disease.

This was a middle-aged Jew who had worked hard all his life, being constantly on his feet during the day. About three years previous to entry he had two or three weeks of marked swelling of his left lower leg without pain or redness. No treatment was given, but the leg returned to normal proportions quite suddenly. About a month previous to entry he began to experience rather intense pain through his left shin and gradually the lower leg, not including the foot became quite swollen. He noticed that the leg enlarges rapidly upon standing. The pain is gradually subsiding but the swelling remains. He has never had any other part of his body affected in this manner. He has always been healthy. He has not noticed any gradual enlargement of his feet or hands.

He states that he only knows about his immediate family, a mother and eight brothers and sisters, all of whom are well and have no enlarged feet or legs.

This patient has been examined by three local doctors, without any cause having been found for his oedema.

Local Examination—The left leg from the knee to the ankle is three and one-half inches larger than the right leg, in spite of firm bandaging. There is a definite brawny feel to the whole area. There were no indications of varicose veins. The dorsalis pedis artery is readily felt. The oedema is hard and pits with difficulty. There is no apparent increase in surface temperature.

His hands and feet seem enlarged, but there is no other indication of acromegaly. Patient was given a mixed gland tablet and advised to keep leg firmly bandaged until some change is noted.

This case is not typical angioneurotic oedema, nor is it possible to say that it is definitely an hereditary oedema, but with the evidence at hand, it favors the later diagnosis and would then fall into the group of cases reported by Hole and French.

CONCLUSIONS.

No theories have been advanced on this subject except heredity. One should not be satis-

fied with that viewpoint until every other cause has been exhausted. Indeed, heredity cannot be the entire cause, for there must be some weakness or tendency upon which heredity plays its rôle.

The nearest approach one can make in this line is upon the endocrine gland theory. In these days of rock-bottom research, glands are beginning to play a part and, with no other better reason to be discovered, the glandular theory can be applied in these cases.

Staffieri⁶ mentions a case of angioneurotic oedema, with which the disease is seemingly associated, in which there was a dysendocrinia with thyroid insufficiency predominating. The only case, which has been reported as hereditary oedema, which could possibly come under this category was one in which there presumably was a testicular hypersecretion. This case was the one reported by Milroy in which a congenitally enlarged foot became normal upon excision of an enlarged testicle. If such cases are congenital, then there must be an inherited insufficiency or hypersecretion of some or all the endocrine glands. However, if this is the case, there should be other manifestations of the disorder. So far, the evidence is lacking.

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RESULTS OF NERVE INJURIES APPARENTLY DUE TO BIRTH TRAUMA.

BY ELI FRIEDMAN, M.D., BOSTON.

THE following is a brief summary of 2,000 consecutive neurological cases seen in the Nerve Department of the Children's Hospital. The purpose of this analysis is to find out approximately what percentage of these unfortunates were caused by trauma in labor, either from allowing a difficult labor to go on too long without interference,—the so-called sins of omission; or from interference, as the application of forceps,—the so-called sins of commission.

I have chosen neurological cases because, while every part of the child's anatomy is subject at times to a certain amount of trauma in transit, the nervous system is the one that always suffers. All the vital organs of the child are well protected, while the brain, which is one of the most important ones, has practically very little

protection. The head, furthermore, being the largest part of the child, is subjected to the greatest amount of pressure in the process of its passing through the parturient canal and consequently suffers the greatest amount of damage. Injuries to the nervous system, furthermore, result in chronic conditions which can be followed for years, and thus afford a better opportunity for study than simple surgical conditions which are of rather short duration, without, as a rule, leaving any permanent damage.

The cases studied in this series of necessity include only those with comparatively mild injuries to the nervous system. The more serious injuries either result in still births or in death in 24 to 48 hours after birth, and there are a good many of them, as we shall see later. Such children, if they came to the hospital at all, were rushed to the surgical service for decompression operations, and unfortunately very rarely reported for after treatment in the Neurologisal Service. What we shall see in these cases will be a large number of unfortunates who, while apparently but slightly injured at birth, still have enough injury to their nervous system to leave them more or less crippled for life.

Foremost of the injuries to the nervous system, as far as numbers are concerned, are the so-called Erb's or obstetrical paralysis. Of the 2000 neurological cases, 101 belong to this class. This condition, as demonstrated conclusively by John W. Seaver,¹ is caused by an injury to the brachial plexus. Traction with forcible abduction and elevation of the arm such as we find in breech delivery, puts the eighth cervical and first dorsal roots on the stretch, and when there is enough force applied complete tearing of the nerve fibres result. Traction and forcible separation of head and shoulder puts the upper cords, the fifth and sixth cervical roots of the plexus, under tension with similar results. Bullard,² W. U., states further that traction of the head in the axis of the body is less injurious than when it is done obliquely; and that asphyxia favors injuries in the plexus because the muscles are completely relaxed and afford very little protection to the nerve structures.

Fortunately the upper arm type is one most common. In this type the muscles of the upper arm, the deltoid, supra spinatus, infra-spinatus, teres minor, biceps, and supinator longus, are the ones involved. Occasionally the serratus magnus coraco brachialis and supinator brevis