A CASE IN WHICH
A LARGE TUMOUR
WAS DEVELOPED IN THE SUBSTANCE OF THE
FIFTH NERVE AND ITS GANGLION.

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I HAVE lately examined the brain of a woman whose case was published in the last volume of the Transactions of this Society. Before detailing the morbid changes which were found after death, I may be permitted to notice briefly the leading symptoms of her disease.

The patient, aged 59, came under my care, in October 1844, for dimness of sight in the left eye; and, in the course of my inquiries, I ascertained that the fifth nerve on that side had totally lost both its sensitive and motory function for a period of six months. Towards the middle of December, inflammation of the eye came on; the anterior chamber was filled with lymph, which blocked up the pupil, and glued the edge of the iris to the lens. About the same time, violent pain attacked the parts supplied by the fifth nerve, which still remained insensible to outward impressions.

In August 1845, this total anæsthesia continued; the external rectus and levator palpebræ, as well as those muscles supplied by the facial nerve, had become paralysed. There was total deafness of the left ear. The patient had frequent attacks of giddiness and loss of memory. Pain was no longer felt in the branches of the fifth nerve, but was referred to the inside of the skull. She died on the 8th of February 1846.

I am indebted to Mr. Warder, of Brompton, for the opportunity of making the *post-mortem* examination.

On the removal of the scalp, a striking difference between the two temporal muscles was observed. That on the right side was of natural appearance, whilst the left one was so wasted, as hardly to be recognized. Some pale fibres, scarcely more developed than those of a healthy bladder, were interposed, as a thin layer, between the temporal fascia and the bone.

When the anterior lobes of the cerebrum were raised, the olfactory nerves were seen, perfectly alike in size and general appearance.* Everything was healthy in the brain and nerves on the right side. To the left of the pons Varolii was a rounded mass, about the size of a large walnut, which encroached upon the median plane, and had thrust the pituitary body to the right side. Over the upper surface of this tumour ran the fourth nerve. Another tumour was seen, extending from the upper edge of the petrous portion of the temporal bone to the foramen lacerum orbitale, and covered by dura mater, which it had lifted up from the middle fossa of the skull. When this fibrous covering had been removed, the two tumours were found to be continuous, and to form but one mass, constricted by the dura mater. The front part of the morbid growth extended to the foramen lacerum orbitale, but did not enter the orbit; externally, it reached about three quarters of an inch beyond the foramen ovale in the sphenoid bone; internally, it had pressed against the sella turcica, and had caused the left half of it to be absorbed; but it had not interfered with the optic nerves, which were of normal bulk and colour at their entrance into the optic foramina. The third nerve and the cavernous sinus were brought near to the median plane.

The tumour was drawn away from the foramen lacerum orbitale, and turned backwards, by cutting through the three divisions of the fifth nerve, where they emerged from it. The tumour had hollowed out for itself, in the concavity of the

* Smell had, during life, been completely lost in the left nostril.

great wing of the sphenoid bone, several rounded pits, which were lined throughout by dura mater. The osseous structure was laid bare only near the apex of the petrous portion of the temporal bone, where the roof of the carotid canal had been absorbed. The internal carotid artery was here in contact with the under surface of the tumour, and was lodged in a groove in its substance. A small process of the tumour had also penetrated through a breach in the bone into the internal ear, and thus the deafness and facial palsy were accounted for; although the facial and auditory nerves were quite unchanged at their entrance into the internal auditory foramen. When the brain had been completely removed from the skull, the sixth nerve was seen lying along the under surface of the tumour.

The glosso-pharyngeal, vagus, spinal-accessory, and lingual nerves, were unaltered.

An accurate examination of the morbid growth showed it to be a degeneration of the trunk of the fifth nerve and Casserian ganglion. The original boundary between these structures was marked out by that portion of dura mater which, in the drawing, is seen still encircling and constricting the tumour. It is a dilatation of the sheath into which the fifth nerve enters before it spreads out into the ganglion. The tumour was attached to the encephalon only at the junction of the pons Varolii and crus cerebelli, and this attachment was so slight, that it gave way under the least force. The tumour lay in a hollow, formed at the expense of the left half of the pons; and the basilar artery, in consequence, presented a considerable curvature towards the right side.—(See Plate VI.) A few delicate vessels ran from the pia mater of the pons Varolii, crus cerebelli, and middle lobe of the cerebrum, and were lost in the tumour. A section carried through it, showed a reddish, soft, but not pulpy mass, with portions here and there of firmer consistence, and of a yellowish colour.

Various parts of the tumour, viewed under the microscope, presented one uniform structure, namely, a mass of

cells, (oval when isolated, but more elongated when seen in a cluster,) intermixed with areolar tissue and blood-vessels. Not a trace of nerve-tubes, or ganglionic corpuscles, could be found; but in a piece of the third division of the nerve, which was cut out of the foramen ovale, the nerve-tubes were distinctly visible among the cells of the tumour.

Nothing abnormal was noticed in the motory nerves, muscles, or other contents of the orbit. The ophthalmic ganglion was small, but not less than we often find it in healthy subjects; and it presented distinct ganglionic corpuscles under the microscope. The ciliary nerves were unchanged in their appearance, and the accompanying veins unusually small and bloodless. The globe of the eye was as large as the right one. The sclerotic was of natural thickness; the choroid of a reddish brown, with no trace of black pigment, except a little about the ciliary processes. The vitreous humour was perfectly clear and colourless; the lens of a pale yellow, opaque at the centre, but very slightly so towards the circumference. The iris adhered to the middle of the lens, and had the homogeneous, non-fibrous appearance which follows iritis. The hinder surface was quite black with pigment. The cornea, towards its lower part, showed slight traces of its former opacity.

It would be absurd, from a single case like the present, to generalize upon the influence of different nerves in nutrition; but it will be observed that there was here no atrophy of the eye-ball, although the Casserian ganglion, and the whole trunk of the fifth nerve between that body and the brain, had been replaced by an adventitious growth.

It may be objected by some, that the amount of influence which disease of the fifth nerve has over inflammation of the eye was rendered less appreciable, in this patient's case, on account of the pressure of the tumour upon the cavernous sinus, which might be considered sufficient to produce the various phenomena of inflammation, by impeding the return of blood from the organ. To meet this objection, I may advert to the case of a man who died a few days ago in St.

Thomas's Hospital, under the care of Dr. Burton. Entire loss of function of the fifth nerve on the right side had been followed by an ulcerative inflammation of the cornea, precisely similar in its character to that which has just been described. A hard nodule of yellowish matter, about the size of a large pea, was found in the substance of the fifth nerve, close to its origin from the pons Varolii ; but the cavernous sinus and all the nerves in its neighbourhood were perfectly free from disease.

Other symptoms, observed during life, were satisfactorily explained by the *post-mortem* examination. There had been total amaurosis and immobility of the left eye, and, on exposing the third nerve on that side, a nodule of yellow colour and gristly hardness, like that in the fifth, was found developed in its substance. This mass had pressed upon the optic nerve just behind the commissure. The fourth nerve was similarly compressed ; and the sixth, diminished to half its natural thickness, had become adherent to another deposit of yellow matter which was seated upon the basilar artery, just anterior to the junction of the two vertebrals.

No difference could be perceived between the deeper textures of the two eyes. In each the choroid was of a rust-brown, with a little black pigment about the ciliary processes, the retina looked healthy, and the vitreous body was perfectly colourless and clear. The left lens was transparent, and of a pale straw colour ; the right one had the same tint, but was slightly cloudy. The lower third of the right cornea presented a dense white cicatrix, to which the under edge of the pupil adhered. Sufficient opening, however, was left for the purposes of vision ; and, as this optic nerve was unaffected, the patient had latterly been able to distinguish large objects.

EXPLANATION OF PLATE VI.

- 1.—Tumour developed in the trunk of the fifth nerve.
- 2.—A similar mass replacing the Casserian ganglion.
- 3.—A ring-shaped portion of the canal of dura mater through which the fifth nerve passes before spreading out into the ganglion. The canal is much dilated by the growth of the tumour, and the latter has acquired a constricted form.
- 4.—The sixth nerve, almost torn from its origin by the pressure of the tumour above it.
- 5.—The internal carotid artery lying in a groove on the under surface of the morbid mass; the roof of the carotid canal in the temporal bone having been absorbed.