

ureters, and the microscopical examinations of the separate urines, a vista of new thought is opened, whose field of usefulness is large and wide and whose possibilities are almost beyond comprehension. Here will it be found, that before a kidney is removed the surgeon must know the absolute conditions of both kidneys, or perhaps the location of a calculus or of growth in the bladder and its character. A very few out of the many doubtful phases may be dispelled by these methods of research from a surgical aspect. For a moment then, only lightly touching this phase, we turn to a large number of patients who apply for medicinal treatment for alleviation of their pains, distress and exhausted nervous conditions. When the true realization has not been granted to the physician, who certainly has done everything in his power, yet when medicinal remedial measures have been without avail in either giving nature a chance to cure, or of completely alleviating the stubborn symptoms and their sequelæ—let it be said frankly and squarely that lavage of the pelves of the kidneys with appropriate medicated solutions given carefully and each change and effect noticed will, in the majority of our cases, either eradicate or certainly will ameliorate the disturbing influences created by a chronic pyelitis, or a pyelo-nephritis or cirrhosis, those of lithemia or an irritative oxaluria; these alone being simple examples of a thousand varied and complex conditions that may arise.

These few suggestions are offered with the hope that they will awaken a broader and keener interest, that they may appear worthy of deliberate consideration, and that each and every true student, who has devoted his life to a beloved cause, can, if he will, find helpful aid and gain a clearer vision from the keener sense of a better understanding through this union of thought in the teaching of these two most valuable and, may it be said, inseparable companions,—the microscope and cystoscope.

Clinical Department.

A CASE OF UNIRADICULAR BRACHIAL PALSY AFFECTING THE FIFTH CERVICAL NERVE.

BY JOHN E. DONLEY, M.D., PROVIDENCE.

THE following case, which was referred to me by Dr. Frank H. Jackson, would seem to be worthy of record, since it probably represents a very rare palsy of the brachial plexus:

Miss C., a young woman of twenty, a book-binder by occupation, came under observation complaining of disability and of some pain in her left upper arm. Her family history is unimportant, except for the fact that her father suffers frequently from attacks of severe articular rheumatism. She herself has always enjoyed good health with the exception of an attack of malaria of one week's duration, five years ago, and her appearance in general is that of a well-nourished and healthy girl. On Easter Sunday, ten weeks before coming under observation, having exchanged heavy for light clothing, she took a long walk, and

upon returning home complained of feeling very cold. On Monday a sharp pain appeared in her left shoulder and neck, and by Tuesday it had become more severe, and was especially intense at night. By Wednesday it had extended as low as the elbow, and the arm was somewhat swollen from the shoulder to the elbow-joint. On Friday the pain had involved the forearm and fingers, and at the same time the right arm became swollen and painful from the shoulder to the elbow, this condition persisting for a week, when the pain and swelling in the right arm and left forearm disappeared rapidly and have not returned. A week after the beginning of the trouble she put her arm in a sling, in which she carried it for three weeks, and only at the end of this time was it noticed that there was inability to flex the forearm or to move the upper arm, although she cannot tell how long this disability had existed before she became aware of it. From the first she received constitutional treatment for rheumatism, and at the end of eight weeks came under the writer's attention, when the signs of disease were as follows: There was paralysis with atrophy of the left supra- and infra-spinati, teres minor, deltoid, serratus magnus, both rhomboids and pectoralis major. These muscles did not react to faradism and gave quantitative changes to the galvanic current, contracting sluggishly to strong currents. The left biceps was perhaps a little weaker than the right, but showed no alteration to electrical stimulation. The atrophy in the deltoid, spinati, teres minor and rhomboids was severe. The scapula was winged, its lower angle approaching the vertebral column and its upper part being directed outward. The whole scapula was elevated. The acromion was uncovered and the head of the humerus had dropped from the glenoid cavity, an inch intervening between the acromion and the head of the bone. There were some thickening and adhesions about the joint, passive abduction and external rotation being partly restricted. There was no fluid in the joint. Voluntary abduction, external and internal rotation were absolutely impossible. The nerve trunks were not tender in the arm, but firm pressure over the plexus above the clavicle gave tenderness. There had never at any time been tingling, numbness or other paresthesia, nor had there been herpes zoster or any variety of skin eruption. Sensation was everywhere normal except over the lower deltoid region, where there was some blunting of sensibility to pain, tactile and thermal stimuli, the defect, however, not being marked. No affection of the brachialis anticus, supinator longus, triceps, subscapularis or diaphragm could be discovered. There was no sign of disease in heart, lungs or other viscera.

Although we are acquainted with many cases of paralysis affecting several of the peripheral or proximal nerves, or as in the palsies of Erb and Klumpke, combined cords of the brachial plexus, the number of recorded cases in which the lesion has been limited to the individual spinal nerves is small, and the literature very meager.

Buzzard, in a recent article in "Brain," remarks upon the infrequency with which uniradicular palsies are mentioned, even in the extensive monographs upon the subject, and he quotes from Duval and Guillain, Secretan and others, whose only reference to the subject consists in the statement that uniradicular palsies of the brachial plexus are exceedingly rare. In the same contribution, Buzzard reports six cases,

three of them suggesting a lesion of the first dorsal nerve, two of them a lesion of the fifth cervical nerve, and one a lesion of both these nerves, and he suggests that this may be a coincidence, or it may point to a special susceptibility on the part of the lowest and highest roots of the brachial plexus. Wolfstein has recently recorded a case in which the lesion appeared to be limited to the first thoracic nerve, and our own case points to an involvement of the fifth cervical nerve, so that the observation of Buzzard as to the greater susceptibility of these nerves would seem to receive some confirmation.

The distribution of the paralysis in our case is interesting as affording evidence of the motor innervation from the fifth cervical root. It involved temporarily the biceps, and permanently the deltoid, teres minor, serratus magnus, both spinati, the rhomboids and the pectoralis major. There was no evidence of any affection of the spinal cord, no stiffness of the neck and no change in the neck muscles. The tenderness over the brachial plexus points to peripheral trouble, so that if we exclude multiple foci in several nerves, the site of the lesion must be as repre-

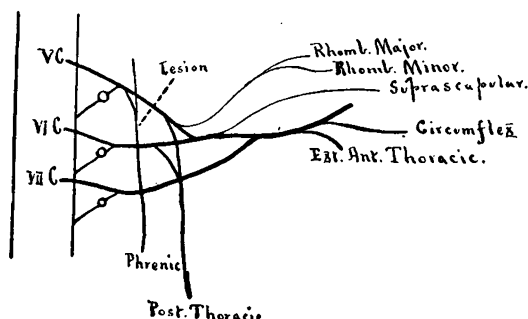


Diagram (after Buzzard) illustrating position of lesion affecting fifth cervical nerve.

sented in the accompanying diagram. The nerves supplying in part the serratus magnus, the levator scapulæ and the rhomboids arise from the fifth cervical nerve, as it lies between the scalene muscles, and in order to account for the paresis in our case the situation of the morbid process must have been in that part of the root proximal from the origin of these nerves.

It is interesting to note that at the time of the examination, the levator scapulæ was not involved. The muscles affected support the observations of Herringham, which the writer has confirmed in the case of the suprascapular and circumflex nerves and the outer head of the median. Herringham concludes from his dissections as follows: (1) It is usually at the junction of the fifth and sixth nerves that the suprascapular nerve is given off, but it is not uncommon to find it springing from the fifth before the junction is made. (2) The sixth, therefore, exercises sometimes an extremely small influence and sometimes none at all over the spinati. (3) It appears that the pectoralis

major does not usually receive from the fifth. (4) The biceps is supplied by the fifth and sixth seven times out of eight. (5) Thirty-one dissections showed no exceptions to the rule that the fifth does not enter into the outer head of the median. (6) The circumflex comes from the fifth and sixth; in six cases from the fifth alone; sixth branch often very small. (7) The teres minor is always supplied by the fifth alone. (8) The supinator longus and brevis are usually supplied by the sixth; the fifth is not always excluded. The muscles paralyzed in our patient appear to show that in this instance, at any rate, the fifth nerve gives motor innervation to the pectoralis major and a partial nerve supply to the biceps, for it will be remembered the biceps was paralyzed for at least a week, when it promptly recovered.

The sensory loss in the circumflex area was not unexpected, but the subjective sensations, or rather lack of them, are interesting and important, and apparently, as suggested by Buzzard, have some diagnostic value. Buzzard was impressed by the fact that in not one of his patients was there any sensation of numbness in the affected region, and not until it was pointed out to him was the patient aware of his sensory loss. Wolfstein had the same experience with his patient, and in my own case careful inquiry directed to this point failed to elicit any subjective sensation other than that of pain. The patient was somewhat surprised when it was demonstrated to her that there was a hypæsthetic area over the deltoid skin. It is quite possible, therefore, that this absence of subjective sensation of tingling and numbness may prove to be a valuable sign in distinguishing root from peripheral nerve lesions.

As to the etiology and pathology underlying the symptom complex in these cases, we are unable at the present time to advance beyond speculation. The term "neuritis" which has been applied to indiscriminate nerve lesions is a legacy from former days, when nervous pathology was oftentimes neither accurate nor careful of distinctions. We are beginning to understand that in the case of the spinal cord and peripheral nerves, as well as in the affections of the brain, we must distinguish between true inflammatory processes and those others, probably more frequent, of vascular origin. The work of Williamson, Singer and others has demonstrated that in many cases of what was formerly called "myelitis," the lesion is really a thrombosis due to disease of spinal blood vessels; and while as yet we have not the confirmation of the microscope for our hypotheses, it seems reasonable to assume by analogy that the same distinction should be made in diseases of the peripheral nerves. In our own case the symptoms are suggestive of a vascular foundation for the trouble, particularly the rapidity with which the pain and swelling disappeared from the right arm and the left forearm, this taking place during one night. And furthermore, the limitation of the lesion to a restricted area of one nerve seems to

favor a primary vascular process as against an inflammation, for in the latter case the nerve involvement would probably have been more extensive.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR SURGERY.

E. A. CODMAN, M.D., SECRETARY.

A MEETING of this section was held on Jan. 6, 1904, DR. F. B. HARRINGTON, in the chair.

The subject for discussion was

EARLY OPERATION IN DISEASES OF THE STOMACH

with especial reference to the following questions which were announced on the call for the meeting:

How often is persistent stasis of the stomach contents due to a purely functional condition?

Should exploration be advised as a routine in cases of marked stasis of the stomach contents?

Comparative results of medical and surgical treatment in cases of stasis.

DR. F. B. HARRINGTON: The object of this meeting is not a discussion of gastric surgery in general but of certain non-cancerous conditions of the stomach, such as gastric ulcer, stricture of pylorus, hemorrhage, dilatation of the stomach, etc.

We live in a medical community which takes pride in its advanced position in medical knowledge, and yet in the West, Mayo has operated on nearly 150 cases of benign disease of the stomach, doing gastric anastomosis with a mortality of 6%, and in Leeds, Moynihan has just reported 100 gastro-enterostomies for gastric ulcer with two deaths. In the well-known paper on "Gastric Ulcer at the Massachusetts General Hospital, 1888 and 1898," Greenough and Joslin say: "The mortality of 8% and the failure of medical treatment to effect lasting cure in 60% of the patients indicates the need of surgical intervention in other than emergency cases of this disease." Dr. Munro ("The Surgical Treatment of Gastric Ulcer") says: "In cases of pyloric obstruction, we have a purely mechanical problem with which to deal. No amount of medicine can overcome this condition; no amount of argument by the internist can convince the surgeon that such cases are best treated medically." Mayo says ("Operations on the Stomach"): "The hope of the future lies in early exploratory incision, and the necessity for this depends upon clinical observation rather than laboratory methods, which too often only become valuable when the extent of the disease is beyond cure. Given a patient of middle or later life who begins to lose flesh and appetite and suffer from indigestion without apparent cause, the possibility of cancer should be considered; and if the source of the symptoms cannot be shown within a few weeks, the situation should be explained to the patient and the choice between exploration and procrastination allowed him."

The mortality from gastric surgery will always be high in advanced cases of malignant disease and in cases of non-malignant disease in greatly enfeebled subjects when operation is done as a last resort. Much of the operating in this community has been of this latter sort, and the results must necessarily be less encouraging than operations on more favorable subjects.

A mortality chart prepared by Drs. F. T. MURPHY, G. O. CLARK and F. B. LUND was then exhibited and

explained. This chart compared the reported statistics of Mayo with the actual mortality of a similar series of statistics compiled from all the stomach cases operated on at the Massachusetts General and Boston City Hospitals. It had been intended that Dr. Murphy should have given a more detailed explanation of this chart, but owing to his absence the explanation was made by Dr. Codman, who said that the object in thus contrasting the immediate results of the stomach cases done in Boston with those of Mayo, Moynihan and others, was to arouse more general interest in gastric surgery. Although in the cases of the above-mentioned surgeons the results might be expected to be better by a considerable per cent from the mere personal skill and experience of the operator, yet he thought that the main reason for the relative greatness of our mortality was due to the character of the cases which came to the operating table. Even considering the fact that the operations in the Boston hospitals were done by a large number of relatively inexperienced operators, who each had but a few cases, and that the operations were in almost every case *last resort* operations, the mortality as shown by the chart was not so very great, except in the malignant cases. Even in the malignant cases for the five years ending with 1903, only seven of the eighteen gastro-enterostomies at the Massachusetts General Hospital died. One of these Dr. Codman operated on himself as an emergency on account of perforation of a malignant ulcer. The other six cases were in very advanced malignant disease and most of them had palpable tumors.

Owing to the discussion aroused by the meeting, Drs. Joslin, Lund and Murphy were interested enough to prepare a detailed paper¹ on the non-malignant stomach operations at both the larger hospitals in the last five years, with especial reference to the end results.

DR. F. PFAFF: Your secretary requested me to answer especially the second question on your program, — Should exploration be advised as a routine in cases of marked stasis of the stomach contents? To answer this question briefly I would say absolutely not before medical treatment has been tried to either relieve or cure the stasis of the stomach contents. Why should not an exploration be made in cases of marked stasis of the stomach contents? Stasis of stomach contents is always due to motor insufficiency of the muscular apparatus of the stomach. Motor insufficiency may be caused by many different factors which can be completely relieved, even after marked stasis of many years, by medical treatment. I say motor insufficiency is the general cause of all cases of stasis of the stomach contents. It may be due either to muscular relaxation of the muscular apparatus, the muscle becoming too weak to expel the stomach contents in normal condition at the normal time. The stomach at first is of normal size, but later, due to stagnation of food, we get permanent enlargement of the stomach. Muscular insufficiency may be further due to impossibility of the stomach contents to get out through a narrow orifice. In such cases the muscles of the stomach may be hypertrophied and yet insufficient. The cause may be either intragastric or outside of the stomach, as in cases of gallstones, adhesions, etc., but even in such cases we may sometimes be able, by medical treatment, to relieve the stasis, and not only get again normal expulsion of food contents, but the patient may also gain in weight. Very often we see stasis of the stomach contents due to general conditions — gluttony, malnutrition, pro-

¹ This paper forms the leading article in this number of the JOURNAL.