



This is

on

Balbar Disease

This is I think quite satisfactory
J. W. M.

ProQuest Number:27552934

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



ProQuest 27552934

Published by ProQuest LLC (2019). Copyright of the Dissertation is held by the Author.

All rights reserved.

This work is protected against unauthorized copying under Title 17, United States Code
Microform Edition © ProQuest LLC.

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 – 1346

In choosing Bulbar Diseases as the subject of my Thesis, I am led to do so, both because of the interesting features presented by disease in this region of the central nervous system, and also by the fact that, at present, I have a patient under my care, who presents not only many of the recognized symptoms of this form of paralysis, but also such a group of symptoms, as are not to be readily met with by the general medical practitioner in his daily avocations.

Before entering into the subject of Bulbar Diseases, I propose, at the outset, to give the various symptoms which have presented themselves from time to time, in my patient. In doing so, however, I am sorry to state, that I was not fortunate enough to be able to give that attention to the earlier stages of this case, which it certainly deserved.

Mrs. D., aged 40, no children, first came under my care in September 1884. She is one of a family of three daughters, all living. Her parents are dead: her father of "paralysis"; the cause of her mother's death is uncertain.

When I first saw her, she was stout in figure, "full-blooded", and clear in complexion. Her habits were very active, her disposition genial. At this time she was suffering from dyspepsia. In the course of my first examination, I found that, although looking strong and healthy, she had a weak chest, and was subject to attacks of bronchitis. She also informed me that she had been troubled, for several years past, with frequent calls to pass water, but that she had full retentive power over the bladder.

I next attended her on the 5th Aug. 1885 while suffering from catarrh and difficult-breathing. The catarrhatic tendency remained with her, more or less, during the winter of 1885.

In September 1886, she again came under my care, owing to attacks of sleeplessness and irritability of the system. At this time she had a tendency to weep or laugh on slight provocation. Under the

influence of Bromide of Potassium, the sleeplessness disappeared, but the emotional symptoms continued, though in a less aggravated form.

On the morning of the 16th Decemr/86, while attempting to rise from the breakfast table, without consciousness of any premonitory symptoms, she was surprised at her inability to move the right leg so freely as she could move the left. From this date, up to June, the following symptoms (at a very slow rate) crept upon her. A difficulty in pronouncing certain words shewed itself. This led on to a thickness in speech generally. The usual companion of aphasia - agraphia - also presented itself. Her looks and gestures, however, plainly shewed that her usual intelligence was not interfered with. She was unable to pucker up the lips as is required in the act of whittling. The lips remained partially separated. The mouth began to droop to the left. She next

began to find that the manipulative power of the fingers of the right hand was growing less. This was followed by a weakness of, and lessened control over, the right arm. The pronunciation of words which require labial movements was now very indistinct.

On the 6th June 1877 the sudden onset of additional symptoms brought her case more regularly under my notice. In addition to the former paralysis of the right side, it was now found that the left arm and left leg were partially paralysed. Her speech was now greatly interfered with. She had great difficulty in swallowing. The mouth was more drawn to the left side, and there was a constant dribbling of saliva from the depressed angle.

On the 8th June, a considerable conjunctival haemorrhage shewed itself in the right eye. During the following month, this haemorrhage had almost

disappeared, but the paralytic symptoms became aggravated. In July, she walked, or rather trailed her feet along, with difficulty, and required to exercise care in turning. By this time her speech was unintelligible and the power of swallowing greatly lessened. The retentive power over the water was now occasionally interfered with.

Having arrived at this stage of the case, I will endeavour to put the symptoms, as they now exist, into a more definite form.

I. Protrility. The patient is able to rise up, stand, walk with a trailing gait, and turn slowly, without any assistance. She can also go through these movements with her eyes closed, although requiring more time and care in doing so. Both hands can be raised slowly above her head, but pronation and supination are very weak in both arms. The grasp in the hands,

more especially that in the right, is also weak. Manipulation seems to be more easily accomplished when the fingers of the other hand are allowed to go through a similar movement.

Regarding the Facial muscles, it is found that the buccinator and orbicularis oris are not wholly paralyzed. The patient retains slight control over them, being able to pucker the lips a little, and to blow very feebly. The act of frowning, however, cannot be performed. The eyelids remain open, and each can be closed with equal facility, but the patient cannot keep them firmly closed. Any attempt to do so causes a rapid, winking, movement.

The Soft Palate is found to hang lower on the left side than on the right. No perceptible raising of it is seen when the patient attempts to sound "ah". Notwithstanding this defect, food has never passed through the nares.

7

Regarding the Eyes: the movements of the globes are perfect. The pupils are large and equal, and respond to light and accommodation.

The Tongue can be protruded and moved to the right or left; but the patient is unable to use it for the removal of such particles of food as may lodge between the teeth and the cheeks. When protruded it shows no tendency to point to one side more than to the other.

The patient's Speech may be said to be practically lost; only unintelligible, nonarticulate sounds, badly uttered when an attempt is made. On careful analysis it is found that the vowels - a, e, i, can be recognised, but that few of the consonants can be articulated. The voice possesses a nasal character. The writing (of which specimens are appended) is always done rapidly. (A specimen of the patient's writing

"Memo"

A Married Lady and Gentleman of good
position no children can receive a married
Lady and Gentleman, or with their upgrown
son and daughter, or two or more Ladies
in their quiet private home, House detached
well appointed and spacious,
every home comfort and cheerful,
dequitable remuneration required

(Before illness)

(Specimens
Mrs Dring
Nov. 25th /85)

This is a "live" arrangement
the weather by Lake has been
very pleasant
we have had a day
D. M. Dring
10³
2⁴
4⁵
5⁶
6⁷
7⁸
8⁹
9¹⁰

* fine
+ pleasant

(Specimens
Mrs Dring
Oct. 8th /89)

before her present illness, is also appended.) If the patient tries to write slowly, either several letters of the words are omitted, or the sentence is unintelligible.

II. Sensibility. On careful examination, there does not appear to be any loss of this function anywhere throughout the body.

III. Special Senses. Sight. The patient indicates that she can see very well. A slight conjunctival haemorrhage is seen in the right eye. (This is the remains of the haemorrhage which suddenly appeared on the 8th June.) Examination by the ophthalmoscope shows that both optic discs are clear, but the left fundus oculi presents a curious cribriform appearance to the side of the disc, as if from punctate atrophy.

The remaining special senses - Hearing, Smell, Taste and Touch - are in no way interfered with.

IV. Reflexes. The cutaneous reflexes are natural - no delay. They are confined to the limb irritated. Regarding the tendon reflexes, it is found that both patellar reflexes are abnormally increased. There is marked clonus in the left ankle, but no definite clonus in the right. In the upper extremities, there is a marked increase in the periosteal reflexes of the deltoid, supinator longus, and biceps muscles, when the lower ends of the radius and ulna are struck: also a tendon reflex in the biceps, when the tendon of the biceps is struck at the elbow joint. There is no reflex movement caused by tickling the palate.

No alteration can be found in the electrical irritability of the of the paralysed muscles.

V. Mental Condition. When the patient's attention is not fixed, or occupied,

the face has a dull, vacant expression. There is a marked diminution of emotional control, and a tendency to irritability, should her signs or gestures be not speedily interpreted. She is quite conscious of what is passing around her, and seems anxious about household matters. She sleeps well, and is only disturbed at night by calls to pass water.

- VI. Viscera. (a.) Heart. The size of the heart cannot be exactly estimated from the adipose condition of the mammae and chest walls. The impulse is rather powerful within, and below, the left nipple. The cardiac sounds are not peculiar, except that the second is unquestionably loud and accentuated at the aortic base.
- (b.) Vessels. The radial pulse is rather small, not thick, = 27×4 .
- (c.) Respiration. The respiration in this patient is very remarkable and

11

would seem to answer to that type known by the name of "Cheyne-Stokes" respiration. For a moment it is merely audible. It then becomes more and more audible, rapid, and deep, the ascending rhythm occupying the space of 15". This phase is followed by a gradual subsidence in loudness, frequency, and depth, lasting 10"; which in turn ends in a complete cessation of respiration for 5". These characters go on constantly repeating themselves. The pulse is not perceptibly affected in any way by this peculiar respiration.

(d) Digestive System. The obliquity of the mouth, with the depression at the left angle, occasions a constant dribble of saliva. The tongue is sodden, white, and indented. It can be protruded and moved both to the left and the right, as already described. Swallowing is produced with difficulty. The food

must be minced and given with a spoon. Although she seems to have more trouble in getting the first mouthful swallowed than with the remainder of the meal, yet swallowing is so interfered with that she spends about an hour over dinner. Food has never regurgitated into the nasal cavities, neither has she had any fits of choking. In the month of July, she shewed decided symptoms of biliousness, but these passed off in a few days. At present she has a good appetite, eats a hearty meal, and shews no signs of dyspepsia. The bowels are regular, and she possesses full retentive power over them.

(e.) Kidneys. For years the patient has been troubled with frequent calls to pass water, but has had full control over the bladder up to a few days ago. The incontinence is generally nocturnal. A specimen of urine now examined is found to be pale, turbid, having

little sediment, acid, albuminous, and non-saccharine. The urea was found to amount to 1% only.

(f.) Generative Organs. Menstruation is, and has always been regular, nor does she suffer discomfort during the monthly periods. Although she has never been pregnant, she has been told by two gynaecologists (whom she consulted at different times, and independently of each other) that her generative organs are healthy and natural.

VII. Temperature. I am sorry that it was quite out of my power to get any more registrations of the temperature than the following —

	Right Axilla.	Left Axilla.
27 th August /87, 8.30 p.m.	97.0	99.0
29 th " " "	97.6	99.0
31 st " " "	97.3	98.8
7 th Sept. " "	97.6	98.4
5 th Oct. " "	97.6	98.3

VIII. General Nutrition. The whole muscular system is flaccid, but there is no wasting of any particular muscles. There is no change in the nutrition of the trunk. The upper and lower limbs are reduced in size, and out of proportion to the size and fatness of the body. The hair is falling off, and the face looks smaller. There is no diminution in the size of the tongue on either side.

Having gone over the different symptoms of the case in detail, I would now propose an enquiry into their cause. They obviously point to changes in the structure of certain nerves or their nuclei. What is the cause of these changes? Are they of Centric, Spinal, or Peripheric Origin? Let us look at the cranial nerves separately, and compare their recognised functions in health, with the condition in which these nerves are, at present,

to be found in our patient.

Olfactory. Commencing with the olfactory nerves, we find that their recognised functions are not interfered with in our patient.

Optic. No disturbance of function is found in this nerve.

Third, Fourth and Sixth Nerves. The same may be said of these.

Fifth. Regarding the distribution of the fifth, we find that some of its fibres proceed to the parotid, submaxillary, and lachrymal glands. It accordingly has to do with the function of Secretion. As has been seen, this function is disturbed in our patient. May not the conjunctival haemorrhage, also, which was observed in our case, have resulted from a sudden change in the vaso-motor fibres of this nerve which are distributed to the conjunctiva? On the other hand, in our patient, we find no anaesthesia in the neighbourhood of the distribution

of the fifth nerve, neither is there any paralysis of the masticatory muscles. However, it is known that trigeminal anaesthesia, when of central origin, is never associated with secretory or vaso-motor disturbances, or with any appreciable paralysis of the muscles of mastication.

Facial. Coming to the facial nerve, we find certain symptoms in the patient viz:—weakening of the buccinator and of some of the straight muscles going to the angle of the mouth and lip on the paralyzed side of the face; also a lowering of the angle of the mouth on the paralyzed side—these conditions point to a central disturbance in this nerve. Along with these symptoms it is ~~usually~~ ^{generally} found that the patient can frown, but it should be noted that our patient cannot perform the act of frowning, having no power over the corrugator supercilii and occipito-frontalis muscles.

Auditory. Regarding the auditory nerves, we find no symptoms in our patient to indicate changes in their structure.

Glossopharyngeal. The state of the palate, in the patient, warrants the conclusion that this nerve is implicated. Although the question of the paralysis of this nerve practically depends upon the condition of its sensory fibres, yet, in Labio-Glosso-Laryngeal Paralysis, these fibres are rarely implicated.

Pneumogastric. The action of the patient's heart, and the peculiar state of the respiration, point to a disturbance in this nerve or its nuclei. From what has been discovered by experiments on the lower animals, it would seem that respiration is rendered slower when one of the pneumogastric nerves is cut. The inspiratory movements also are rendered more profound. On the other hand, fits of dyspnoea, with respirations very much accelerated, may

78
take place in cases where there
are sufficient reasons for believing
that the vagus is paralyzed. In
our patient, both these conditions
seem to exist. At one time, we
have the respiration slow, and for
a moment, merely audible. Next,
we find this slow respiration changing
into a deep and rapid respiration.
Some have tried to explain these
peculiar symptoms, by going on the
supposition, that those fibres of the
vagus, which convey accelerating impulses
to the respiratory centre, are, at
these times, in an irritated, but not
paralyzed, state. Again, in our case,
when we examine into the state of
the heart, we find that its rapid
action points to a disturbance of
the vagus. Experiments on animals
show us, that when the vagus is cut,
respiration becomes slower, while the
movements of the heart are increased.

Spinal Accessory. From the state of the pharynx, and larynx, we consider this nerve to be implicated. As the upper fibres of the spinal accessory go to their destination, ~~mixt up~~ with the fibres of the pneumo-gastric; the levator palati may probably be supplied by them. The feebleness in the voice, and inability to prolong expiration, also point to lesion of this nerve.

Hypoglossal. Here the partial paralysis of the tongue shows that degenerative changes are going on.

From the foregoing examination, we may now arrange the several nerves into two classes, in the one class, we will place those nerves, whose functions are implicated in our patient; in the other, those nerves which are not implicated.

Accordingly then we have —

20
Nerves Implicated.

Trigeminal
Facial
Glossopharyngeal
Vagus
Spinal accessory
Hypoglossal

Nerves not Implicated.

Olfactory
Optic
Third nerve
Fourth "
Sixth "
Auditory

Regarding an answer to the query as to the Origin of the disturbances in these nerves, whether it be Central, Spinal, or Peripheral; we find that the following conditions seen in our patient viz: — Hemiplegia, an unaltered state of the electrical irritability of the paralyzed muscles, the exalted condition of the deep reflexes, the non-limitation of the paralysis to any individual muscle, or set of muscles, all these lead us to the conclusion that our case is one of Central Origin.

Having concluded that the

case is one of Central Origin we will next endeavour to localise the degenerative changes in the encephalon.

Coming to the Regional Diagnosis of our case, we find, from an examination into the minute anatomy of the brain, that the nuclei of the pneumogastric, glossopharyngeal, and hypoglossal nerves, are situated wholly within the limits of the medulla oblongata: and that the nuclei of the spinal accessory, the inferior sensory nucleus of the trigeminus, and a lower facial nucleus, are, in part, within the confines of the medulla.

In addition to the evidence of nuclear involvement, there are definite symptoms of interference with the motor tracts of both sides of the body viz: - the

24
paresis of the limbs, and
exaggerated reflexes.

On comparing these facts
with the list of implicated nerves,
and bearing in mind the anatomical
relations of the pyramidal tracts,
we conclude that the symptoms, in
our patient, must be due, for the
most part, if not wholly, to
changes in the motor ganglion cells
of the medulla and the neighbouring
fibres.

As there is often a great similarity
between the symptoms of disease in
the medulla oblongata, and those
caused by disease in the pons,
we should remember that among the
signs of a lesion in the pons, the
following will be observed viz:—
preservation of the palate reflexes,
squinting, no loss of voice, and no
paralysis of the palate.

On the other hand, the signs which

point to disease in the medulla
are - loss of voice, paralysis
of the palate, loss of the reflexes
of the palate - exactly opposite symptoms
to those in disease of the pons. Besides
these, we have in disease of the medulla,
a disturbance in the respiratory rhythm,
and the action of the heart - also
interfered with. It may here be
noted, that all the symptoms just
given as pointing to medullary disease,
correspond with those seen in our
patient, who, besides, has no sensory
defects in the weakened limbs - another
symptom of medullary degeneration.

From ~~the~~ general Paralysis of the
Insane, our case may be distinguished,
by the absence of any trembling of
the lips, or delirium, no fixed stare,
no interference with the intellect, and
by dribbling of saliva. The patient knows
the seriousness of her case, but this is
not so in the paralysis of the insane.

When haemorrhage takes place into the medulla and pons, there is almost always an apoplectic seizure. In most cases death is speedy. In a large number of haemorrhages into the pons, there is a "crossed" paralysis viz:— a paralysis of the face on one side with paralysis of the extremities on the other.

(The above was intended for insertion after the following paragraph.)

When we come to the indications derivable from a consideration of the Blood Supply of the Medulla Oblongata, it will be found that if a Thrombosis exists in one of the vertebral arteries, and is so situated as to stop the supply of blood to its anterior spinal branch, this stoppage will also deprive the corresponding median branches of their blood supply. These median branches of the artery supply the nuclei of the hypoglossal, spinal-accessory and a lower nucleus of the facial, so their occlusion would bring about the symptoms of Latio-glossal-lingual Paralysis, of acute origin. But there may be a bilateral paralysis of these three ^{nuclei}, if a thrombosis exists in one vertebral artery, especially in the left, as one anterior spinal artery may only exist - generally given off by the left vertebral. In

the latter case, the thrombosis would give rise to laryngo-pharyngeal paralysis, together with partial paralysis of all the limbs. Such we believe to be Cause of paralysis in our case.

Pathological Diagnosis. Thrombosis consists in the local coagulation, or separation, of fibrine in certain blood vessels. It may be caused by any condition which brings about certain alterations in the quality of the blood, or which tends to lower the action of the heart. It may also be caused by degeneration in the lining membrane of the vessel - giving rise to rough surfaces to which coagula attach themselves. Arrest of the circulation from embolism, will also cause thrombosis. While the heart is weak, the blood ~~the blood~~ is more liable to coagulate.

A slow, irregular, and weak action of the heart always favours the process. The pathological result of Thrombosis is "softening" of the brain. After a portion of brain tissue has lost its blood supply, the outer portion of this occluded area becomes hyperaemic, and serum is effused. The central parts of this area undergo fatty degeneration. Although syphilis is an acknowledged cause of bringing about these degenerative changes, yet, the opinion of two distinguished gynaecologists, (who pronounced the generative organs, of our patient, to be in a perfectly healthy condition) must be set against the opinion that Thrombosis was derived from a syphilitic source. We consider the occlusion was originated by the feeble circulation of our patient.

We may now ^{note} one or two peculiarities in our case, where it differs from the generality of those of a like type. When we go over the different symptoms which belong to facial paralysis of a central type, it will be found that there is an exemption from paralysis of certain muscles in the upper half of the face viz: - corrugator supercilii, orbicularis palpebrarum, occipito-frontalis and dilator naris. In such a case, the patient is able to frown and raise his eyebrows as usual. Now in our case the act of frowning cannot be performed, neither can the eyebrows be raised. The patient has tried to frown, and raise the eyebrows, repeatedly, without being successful.

Another peculiarity lies in the fact, that when the tongue

is protruded, it shews no inclination to point to the paralysed side.

Again, in spite of the marked diminution in the power of swallowing, the food has never once been known to regurgitate through the nasal cavities, neither has she had any trouble through it passing in to the lungs.

Looking at the case as a whole, it is not often we find such a combination of signs of disease of the medulla, and contiguous brain structures, in one and the same patient. Here we have defective speech and deglutition, impaired movements of the tongue, ^{salivation,} impaired reflex contraction of the palate, infebled voice, diminished power of coughing, tendency to laugh or cry on slight provocation, frequent action of

the heart, respiration of Cheyne-
Stokes type, albuminuria, polyuria,
bi-lateral paralysis of the limbs,
blank expressionless face, deep
reflexes exaggerated, non-impairment
of mental capacity, and diminished
control over the bladder and
rectum. The peculiar state of
the respiration, which has no
perceptible effect on the pulse,
is well worth attention - being
very rare under any conditions.

Prognosis. It is now ten months
since the first symptoms of paralysis
showed itself in our patient. Up to
July last, she got worse very gradually.
Since that date, most of the symptoms
have remained stationary, with the
exception of the power in swallowing
and retention over the rectum and
bladder, both being markedly improved.
Her chest also has kept free from
bronchitic attacks, which formerly were

frequent. In spite of these signs of improvement, the prognosis must remain gloomy. Trousseau (Clinical Med., Vol. I. p. 134) says — "that glosso-laryngeal-paralysis always terminated in death; and I do not believe that a single case of this disease is on record in which its progress has been arrested even for a few months. At the outset, however, the progress of the melody may be somewhat slow. The patient has an embarrassment in his speech for three, four, five or six months, and he has some difficulty in keeping his saliva in his ^{mouth}; but as soon as deglutition ~~becomes~~ becomes difficult, the disease makes rapid progress in most cases, and life is soon gravely compromised." Gowers (Quain's Dict. of Med., Art. Chronic Laryngo-Glosso-Laryngeal Paralysis) says: — "The prognosis is most grave. The disease consists in a slow degeneration of the nerve-elements, and

"although, in some cases, a temporary
"arrest may be obtained, it is doubtful
"whether, in any instance of this form,
"considerable improvement has occurred."

Treatment. Unfortunately, little
benefit is derived from any line
of treatment in these cases. Strychnia
and Electricity have been tried in
our case, but I cannot see any
benefit that has been derived from
their use. It is essential that the
food be of an easily digestible kind,
and also liquid, or semi-solid, in
consistence.



I hereby certify that this Thesis
on Rabber Disease was composed and
written by me

James Foster W. Conroy M.D.

The Poplars

Turnham Green

London, W.

19th October 1887.

I take the liberty of stating that
my attendance on this case has,
hitherto, been very unsatisfactory. I have
only seen the case after an appointment
was made for each visit. During each
visit, note-taking was looked upon with
apprehension by the patient, and generally
ended in weeping. Had she been a Hospital,
and not a Private patient, her case
could have received that attention which
it deserves.

J. F. W. C.