Original Communications.

EMBOLUS IN LEFT MIDDLE CEREBRAL ARTERY.

Reported to the Boston Society for Medical Improvement.

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I. W. K., aged 23, born in England, by occupation a lead glazier, entered the City Hospital December 17, 1873, complaining of rheumatism. He had an attack of typhoid fever ten years ago, from which time his health had been good until three weeks since, when, after exposure to cold, he had slight rigors, followed by headache, loss of appetite, and rheumatic pains, especially in the right elbow, left shoulder and lumbar region. These pains still continue, except in the elbow. He thinks his breathing has been somewhat embarrassed from the beginning. He has, also, a slight cough. His countenance anemic, but the body is well nourished, and the skin warm; the appetite is poor, the tongue is coated, the bowels are regular, and micturation is free. Temperature 101°; pulse 108; respiration 32. Auscultation and percussion revealed nothing abnormal about the lungs, but a decided systolic murmur at the apex of the heart, and a double murmur over the aortic valves.

The following evening, the 18th, the right arm and, to a slight degree, the lower left side of the face, also, became suddenly paralyzed; the tongue protruded very slightly to the left, and articulate speech was gone. The intelligence remained clear; he understood what was said to him, but he could only utter the one word "yes" in reply to all questions. He remained in very much this condition until the morning of the 20th, when the whole right side of the body was completely paralyzed, and death ensued at 11, A.M.

With much difficulty, a post-mortem examination was obtained, fourteen days subsequently, confirming the previous diagnosis. The weather being very cold, the body was perfectly preserved. The following notes are given by Dr. Bolles, who made the examination: "Twenty-four ounces of ice and watery fluid were found in the right, and twelve in the left pleura; one ounce in the pericardium. The lungs were edematous, without adhesions. The heart was rather large, the valves of the right side in good order, the cavities containing soft clots; the mitral valve was normal; a large, soft clot was in the left ventricle. At the junction of two of the aortic folds was a large, deep, ragged ulceration, perforating both valves with openings sufficiently large for the passage of a pocket pencil. Attached to these openings were ragged bits of fibrin, some of which easily fell away, others being firmly adherent. The spleen weighed one pound and a quarter. A white, firm plug filled about half an inch of the left
carotid artery, partly within, but mostly above, the carotid canal, completely obstructing the middle cerebral artery to a point a little beyond the posterior communicating artery. The middle cerebral was more full of blood than its fellow of the opposite side, and the whole white substance of the left hemisphere was markedly congested, being several shades more pink than the other side. No fluid was found in either ventricle; the surfaces of both were decomposing."

The subject of embolism and thrombosis is one of great interest, and, although abroad it has been investigated by many observers, it has not received such general attention from the profession in this country as its importance deserves. Without attempting to discuss all its pathological bearings, it may not be out of place to add to the above report a few clinical remarks in connection with its occurrence in the brain, and especially with reference to the diagnosis.

In 1872,* I reported to the Society a case similar to the one now given, and in the English journals, especially, a large number have been reported since attention was directed to the matter by Dr. Kirkeø, in 1852,† in a great majority of which the connection between the symptoms during life and the lesion discovered post mortem was almost absolute.

The differential diagnosis of cerebral lesions is still sufficiently obscure, and, until the exact function of each part of the brain is better determined, it must necessarily remain so; still, great progress has been made in this direction since the days of Gall and Spurzheim.

In 1886, Dax, of Montpellier, and, still later, Broca, in 1861, published papers tending to prove that the faculty of speech was localized in one of the convolutions at the base of the anterior left lobe;‡ and, though this theory has been much criticized, the preponderance of testimony accumulated by more recent observers, supported by a large number of cases, would seem to strengthen the conclusions at which they arrived, and that any cause interfering with the nutrition of this particular portion of the brain would result in aphasia and hemiplegia of the left side. At all events, it is tolerably certain that, these two symptoms existing, careful post-mortem examination reveals a lesion of this part, however much other portions of the cerebral tissues may be involved at the same time.

Obstruction of one or more of the cerebral vessels, with consequent suspension of function, and rapid softening of the parts dependent upon the same for nutrition, is, as is well known, of frequent occurrence, and in presence of any particular case the questions naturally arise, what causes the obstruction, and are there any special symptoms, from which we may localize the lesion? The circulation may be impeded by something within the vessels, as emboli, thromboses, aneurisms, atheromata, arteritis, or by pressure upon the vessels from without, as morbid growths, external injuries, apoplectic effusions.

The terms embolus and thrombosis are often carelessly used, as if practically the same thing, whereas the former really means a fibrinous concretion, originating in some distant part, as the heart or lungs, from which it is moved on by the circulation until it reaches some

† Medico-Chirurgical Transactions, vol. xxxv.
‡ Dax located this faculty in the left anterior lobe, but Broca goes still farther, and confines it to the posterior third of the inferior frontal convolution of the left anterior lobe.
vessel so small in calibre as to arrest it; while the latter means a local separation of fibrin from the blood, due to some interruption or slowing of the current, as in aneurism, atheromatous degeneration, local arteritis, or to a contraction of the calibre by external pressure from any of the causes just mentioned. This defibrination is especially apt to take place in that state of the blood termed hyperosmosis,* in which the fibrin is relatively in excess, and which exists in the puerperal state, syphilis, typhus fever, inflammations of serous membranes, and in persons reduced by dissipation, want, and other causes. The symptoms resulting from an embolus lodging in the carotid canal or middle cerebral artery of the left side, especially if extending to the posterior communicating artery, beyond which there is no arterial anastomosis, are hemiplegia of the left side and the loss of articulate speech without the loss of intelligence. These symptoms occur suddenly, or with very little warning; some pulmonary or cardiac complication is usually present; there is generally no previous history or suspicion of cerebral disturbance, as in morbid growths, ossification of superficial arteries, or atheromatous degeneration.

On the other hand, the causes inducing the obliteration of this vessel by a thrombus are usually of much less rapid development, the calibre of the vessel being gradually diminished, either by the pressure from without, incident to the morbid product, whatever it may be, or by the roughened surface within, which a local arteritis or atheromatous degeneration would produce; all of them acting by checking the rapidity of the circulation, inducing a separation and deposit of fibrin so gradually as not to deprive the parts involved of their nutrition at once. In fact, in many of the cases reported, the deposit has been so slow as to allow of the dilatation of the vessel to a degree sufficient for a partial supply of nutrition for a long time. In such cases, the aphasia has been less complete, and in some, ultimate recovery has taken place. In most cases of apoplexy, the premonitory symptoms, and the loss of consciousness, the character of the respiration, &c., are sufficiently characteristic; and, although cases may doubtless occur, in which the lesion is limited to this particular locality, and even in subjects suffering from cardiac or pulmonary disease, with a development so slow and circumscribed that hemiplegia and aphasia may precede the loss of intelligence, such coincidence, it must be admitted, is very unlikely to occur to embarrass the diagnosis.†

A New Treatment of Chronic Cystitis.—Purdon reports a case of chronic cystitis cured, after failure of all the usual modes of treatment, by injections of tepid, recently-passed, normal urine, repeated morning and evening for three weeks, the bladder being washed out with water before each injection. This somewhat original treatment was suggested by Dr. Clemens, of Frankfort (Deutsche Klinik, No. 7), who instituted it four years ago, and now expresses great satisfaction with the results thereby obtained. In his cases, also, the bladder was thoroughly emptied, and then washed out with tepid distilled water before each injection of urine.—Dublin Quarterly Journal of Medical Science.

* Wharton Jones. Guy’s Hospital Reports, 1851. Dickinson, St. George’s Hospital Reports, vol. i., 1866.
† To those interested in this matter, an interesting article on Aphasia and Agraphia, by Dr. William Ogle, Lecturer on Physiology at St. George’s Medical School, may be found in the second volume of St. George’s Hospital Reports for 1867.