SPASMODIC WRY-NECK CURED BY EXCISION OF A PIECE OF THE SPINAL ACCESSORY, AND OF THE POSTERIOR BRANCHES OF SOME OF THE CERVICAL NERVES.

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THE well-known case in which excision of the spinal accessory nerve was first performed for spasmodic wry-neck by Mr. Campbell de Morgan was published in 1866. That case was an unusual one, because the spasms existed in the sterno-mastoid and trapezius muscles on the right side, and yet the head was drawn into the position which is usual in contraction of the muscles on the left side; that is, the face was turned towards the right shoulder. The splenius and other rotatory muscles on the same side were also affected, and this overcame the action of the sterno-mastoid and trapezius muscles, so that, as the report states, the posterior muscles were "drawing the face round in opposition to the actions of the trapezius and sterno-mastoid." The fact that section of the spinal accessory had the effect of entirely removing the spasms of muscles which were not dependent upon this nerve for their action is very important, and it is one which in reports of such cases has not been, I think, sufficiently noticed.

The lady whose case is the subject of this communication was 41 years of age, and was sent to me by Dr. Mahomed, of Bournemouth. She had suffered for sixteen years from severe spasmodic wry-neck, commencing a few weeks after a strain of the neck. It was spasmodic from the beginning, increased after the first few years, and got very much worse about a year and three months before I saw her, when it had become so bad that a plastic felt jacket was applied, which, however, did no good.

When I first saw the patient (October 30th, 1889) the head was bent laterally towards the right, so that the cervical part of the spine was curved very severely to the left. There was constant and very violent spasmodic action of the left sterno-mastoid and upper part of the left trapezius muscles, drawing the face towards the right shoulder. There was also spasmodic action in the splenius capitis and other muscles on the right side of the neck, these producing the same inclination of the head as the muscles already named of the opposite side. For four months I tried fixation and medicinal remedies. The effect of a supporting instrument was decidedly beneficial, but it only partly controlled the spasmodic action. I then proposed to stretch the spinal accessory nerve.

On March 6th, 1890, I made an incision two inches long from below the lobe of the left ear downwards over the anterior edge of the sterno-mastoid muscle; I exposed the posterior belly of the digastric and also the stylohyoid muscle. I found the nerve with my finger in front of and beneath the muscle, and passed a blunt hook behind the nerve and drew it forward into sight. I separated the nerve upwards and downwards about a quarter of an inch each way, severed some filaments that were entering the muscle, and then stretched the nerve firmly. The wound healed in four days, the temperature never rising above normal. The patient experienced no pain, only a little stiffness in the neck and a weakness in this part upon attempting to move.

The immediate result of this operation was decidedly favourable, but soon began to wear off, and it became evident in about a week that further measures were necessary. Excision of a part of the nerve was then determined upon.

On April 22nd I excised a piece of the spinal accessory nerve, a third of an inch long (Mr. Campbell de Morgan excised a quarter of an inch), the two cut ends retracted, leaving a wider gap between them. The wound healed as before, in a few days, without any rise in temperature. The result of this operation was complete paralysis of the sterno-mastoid and trapezius, and a feeling of immense relief to the patient, as the spasms were very greatly lessened. The patient was up and about in a week after the operation, and could now turn the head easily to the left side, and control it in that position; in fact, she could hold it for a short time in any

position she liked, but the spasms upon the right side continued, the splenius capitis being the greatest offender.

After waiting a few weeks and finding there was no further improvement, it was determined to operate upon the posterior branches of the cervical nerves upon the right side.

On May 28th, 1890, I made an incision from the occiput downwards for about three inches, parallel to and about an inch to the right of the spinous processes, through the trapezius down to the edge of the splenius, some of the fibres of which muscle I had subsequently to divide to enlarge the wound; then through the complexus, and eventually exposed the posterior branches of the cervical nerves. The great occipital nerve then came into view, and this I had to separate from its attachments and draw aside. I excised a piece of the external division of this nerve, also of the third and fourth posterior branches. Considering the extensive connection of nerves in this part, I thought it well to separate the splenius from the parts beneath it, and search for and excise any filaments of nerve passing into that muscle. I also acted in the same manner as regards the complexus. I had intended to try and excise a piece of the suboccipital nerve, but having already made a rather deep dissection, and found that some veins interfered with such further operation, I desisted from doing any more. This operation was recovered from as rapidly and as satisfactorily as the others, and to the great satisfaction of the patient and myself all spasmodic action was practically put an end to. The night of the operation the patient, for the first time for sixteen years, was able to rest her head on her pillow without spasmodic action. This good result has continued.

A very important point in respect to these operations is one which I had all along been anxious about, and that was the loss of power from the muscular paralysis. This loss of power has proved to be very slight indeed, and the patient expresses herself as experiencing no discomfort or disability. She cannot lift the left hand quite as high above her head as she can the right, nor quite so far backwards, but she can use it as freely to any part of head, or in any way that she usually requires. The paralysis on the right side of the neck from the last operation appears to cause no loss of power whatever. Upon this point it may be stated that these operations may be freely undertaken without fear as to any weakness or loss of power that they might occasion.

Since writing the above, I have received a letter from the patient, of which the following are extracts:

"All at home are very pleased.....I have returned to the days of my youth and began croquet again.....my left hand I can do anything with now, and use dumb-bells.....I can do everything for myself; my father is especially pleased, as he had lost hope for a long time.....I thought you would like to know.....that the operations have been so successful."

PUTREFACTIVE DECOMPOSITION IN THE INTESTINAL TRACT.

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MUCH attention has of late years been directed to certain poisonous bodies which are derived from our food during its passage along the alimentary tract. Many of these are the result of putrefactive decomposition of albuminous matters, which is brought about by the numberless bacteria always found in the small intestine. The excessive production of these poisons is probably accompanied by such symptoms as flatulence, disordered digestion, irregular action of the bowels, offensiveness of stools, anæmia, and malnutrition, while some of the effects produced by their absorption into the general circulation have been described by Dr. Lauder Brunton in his *Disorders of Digestion*.

The most trustworthy means we possess for estimating the amount of putrefaction going on in the intestine is by observing the excretion of the "aromatic sulphates" in the urine, and by comparing their weight with that of the "free sulphates." The "aromatic sulphates" are combinations of such bodies as phenol, iodol, skatol, and cresol with sulphuric acid. Baumann's experiments seem to show that this combination takes place in the liver, where the poisonous

bodies absorbed from the intestines are transformed into innocuous combinations before entering the general circulation.¹

The "free sulphates" are the salts of the ordinary bases found in the urine.

The proportion in which these two groups are met with in healthy urine is said to be 10 of the "free sulphates" to 1 of the "combined," the ratio changing with varying amounts of putrefaction in the intestine. Thus an increased excretion of "aromatic sulphates" has been observed in cases of intestinal obstruction, peritonitis, pyæmia, etc.; and Dr. William Hunter has lately recorded a case of pernicious anæmia in which the proportion was considerably altered, the departure from the normal corresponding closely with the general condition of the patient. In three observations made by myself on the urine of a case of typhoid, the average ratio of "free" to "combined sulphates" was as 4 to 1.

Conversely Baumann, by clearing out and disinfecting a dog's intestine with calomel, has caused the "aromatic sulphates" to disappear entirely from the urine.

The particular point to which, at Dr. Hunter's suggestion, I directed my attention was the effect of different diets on the excretion of these bodies. The method employed was that of Salkowski, which consists in dividing the sample of urine into two portions, and in one precipitating the "free sulphates" at once with a solution of barium hydrate, while the other portion is first boiled with strong hydrochloric acid to split up the "combined sulphates," both forms being then precipitated by a mixture of baryta water and barium chloride. The two precipitates are filtered off, washed, and ignited, the ashes are weighed and give respectively the amount of "free sulphates" and of "free" and "combined sulphates."

A dog whose urine was collected every day was put on a mixed diet, namely, meat biscuits, and the following results obtained:

Date.	Quantity of Urine.	Free Sulphates.	Combined Sulphates.	Ratio.
	c.c.	Grammes.		
February 8th	434	0.978	0.106	9 to 1
" 13th	420	1.386	0.105	13 " 1
" 18th	470	0.639	0.0775	8 " 1
" 20th	340	0.720	0.1258	5½ " 1

Average ratio = 9 to 1.

The dog was now placed on a diet consisting only of milk, bread, and oatmeal.

Date.	Quantity of Urine.	Free Sulphates.	Combined Sulphates.	Ratio.
	c.c.	Grammes.		
February 24th	440	0.673	0.0396	17 to 1
" 25th	410	0.776	0.0484	16 " 1
" 27th	300	0.757	0.0540	14 " 1
" 28th	260	0.824	0.0572	14 " 1

Average ratio = 15 to 1.

These tables show then that a more farinaceous diet reduced the amount of "aromatic sulphates" excreted, indicating a corresponding reduction of the amount of intestinal putrefaction, and afford a probable explanation of the advantages of an exclusively milk diet in typhoid, Bright's disease, etc.

The above experiments were carried out in the pathological laboratory of this University, and I am indebted to Professor Roy for his help and for apparatus kindly placed by him at my disposal.

In the rational treatment of this condition of increased intestinal putrefaction, we should first exclude proteids from the patient's dietary as far as possible; the bowel should be cleared out, preferably by calomel, which will also exercise its influence as an antiseptic.

There are many drugs which can be administered, either by mouth or by rectum, with a view to checking excessive putre-

faction in the intestine, but I wish here to cite a few instances only in which one, namely, β -naphthol, has proved useful. This drug, introduced by Bouchard, is an active germicide, but owing to its insolubility it can be given in large enough doses to check intestinal putrefaction without producing a toxic effect on the patient. I have occasionally known it to cause vomiting, which may be due to the hindering effect of the drug on digestion, but Dr. J. Michell Clarke has discovered that hydronaphthol exercises only a very slight retarding influence on the digestion of milk by the stomach, and has no effect on pancreatic digestion.² The β -naphthol has been used in doses of from 2 to 8 grains every few hours in 16 cases of typhoid in this hospital; its administration has been constantly followed by a lessened amount of diarrhœa, and of offensive odour in the stool. In 7 cases the abdominal distension was apparently reduced, and in 3 cases the temperature became lower by about a degree during its use. It is improbable that it exercises any influence on the local lesions, for 2 cases died of peritonitis (without perforation) who had been taking the drug to within two days of death. In cases of typhoid with constipation, I could not satisfy myself that it produced any definite effect.

Five cases of tuberculous ulceration of the bowel were treated with β -naphthol with marked benefit. In three cases it stopped the diarrhœa, in the other two it lessened it, and in all improved the character of the stools and the general condition of the patient. While in all cases it reduced the temperature somewhat, in only one did it have a marked effect, the maximum effect being usually obtained on the third day. It was tried in several cases of chlorosis and of gastric ulcer without success, but in the following case it proved of signal service:

A woman, aged 36, was admitted under the care of Dr. Latham, suffering from diarrhœa, with extremely offensive slimy stools, emaciation, irregular pyrexia, and prostration. She had the appearance of pernicious anæmia, but the examination of the blood excluded this—hæmoglobin, 10 per cent.; red corpuscles, 22 per cent. of normal. Her diarrhœa and anæmia persisted in spite of treatment by diet, bismuth, chalk, arsenic, iron, etc. She was then given β -naphthol (gr. iij) every four hours, and in a week the bowels acted but once a day, naturally, and the anæmia, pyrexia, and weakness gradually disappeared.

ON A NEW FORM OF PORCELAIN FILTER.

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FILTERING through porous earthenware is so constant a stage in the study of the metabolic products of the life of microbes, that I think the following description of a porcelain filter is worth recording. It includes nothing new in principle, but seeks to combine efficiency and cheapness to a greater degree than is the case with the filters in general use.¹

It consists of three essential parts: (A) a cylindrical vessel of porous biscuit ware closed at one end, which is rounded off so as to be able to resist pressure. The other end is open, and provided with a flange as shown in A, Fig. 1.; (B) a glass tube, the inside diameter of which is a trifle larger than the outside diameter of the earthenware pot, and which is about twice the length of the latter. Both ends are open, and one of them is provided with a flange, as shown in B, Fig. 1. This form of tube is used in ordinary gas analysis, and can readily be obtained from any chemical apparatus manufacturer; (C) a funnel made of non-porous earthenware. Its greatest inside diameter must be equal to that of the porous vessel, and it must be provided with a flange, as represented at C, Fig. 1. Fig. 2 indicates how these three pieces of apparatus are put together. B is the porous pot surrounded by the glass tube A; underneath is seen the funnel C; at D are shown the flanges separated from one another by a pair of india-rubber rings. Umbrella rings answer very well in the smaller form of the apparatus that I employ. By pressing the upper and lower flanges together

² Practitioner, July, 1890.

¹ The apparatus was shown at a meeting of the Physiological Society.

¹ Pflüger's Archiv, vol. xiii, p. 285.