

A CASE OF TUMOUR OF THE MEDULLA AND PONS, CAUSING DEAFNESS AND OTHER REMARKABLE SYMPTOMS.

BY DR. ALBERT A. GRAY (Glasgow).

The following case is of interest on account of the remarkable series of symptoms produced by a lesion which proved to be very small in extent.

Clinical Notes.—J. K—, æt. 22, a butcher, was admitted to Dr. Gemmell's ward in the Western Infirmary, Glasgow, on December 7, 1895. He complained of difficulty in swallowing, giddiness of a month's duration, "paralysis of the face," and deafness in the left ear of a fortnight's duration. Family history is unimportant. As regards his previous history, his health had always been remarkably good, and he had had neither syphilis nor diphtheria.

For a fortnight before the paralysis appeared in his face he was troubled with a choking feeling when swallowing. At this time, also, a cough made its appearance, and is still present; it is worse after he takes food, and the expectoration consists largely of macerated food.

His head feels light and giddy, so much so that he cannot walk without support; but there has been no headache, and there is no intellectual disturbance. During the whole of last week he had double vision, most pronounced in the morning. This appears now to be absent.

Before the present attack the patient had never had anything wrong with his ears. The deafness began a fortnight ago, and simultaneously with it there occurred singing noises in the head. There has been no pain in the ear or head, nor is any discharge present.

On testing with the whispered voice, the right ear is found to be unaffected; the watch-tick, however, is not heard so well, being perceived at a distance of one yard, while the normal ear hears it at three yards. The left ear is very deaf to the whispered voice, hearing it only at a distance of two inches, the watch is not heard by this ear except on contact. On testing with the tuning-fork, by Weber's method, the sound is heard best in the right ear. The pitch of the forks used varied from a to a_2 . On using Rinne's method the fork is heard thirty-five seconds longer by air-conduction than by bone-conduction in the right ear, whereas in the left the same fork is heard seven seconds longer by bone-conduction than by air-conduction.

The membrana tympani of the right ear is normal in appear-

ance, that of the left ear is in-drawn. There is no secretion in the left ear, however, nor is there any evidence of disease in that cavity, except in so far as Rinne's test is negative.

On examining the throat, it is found that the left side of the palate is paralyzed, and the uvula is drawn up to the right. There is a considerable amount of anæsthesia over the soft palate. The larynx shows signs of slight laryngitis, due probably to foreign substances finding entrance.

The left vocal cord is rigidly fixed in the middle line even during deep inspiration. On phonation this cord still remains perfectly motionless.

The movements of the right cord are unaffected both during respiration and phonation.

The left eye is bloodshot and both pupils are contracted, but the left more so than the right. The right pupil responds to light but not to accommodation, while the left gives no reaction to either. Ophthalmoscopic examination reveals no change in the right eye; while examination of the left eye by the ophthalmoscope is unsatisfactory on account of the anæsthesia and consequent muddiness of the cornea, but, so far as can be judged, there is no evidence of any change in the fundus.

The left side of the face is paralyzed, and the lower jaw is stiff. The patient cannot protrude the tongue far, and when he attempts it the organ is turned towards the right. Taste is abolished on the left side of the tongue; it was tried with acetic acid, quinine, and saccharine solutions.

The plantar and knee-jerk reflexes are stronger on the left side of the body than on the right, but ankle-clonus can not be produced on either side.

On the left side of the body, face, and limbs he can distinguish between hot and cold tubes; while on the right side he can tell no difference. Similarly, on the right side he cannot tell the difference between contact with a pin and the finger; whereas on the left side he can tell the difference except on the face. On the left side the power of perceiving two separate points of contact as such is much more acute than on the right.

During his residence in hospital his symptoms became more pronounced, and paralysis of the muscles on the left side became more and more marked.

Iodide of potassium was given, but proved to be of no avail, and treatment resolved itself into the use of palliative measures.

Emaciation became extreme, and after a few convulsive seizures he died on December 24, seventeen days after admission to hospital

and thirty-one days after the first symptom of illness. The post-mortem which took place three days after death was performed by Dr. Lewis Sutherland, and his report is as follows :

“There is found to be some slight œdema of the soft membranes of the brain, and both lateral ventricles contain a small amount of blood-stained fluid. The cerebrum and cerebellum appear quite normal, the part to be described being the only affected portion of the encephalon.

“There is a lesion occupying the left half of the medulla and floor of the fourth ventricle. This portion of the medulla is swollen, and its tissue softer than that of the opposite side. The swelling involves the entire half, and may be traced into the floor of the fourth ventricle, where it gradually shades off. It involves an area measuring 4 centimetres by 1·3 centimetres. It touches the middle line, but does not cross it.

“As viewed from the fourth ventricle, and particularly as seen on transverse section, the affected area has a distinctly mottled appearance, irregular areas of hæmorrhage alternating with areas of opaque yellow colour.

“The bones of the skull and upper cervical vertebræ are normal, and there is no disease of the middle or internal ear.”

There is nothing worthy of special note in the other organs.

After prolonged hardening in Müller's fluid a series of sections was made by Dr. Mackenzie Anderson. The inferior limit of the lesion corresponds with the decussation of the pyramids ; it becomes progressively more pronounced in successive sections until it attains its maximum development in the posterior part of the pons. Here it occupies an area measuring 1·7 centimetres in diameter ; it is confined to the left side, and involving the upper portion of the pons, it appears in the floor of the fourth ventricle. The anterior limit of the lesion corresponds roughly with the middle of the floor of the fourth ventricle. The lesion presents the appearance of a gliosarcoma, with minute hæmorrhages into its substance.

Remarks.—There are many points of interest in the case, only a few of which can be touched upon at present.

In regard to the deafness in the left ear, this was, of course, brought about by the destruction of the auditory nuclei and the fibres of the nerve within the medulla and pons.

The contradictory results of Weber's and Rinne's tests are remarkable at first sight, but on consideration they are quite explicable and rather interesting. The result of Weber's test pointed in the direction of an affection of the nervous structures, and this was clearly enough correct.

But when we examine the result of Rinne's test the matter is more involved, for, as noted above, it was negative in the left ear. The explanation of this fact is, no doubt, to be found in the condition of the membrana tympani, which was indrawn. Thus, although, accurately speaking, there was no actual disease of the middle ear, yet there was a condition of increased tension in the membrane which no doubt diminished somewhat the perception for sounds conducted by the air, but increased it for those conducted by the bones of the head.

The sequence of events which brought about the indrawn condition of the left membrane is also interesting. It will be remembered that the first symptom of illness was difficulty in swallowing due to paralysis of the muscles of the left side involved in that act. When, therefore, these muscles could no longer perform their function, the left Eustachian tube would no longer be opened during swallowing, and a partial vacuum would be produced in the middle ear, resulting in an indrawn membrane.

The occurrence of subjective noises is also of interest in this case. According to Siebenmann (*Ueber d. Central Hörbahn Zeitschr. f. Ohrenh.*, Bd. XXIX., s. 78), this symptom occurs only in a small minority of cases of tumour in these regions. In the two cases related by Politzer ("Diseases of Ear," trans. by Dodd, 1894, p. 692) and Moos (*Virch. Arch.*, Bd. LXVIII.) respectively, this symptom was present at first, but disappeared as the tumour increased.

The median position of the left vocal cord is worthy of remark, and should be considered in conjunction with the experiments and observations of Semon, Horsley, Grabower, Onodi, and others in regard to the functions of the recurrent laryngeal nerve.

The paralysis of motion on the same side as the lesion and of sensation on the opposite side is very remarkable, though it is, of course, in agreement with the results of physiological experiments upon the course of the nerve-fibres in the cord and medulla.