Clinical medicine : cases / by Dr. M'Call Anderson.

CLINICAL MEDICINE.

CASES.

I. BILATERAL PARALYSIS OF THE VOCAL CORDS.

II. MYELITIS.

III. TUMOUR OF MEDULLA OBLONGATA.

Being Portions of Clinical Lectures delivered in the Western Infirmary of Glasgow, 25th and 30th March and 10th June 1881.

BY

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I.

CASE OF BILATERAL PARALYSIS OF THE VOCAL CORDS.

THE patient who now appears before you has reached the lecture-room with the greatest difficulty, on account of severe dyspnœa, which, however, troubles him only on exertion, and it shall be our aim this morning to endeavour to make out the cause of this and of other striking symptoms which he presents. He is a moulder, æt. 49, who, on his admission on the 16th March, complained chiefly of cough, difficulty of breathing, and inability to speak above a whisper, symptoms which set in about six months ago.

The family history is good; his mother is upwards of 80 years of age; five brothers are alive and well; one died at the age of 19 of smallpox, and his father at 74, consequent upon an accident.

He has always been a healthy man hitherto, has never suffered from venereal disease, and has been temperate in his habits. About half a year ago, as the result, he thinks, of severe drenchings and exposure to draughts, be became slightly hoarse, and in a day or two this was accompanied by some cough. He says that it was not like an "ordinary cold," but seemed to be due to some irritation in the throat, and he indicated the seat of irritation by pointing to the larynx. The hoarseness gradually became more pronounced, until he found it impossible to speak above a whisper, and two months ago the cough became more severe, and accompanied by slight mucous expectoration. Latterly he has been complaining of weakness and some loss of flesh, and exertion of any kind produces great dyspnœa. Two months ago he consulted Dr Foulis, who treated him by means of the induced current to the interior of the larynx, and perhaps with some slight benefit, at first at least.

On examining our patient we find that he is weak and has lost a good deal of flesh, but that his disease is unaccompanied by fever, the temperature being uniformly normal. When at rest he breathes quietly and with perfect freedom, but on exertion the breathing becomes stridulous, and there is great dyspnœa. He speaks, too, with manifest effort, and scarcely above a whisper; and his cough is hoarse, and accompaned by slight frothy expectoration.

From these symptoms the experienced observer might have a shrewd suspicion of the general character of the lesion which produced them, but certainty could not be attained without a laryngoscopic examination, which shows that both vocal cords are paralyzed. Now there are three forms of bilateral paralysis:—

1. *Paralysis of the Abductors,* in which condition the vocal cords do not separate on inspiration. This is the paralysis of the vocal cords "with central fixture" of Mackenzie; it is generally the result of a cerebral lesion, and demands a prompt resort to tracheotomy, else the patient is very apt to die of suffocation.

2. *Paralysis of the Adductors,* when the vocal cords are widely open, and do not approximate on phonation—Mackenzie's "bilateral paralysis with lateral fixture." This condition is most frequently met with in hysterical subjects, and is then to be relieved by the direct application of the induced current to the vocal cords.

3. *Paralysis of both Abductors and Adductors,* when the vocal cords remain in the "cadaveric position," *i.e.,* midway between complete closure and complete opening of the glottis. This last is probably the rarest variety of all, and it is that which is present in our patient. Apart from the laryngoscopic examination, the symptoms which he presents are quite in accordance with those which are usual in such cases, as the following quotation from Morell Mackenzie's admirable work on *Diseases of the Throat and Nose* shows[1]:—"No dyspnœa is present in such cases" (when at rest, I presume he means), "and the voice may be weak or reduced to an almost inaudible whisper. In any case there is constant waste of breath present, and speaking is attended by a great increase in the amount of effort normally required, the excessive size of the glottis necessitating a greater degree of pressure to throw the vocal cords into vibration. The muscles of expiration, especially the abdominal, are therefore unusually strained, discomfort is felt at their thoracic attachments, and the patient quickly becomes exhausted. He cannot cough, expectorate, or speak properly, because in these acts it is necessary to close the glottis, and this he cannot accomplish. On forced inspiration a stridulous sound is often produced, which appears to depend on the arytenoid cartilages, the ary-epiglottic folds or flaccid vocal cords being thrown into coarse vibrations."

So far our diagnosis is perfectly clear; but a still more important, and often more difficult, question remains to be considered, viz., the cause of the paralysis, and the *nature* of the lesion which has produced it. It may be either central or peripheral. If *central,* the lesion is probably situated in the medulla oblongata, or so as to implicate the roots of the pneumogastric and spinal accessory nerves. In that case we should probably have, not only laryngeal, but likewise head symptoms, such as pain, etc., perhaps optic neuritis, and usually other nerves are implicated. Thus in bulbar

[1] Vol. i. p.440.

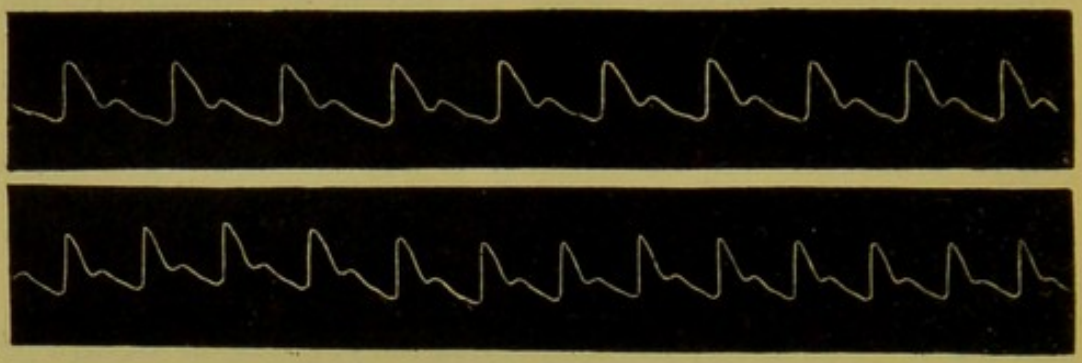
paralysis not only is there palsy of the vocal cords, but likewise of the palate, lips, and tongue, owing to the 7th and 9th as well as the spinal accessory nerves being involved. In our case, however, there are no head symptoms, nor is there paralysis of any other part than the vocal cords, so that in all probability the lesion is not central; it must therefore be *peripheral*, in which case either the pneumogastric nerves or their recurrent branches must be involved.

[Dr Anderson then referred to a variety of morbid states, such as diseases of the œsophagus and thyroid gland, which have been known to produce paralysis of the vocal cords by pressure upon these nerves, and then proceeded as follows.]

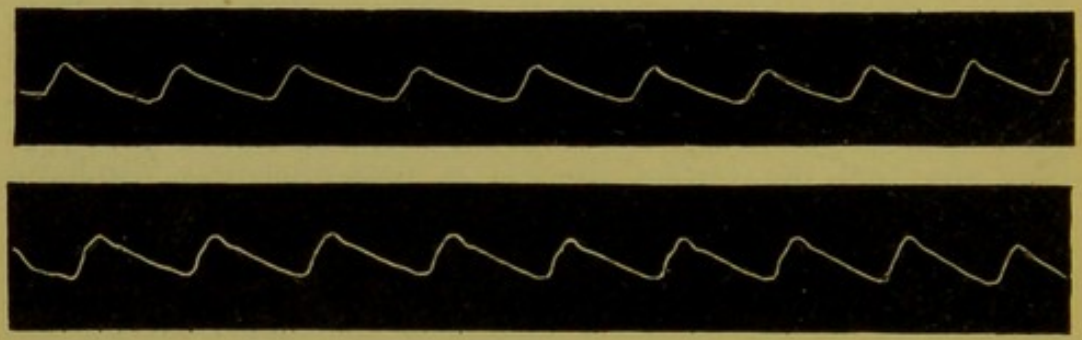
What peripheral lesion, then, has given rise to the paralysis in this case? The history having pointed to symptoms of catarrh of the larynx at the outset, it was hoped at first that this was the cause of the paralysis, but a careful examination of the patient's chest has led me to take a much more gloomy view of his case. You will observe that the apex beat of the heart is displaced very much downwards and to the left, being situated in the 6th space, 3¼ inches below the nipple and 2 inches to the left of the nipple line, and that the cardiac dulness is proportionately displaced downwards. Secondly, the breath sounds are much more feeble over the left than over the right lung, especially at the apex; and perhaps the left side of the chest is rather flatter than the right. There is no other evidence of disease of the lungs, except that slight musical rhonchi are to be heard at times over the greater part of the chest on both sides. Thirdly, you will observe that the veins on the left side of the neck and left infra-clavicular region are a little fuller than those on the right. There must, therefore, be a something within the chest which has pushed the heart downwards and to the left, and which is interfering with the free entrance of air into the left lung, and the free return of venous blood from the veins on the left side of the neck. It is reasonable, therefore, to conclude that we have here to deal with an intrathoracic tumour which is pressing on one or both of the recurrent laryngeal nerves, and thus producing the paralysis of the vocal cords. I say one or both, because it has been shown that bilateral paralysis may result from pressure upon one pneumogastric nerve, and which Dr George Johnson believes to result from reflex paralysis, while Mackenzie thinks it more probable that central disease is set up, the nuclei of the spinal accessory nerves (from which the pneumogastric receives most of its motor fibres) becoming actually diseased.

What, then, is the nature of the tumour? Upon this point I desire to speak with more reserve, although the evidence, as far as it goes, is rather in favour of aneurism. There is an absence of the cachexia of malignant disease, which is by far the most common form of solid tumour within the chest, while, on the other hand, the patient's age (49) is quite in accordance with the aneurismal

theory. Pulsation, too, is to be felt in the supra-sternal notch; and while the carotids beat with equal vigour, the pulse at the left wrist is much feebler than at the right. This is well shown in the sphygmographic tracings which have been taken by Mr Steven; and,



From Right Radial Artery.



From Left Radial Artery.

although this symptom is met with in connexion with solid tumours within the chest, it is much more frequent in cases of aneurism. At all events, we shall not attempt the treatment by faradization of the vocal cords, but shall treat the case on the aneurismal theory, keeping our patient absolutely at rest in bed, restricting to some extent his food and drink, and administering ʒss. of the iodide of potassium three times a day.

Sequel of the Case.—On the morning of the 4th April, about 4 A.M., this patient, while sitting up in bed, was seized with violent coughing and breathlessness. The house-surgeon, on his arrival, found him sitting up in bed, livid, half conscious, and spitting bright red blood. After about two ounces had been ejected he became too weak to expectorate, and in about half an hour from the onset of the symptoms death closed the scene.

On post-mortem examination by Dr Coats, an aneurism about the size of an orange was found springing from the posterior wall of the whole of the transverse part of the arch of the aorta, but particularly from the left side; it projected upwards above the level of the transverse part of the arch, the great vessels springing from the aorta lying quite in front of it. It is doubtful whether the right recurrent nerve can have been pressed on during life, but

the left was subjected to very great pressure as it wound round behind the tumour, being, indeed, incorporated with it. The posterior wall of the aneurism was very thin, and adherent to the œsophagus and trachea, which were flattened out and lying almost side by side. On opening the trachea the left bronchus was found to be diminished in calibre, and at the bifurcation of the trachea were two small openings communicating with the aneurism, which accounted for the hæmorrhage at the last.

II.

CASE OF MYELITIS.

The case which I have to bring under your notice this morning is interesting as affording a good illustration of a spinal affection which you are sure to meet with from time to time in practice, and of the beneficial effects of treatment. This patient, whom you examined with me in Ward II. on 1st February, and who now sits before you, is an unmarried man, æt. 35, a sailor, who came under observation on the 26th January. His father died at the age of 89, and his mother at 47, the causes of death being unknown to him; nine brothers and sisters died in childhood, and two brothers and sisters are alive and well.

Two months before admission, abandoning his sailor life for the winter, he got employment in one of the Govan dry docks, where he had to lie, kneel, or sit on cold iron plates in order to do his work. In consequence of this, three weeks ago he caught a severe cold, which, however, did not lay him aside, but twelve days thereafter, on getting out of bed, he felt a "sleepy sensation" in his feet, and numbness in the middle finger of the right hand, which caused him to stay at home that day. Next morning he attempted to go to his work, but had not gone very far when his knees became so weak that he had great difficulty in getting home; even on leaving the house his gait was like that of a "drunk person." From this time onwards the "sleepy condition or numbness" of his feet spread gradually up to the lower part of his body. The numbness at first complained of in the right middle finger also soon spread to the other fingers of the hand and to the wrist, and three days later the left hand and wrist became similarly affected. For a week prior to admission he experienced great difficulty in swallowing and in speaking, and his breathing was noisy. From the commencement of his illness, his bowels, previously regular, became obstinately constipated; and three days before admission his urine became scanty, high-coloured, and muddy. He always previously enjoyed very good health, with the exception of an occasional cold, and says that he has been as temperate as sailors usually are, only getting drunk while on shore.

On examining him on the 1st February, you will remember that

there was complete paralysis of the lower extremities—so complete that he could not even move a toe—but only partial paralysis of the upper extremities. He could move his arms, but not with the same ease and vigour as formerly, and he grasped objects somewhat feebly. On using the dynamometer with the left hand, the indicator registered 35, and with the right only 17 kgs.: the muscles responded imperfectly to electricity. But not only was there paralysis of motion; the sensation also was very defective from the toes up to the chest, and in the hands too, so much so that he could only feel considerable pressure made with the finger or pin-point. The reflex excitability was likewise completely annihilated. But still more serious symptoms than these were manifest, for the breathing was very laboured and noisy. He spoke with difficulty, and in a hoarse whisper, and dysphagia was so great that on attempting to take a drink he was nearly choked, and it was necessary to abstain from feeding him by the mouth. No pain was complained of anywhere, but on examining the spine some tenderness was detected over the last dorsal and first lumbar vertebræ. The application of hot and cold sponges to the spine yielded negative results. The temperature has remained normal throughout, except that in the first week after admission it rose on five occasions up to or above 100°—twice in the morning and three times in the evening—and on the second evening after admission it touched 102°. The day after admission his breathing became so laborious and difficult that for many hours he seemed to be in a dying condition, and he was quite unable to swallow anything.

The symptoms just enumerated pointed to widespread and alarming inflammation of the spinal cord (myelitis), although it was evident that the continuity of the cord was not destroyed by the disease, else we should have had an increase instead of an annihilation of the reflex excitability and reflex spasmodic movements (the spinal epilepsy of Brown-Sequard).

[After referring to the points of diagnosis between myelitis on the one hand and meningitis, spinal congestion, and non-inflammatory (white) softening on the other, Dr Anderson then directed attention to the treatment, as follows.]

The treatment was commenced upon the *27th of January*. On that day he was put upon an air-bed, was kept off his back as much as possible, and the skin over the sacrum, which was red (threatening bed-sore) was sponged frequently with camphorated spirits of wine. A subcutaneous injection of $\frac{1}{100}$ of a grain of sulphate of atropia was prescribed night and morning, and he was fed entirely through the nose by means of a piece of indiarubber tubing on the syphon principle, in the way I demonstrated to you on the 1st February.

On the *28th January* flying blisters to the spine were commenced. On the morning of this day a narrow blister was applied over the lower cervical and upper dorsal region for an hour; on its removal

the skin was found to be only slightly reddened, but by the evening, to our astonishment, most complete vesication had occurred. On the 2d February a blister was applied over the tender spot on the spine, at the junction of the dorsal and lumbar vertebræ. On the 10th one was applied to the lower lumbar region, on the 12th to the cervical region, and on the 16th over the middle of the spine. In all, therefore, five blisters were applied, on each occasion for an hour, but none of them produced the slightest vesication, with the exception of the first.

On the 1*st of February* the liquid extract of ergot, in doses of half a drachm every four hours, was commenced, a remedy which, like belladonna and its active principle atropia, is reputed to diminish congestion of the cord.

Finally, on the 7th of March, the sister was directed to have the paralyzed parts and the spine rubbed with warm camphorated oil night and morning. The atropia injections were stopped, but the ergot was continued, and full diet was prescribed.

The following notes, extracted from the journal, sufficiently indicate the progress that was made:—

On 29*th January* he could move his legs a little, and breathing and swallowing were much easier, so much so that in the evening he took a bowl of porridge and milk by the mouth.

On 30*th January* there was no further improvement in the paralysis, but the anæsthesia was not quite so marked. He could also swallow and breathe quite well, but the bowels were as costive as ever, and the catheter required to be used on account of retention.

On 31*st January* there was incontinence of urine, but next day this had passed off, and the paralysis of the limbs was a little less marked.

By 3*d February* he had decidedly gained, could move his legs and bend the knee-joints to a considerable extent, and could turn himself round in bed. Sensation, too, was much improved, though less so in the right leg and right side of the body than in the left.

On 6*th February* the catheter had to be used for the second time, the urine, however, remaining healthy.

On 9*th March* it was noted that the improvement continued steadily. The bowels and bladder acted normally, he could breathe and swallow as well as ever, and could move his arms and legs quite freely, and even walk a few steps with support. But he still complained of some numbness, which, however, was limited to the soles of the feet and palms of the hands.

And now you see him to-day (30*th March*), all his symptoms being gone, with the exception of some numbness in the anterior parts of the soles, where there is a feeling as if a ball was under each foot, and slight paralysis. On testing the hands with the dynamometer, we now find that it registers 75 kgs. on each side. He walks, too, pretty well, but with the knees a little bent, just

like a patient convalescent from a fever. The patellar tendon reflex, tested for the first time two days ago, is absent.

As far as one can judge from the steady progress which has been made, I think we may reasonably expect that his recovery will be as complete as it has been uninterrupted; and considering the extreme gravity of the symptoms at the time of his admission, we have reason to congratulate ourselves upon the efficacy of the treatment which was adopted.

III.

CASE OF TUMOUR OF MEDULLA OBLONGATA.

On the 4th June of the present year, a student of divinity, aged 37, was admitted into the side-room of Ward II. with a very unusual train of symptoms, the cause of which it will now be our endeavour to elucidate. One morning, about three years ago, on wakening, he observed that he had a left internal squint; slight at first, it gradually became more pronounced, so that at a distance of 15 feet images appeared one yard apart, but in about four or five months it in great measure disappeared, unless after a bad night's rest. Shortly after this he had for a time some confusion of ideas, and very slight pain in the back of the head and upper part of the spine, which was followed in a few months by drowsiness, to such an extent that he was constantly falling asleep; this drowsiness gradually deepened into a sort of stupor, from which he was aroused with some difficulty. This symptom, too, about the same time to a great extent passed off. About the beginning of the present year he suffered from loss of appetite, indigestion, and occasional vomiting, which confined him to bed for a few weeks, on leaving which he observed for the first time that he had some difficulty in walking. Two months ago he "sprained his left leg," when he took to bed again for a couple of weeks, chiefly, as he says, "on account of the shock which it gave him." Since then the difficulty in walking has been more marked, not on account of any loss of power in his limbs, he thinks, as they seem to him to be "as strong as ever they were," but on account of giddiness, and an inclination to fall, sometimes backwards, sometimes forwards, but oftenest backwards. The day before he hurt his leg he had two "nervous attacks," and while in bed on account of the injury he had eight or ten more, all of which closely resembled, though they were more severe, than one which he had the day after his admission, of which the following is a brief outline:—

About 4.30 A.M., on the day in question, he began to suffer from hiccough and severe frontal headache, with uneasiness in the eyes and tingling in all his extremities. About 8 A.M. he began to expectorate large mouthfuls of clear, sometimes frothy, tenacious saliva. The salivation continued more or less all day, about two

hand basins full in all being expectorated. During the attack he vomited once a small quantity of beef-tea shortly after its ingestion, the eyes watered very much, and the eyelids and conjunctivæ were congested, while the pupils, especially the right, were observed to be contracted. The skin at the commencement felt hot, but slowly cooled down. Unfortunately at this time no record of the temperature is preserved, but during his residence in Hospital the temperature was sometimes above the normal, and on the night of his admission was 101·4.

Latterly he has complained of a noise like machinery between his temples, and vomiting has been a frequent symptom: this he attributes to constipation which has troubled him all through his illness.

You will observe that he is a tall, lanky, melancholy-looking man, who has a rather stupid, apathetic look, except when he speaks, but he answers questions very intelligently. He has great difficulty of walking for the reason before mentioned, and also because the left knee is almost completely anchylosed, as the result of an inflammatory affection which set in when he was about nine years old, and continued for about half-a-dozen years.

The disease from which he suffers evidently involves quite a number of cerebral nerves: the sixth nerve on each side is paralyzed, as he is unable to turn the eyes outwards; and the third nerve, particularly the fibres supplying the internal recti, is likewise involved, as he is unable to turn the eyes inwards; indeed, the range of movement of the eyeballs is exceedingly limited, and what little power of movement remains is chiefly in a vertical direction. An ophthalmoscopic examination was made by Dr Thomas Reid, who sent the following report:—"*Left Eye.*—Optic nerve slightly oval, major axis vertical, rather pink in colour, and not quite translucent, vessels rather diminished in size, especially veins, with some little irregularity in the distribution of the pigment, *Right Eye.*—Slightly myopic, with a little tendency to congestion."

It will thus be seen that there is no evidence of optic neuritis, a condition so frequently noted in cases of this kind.

Further, as first noticed by the patient two or three months before admission, there is very decided loss of power of the right side of the face—so decided, that one might almost have taken it for a case of Bell's paralysis, such as results from exposure of the side of the face to cold; but that the paralysis of the facial nerve is due to a central lesion is demonstrated by the fact that the muscles respond readily to both currents of electricity. There is, too, a suspicion of implication of the glosso-pharyngeal nerve, as for the last two or three months he has had some dysphagia, especially on swallowing solid food, while the left spinal accessory is completely paralyzed, as shown by the inaction and marked atrophy of the trapezius and sterno-mastoid muscles of the left side, especially the former. The urine, it should be added, though rather pale, and containing a

few phosphates, is otherwise normal, and contains not a trace of sugar.

The Seat of the Disease.—A consideration of the symptoms just enumerated leads to the inference that the disease is situated at the base of the brain, and the diagram which is before you, showing the position of the cranial nerves, points to the conclusion that it is situated in the vicinity of the pons varolii or medulla oblongata. (Diagram here referred to at length.)

The Nature of the Disease.—With regard to this point there is more difficulty in arriving at a conclusion, further than that the disease is a tumour of some kind. There are certain tumours, however, which, in all probability, we may exclude. Thus it is probably not syphilitic, for, although implication of cerebral nerves, and particularly of the third and sixth, are common in this condition, there is no nocturnal pain, nor is there any history of syphilis, and a most careful examination fails to detect any trace of other manifestations such as are commonly met with in that disease. Nor is it likely to be cancerous, as we find neither hereditary tendency to it, nor any evidence of cancer elsewhere, although the latter point is of no great value as a negative feature, seeing that cancer of the brain is generally solitary. There is, too, a total absence of the cachexia so frequently present in such cases, while the age of the patient is below that at which it is most commonly met with. This is well shown by the statistics of Walshe, who found that of 56 cases of cancer of the brain, 26 occurred between the ages of 40 and 60. It might, however, be of a tubercular nature, for although we cannot trace any hereditary tendency to that diathesis, there has been some elevation of temperature throughout the disease, such as we usually find in connexion with tuberculosis, and there is reason to suspect that the anchylosis of the knee resulted from strumous disease in early life. If not tubercular, it is probable that we have to deal with a benignant tumour of the nature of a glioma or sarcoma.

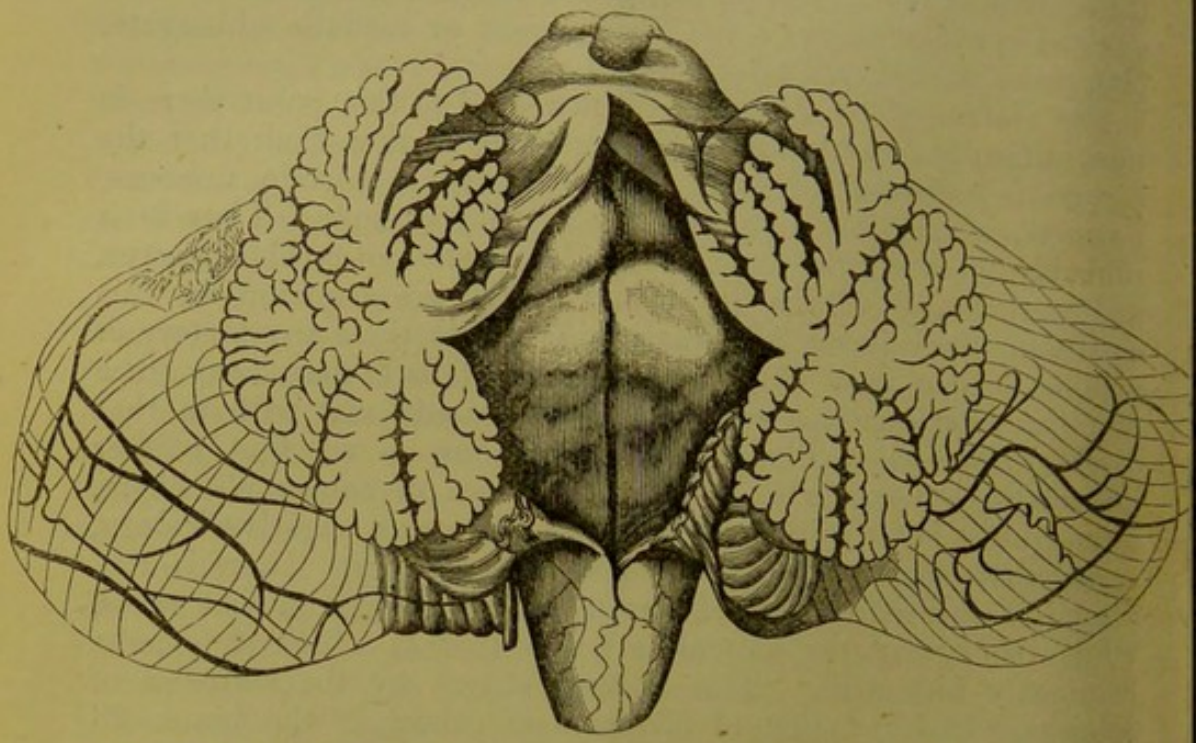
If our diagnosis is correct little can be hoped for in the way of treatment, and we have therefore to content ourselves with palliative measures, one of which only is worthy of mention, viz., the subcutaneous injection of $\frac{1}{100}$th grain of sulphate of atropia daily, which has, in great measure, arrested the profuse salivation.

[*Sequel of the Case.*—This patient rapidly went down hill, and died on the 17th June, a week after this lecture was delivered.

The post-mortem examination was made by Dr Joseph Coats, who reported as follows:—"Leave was only obtained to examine the head. The body is emaciated, and there is great thickening and distention of the left knee-joint.

"*Head.*—There is considerable œdema of the soft membranes, and the ventricles are greatly distended with a clear fluid. There is no exudation at the base, and the brain substance in general is normal

in appearance. In particular there is no appearance of the nerves being involved at their points of issue from the pons or medulla. On laying open the fourth ventricle by an incision carried through the cerebellum in the middle line, a bulky tumour is found in its floor. It occupies the greater part of the floor of the ventricle,



Tumour of the Medulla Oblongata, seen from above, projecting into the floor of the 4th ventricle.

its greatest length and greatest breadth being about an inch. Its middle is slightly below the middle of the cerebellum. The tumour is much more bulky on the right than the left side, and the middle line is pushed considerably over to the left. On its surface the tumour is nodulated, and has a bluish colour. It feels somewhat firm to the touch, but it is not cut into at this stage."

The preparation was hardened in alcohol, and the following is Dr Coats' report of the section:—"The tumour was divided from before backwards, the section being made through the pons and medulla so as not to interfere with the appearances as presented in the fourth ventricle. To the naked eye the structure is not obviously different from that of normal nervous tissue, and in particular there is no caseous material. There is indeed no obvious demarcation between tumour and nervous structure. Under the microscope the tissue of the tumour is seen to consist of an intricate network of fine fibres with very occasional round or oval nuclei—the structure being that of a simple glioma."]

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