

origin of the facial nerve—the nerve which acts upon the muscles which give expression to the face—there is a characteristic condition produced.

If the disease is upon the roots of the facial nerve, or upon the cells which give origin to these fibres of the facial nerve, the muscles of the face upon the same side of the seat of the disease will be affected. If the disease is elsewhere as a rule, the muscles of the face upon the side opposite to the seat of the disease will be affected. So you see that in disease in the same organ, the pons varolii, you may have results just the reverse of each other. The face may be paralyzed upon the right or upon the left side; but as regards the limbs, as a rule, you will find them paralyzed upon the side opposite to the seat of the lesion. What I wish you now to fully appreciate is the fact that, when the disease strikes at the origin of the nerves, necessarily it produces paralysis in the nerve; that nerve may be the olfactory, the optic, or any one of the cranial nerves. In any of these cases the very same thing will occur with regard to the seat of the paralysis; it will always be upon the same side with the lesion.

#### DIAGNOSIS OF HEMIPLEGIA.

I come now to the diagnosis of various cases of hemiplegia. I must first point out the fact that disease of one-half of the spinal cord, as well as disease at the base of the brain, can produce hemiplegia, and how you are to determine where the seat of the disease is, is what I will try to explain. You may find two persons struck down suddenly with loss of consciousness, sometimes with convulsions—convulsions are not essential, however—and after there is recovery from the shock, you find that there is paralysis, in both cases, on one side of the body. We will suppose that the right side is paralyzed. One of these persons makes grimaces upon the side of the face corresponding with the side on which there is paralysis of the extremities; so you may be inclined to think that there is paralysis of the face upon the opposite side.

#### NEW POINT IN DIAGNOSIS.

This point in diagnosis, so far as I know, has not been mentioned except by myself, and as it is a constant phenomenon in certain kinds of lesion of the spinal cord, I wish you to be quite aware that in that case there is merely an appearance of paralysis upon the side of the face opposite to that on which there is paralysis of the limb. If you pay attention only to the appearance of paralysis of the left side of the face and on the right side of the body, and establish the fact that the man has had an attack of apoplexy, loss of consciousness, etc., you will certainly, and quite naturally, according to the teachings of science until now, be led to admit that there has been somewhere in the brain a lesion

which has produced all these symptoms. That may be a mistake, or it may be correct; because lesion in one-half of the spinal cord near the medulla oblongata can produce all these symptoms. I will say at once that when you examine the face, you will find that the side which seems to be paralyzed is not the paralyzed side. You will find that there is no paralysis of the face upon either side in that case. You will find that the appearance of paralysis comes only from the fact that, on the side of the lesion in the spinal cord, there is simply a spasmodic state of certain muscles of the face.

In case of spinal hemiplegia, paralysis of one side of the body, depending upon disease high up, and limited to one-half of the spinal cord, you will find that there is a series of symptoms such as I mentioned a moment ago. You will find features which certainly will distinguish these cases from cases of hemiplegia, depending upon disease of the brain. If you examine the patient carefully, you find that there is paralysis, and, as I have supposed the lesion to be in the right half of the cord, the patient is paralyzed in the right limbs; but there is no diminution of sensibility. On the contrary, there is considerable increase of sensibility, as measured by the esthesiometer. The hyperesthesia may be extremely great. Indeed, in the case of one of my dear friends, Mr. Charles Sumner, at the two points in the spine which had been injured by a cane in an assault made upon him in the Senate Chamber, both points of the instrument could be distinctly recognized, no matter how near to each other they were placed.

That kind of feeling—that of touch—may be increased considerably in many other cases; but in spinal hemiplegia the tactile sensibility is increased in the paralyzed limits to a considerable extent.

Other kinds of feeling are also increased. Painful feeling is often considerably increased, and sometimes it is so great that a mere touch produces a scream. There is also an increase in the power of detecting differences of temperature. There is lack of power of enduring the contact of anything very cold, or very hot, as these things will produce decided pain. There is besides an increased sensitiveness to tickling. But there is another feature which will assist in making a diagnosis between this form of paralysis and that form dependent upon disease in the base of the brain, and that is the condition of the muscular sense. When the patient has but little power of motion the muscular sense is very good indeed, and he will know perfectly well where his limb is without the necessity of placing the hand upon it to determine its location.

Now, in the contrasting condition, there is loss of sensibility of all kinds. The loss may be absolutely complete, so that the patient is not able to feel any blow, prick, tickling, gelymism, etc.