Through the kindness of Sir Andrew Clark, I am enabled to give an exact representation of the sediment of the urine, drawn to scale with the camera lucida, by his friend and assistant, Dr. Sheridan Delépine.

Fig. 1 shows the fungus-fibres and spores, the latter drawn a little too large, and the former too fine; there are also to be seen renal casts, renal and vesicular epithelium, pus-corpuscles, and leucocytes,

bacteria, and vibrios, magnified 300 diameters. Fig. 2 represents the various stages of growth of the fungus, magnified 1,200 diameters; the spores increasing by budding, and developing into fibres; those on the

right of the line are the probable fully developed fungus. Fig. 3 represents the fungus-fibres, spores, micro-organisms, and pus-cells, as seen by myself with a power of 600 diameters.

PRESENTATION.—Dr. Aymer Macdougall, on leaving Carlisle to practise in Chesterfield, was entertained at dinner by several of his friends, and presented with a handsome silver tea and coffee service. The salver bears the following inscription: "Presented to Dr. Aymer Macdougall by a few of his friends, in token of affectionate regard for himself, and of high appreciation of his work, and as an expression of their regret at his leaving Carlisle, and of good wishes for him in his future career. Carlisle, 23rd May 1884."

THE TREATMENT OF NON-SPASMODIC WRY-NECK (TORTICOLLIS).¹

By BERNARD ROTH, F.R.C.S. Eng.

THE adjective, "non-spasmodic," is better than "congenital," because it is sometimes difficult to decide whether a given case is congenital or not, and because some cases of so-called congenital torticollis are "spasmodic," and therefore not suited for the treatment advocated in this paper. I refer here, therefore, only to those cases in which there is no spasm of the affected muscle.

The diagnosis of "non-spasmodic" torticollis is easily made. The patient, lying on his back, remains passive, while the surgeon attempts to replace the head in a symmetrical position with regard to the trunk. In non-spasmodic wry-neck, the shortened sterno-mastoid muscle immediately becomes tense, and offers a complete resistance to the restoration; on flexing the head laterally towards the shoulder of the affected side, the previously rigid muscle becomes relaxed and softened, and can be easily moved to and fro with the fingers. In spasmodic wry-neck, the shortened muscle can be fully extended by the surgeon, allowing the head to be placed in the same longitudinal axis as that of the trunk; but, as soon as the surgeon's hand is withdrawn, the head returns to its previous vicious position, and, on passively flexing the head to the affected side, the contracted muscle continues to shorten, and it is with some difficulty that it can be made to relax even for a few seconds.

I find that, with the exception of Dr. Little, in Holmes's *System of Surgery*, and Mr. Edmund Owen, in his paper on Wry-neck, read before the Medical Society of London in 1873, most surgeons recommend the use of more or less complicated instruments, with or without previous tenotomy, for the treatment of "non-spasmodic" wry-neck. Mr. Owen's two cases were treated by tenotomy, and the patients were made to carry weights in the hand of the affected side, the contracted side of the neck being daily rubbed and shampooed, and the head coaxed towards a correct position by gentle but firm manipulations. At night the child was made to lie on the affected side, upon a firm mattress, the head being supported on a sand-pillow of proper thickness. These two cases had been five and six months respectively under treatment. Dr. Little says, "no apparatus effects so beneficial and lasting an impression upon the distortion as that which can be effected by the hands of the surgeon..... When the patient is old enough, the surgeon will find the greatest use in encouraging the patient to sit before a looking glass, to hold the head erect and practise all the natural movements with accuracy" (*System of Surgery*, 3rd edition, vol. ii, p. 258).

The treatment I advocate is divided into three stages. 1. The first is a preliminary education of the patient in performing the usual movements of the neck; viz., flexion, extension, lateral flexion, right and left; rotation on its axis right and left. These exercises are done actively, also against the surgeon's resistance, and by the surgeon against the patient's resistance ("medical gymnastics;" see my article on Treatment of Lateral Curvature of the Spine, *BRITISH MEDICAL JOURNAL*, May 13th, 1882). The exercises are done while the patient is lying on his back, sitting, or standing. At the same time, he is shown by the looking-glass how much his head is on one side, and he is taught that he must exert himself to get even a slightly improved position of the head. This preliminary stage of the treatment need not last more than a week, as in Case 1. 2. The second stage of the treatment is tenotomy, under anæsthetics, of the clavicular attachment or of both attachments of the shortened sterno-mastoid muscle. 3. The third stage of the treatment can be commenced as soon as the skin-incisions are healed, that is in two or three days, as the skin always unites by first intention. The preliminary "medical gymnastic" education of the patient is now most useful; to his surprise, on trying to put the head straight he succeeds at once, and by daily practising the previously learnt exercises, and others for correcting the lateral spinal curvature which is nearly always present, he soon learns to hold his head vertically.

At first, even when the head is quite straight, the patient has the sensation that it is on one side, and it takes some days before he is quite satisfied on this point. This third stage need not last more than a fortnight, when the cure will be complete; that is, the whole treatment does not require more than one month, including the preliminary exercises and the tenotomy.

CASE 1.—Master H. M., aged 12, consulted me on April 6th, 1882, with the following history. He had been always delicate, and always

¹ Read in the Section of Surgery at the annual meeting of the British Medical Association, at Liverpool.

held the head on one side. When four years old (eight years ago), he was placed under an orthopaedic surgeon in London, who ordered a steel support with pelvic band and head-piece for fixing the head; this had been worn day and night up to the present time. There were four screws, which had been altered every two months by the surgeon during the eight years. The patient looked most wretched, wearing the instrument with a strap across the forehead. Here is a photograph (Fig. 1) taken before the treatment was commenced. The head was

Fig. 1.

forced towards the right shoulder by the instrument. This second photograph (Fig. 2), taken at the same time, shows the patient with-

Fig. 2.

out the instrument. The right sterno-mastoid was 4 inches long, and the left $5\frac{1}{2}$, showing a shortening of $1\frac{1}{2}$ inches. There was rather severe lateral curvature, with lumbar convexity to the left.

On April 13th, the patient began treatment by practising the preliminary exercises, which consisted of the prescription of twelve, given in my article in the *BRITISH MEDICAL JOURNAL*, already quoted.

On April 19th, within the week, the clavicular and sternal portions of the right sterno-mastoid were divided in the usual manner half an inch above the clavicle by two separate skin-incisions; the patient being put under ether by my friend Dr. Unthoff (the sternal tendon being divided from the outside, the clavicular from the inside). Lint collodion, cotton-wool, and a bandage were applied. Four hours afterwards, the patient was comfortable, with no pain.

April 20th. The patient was sick several times after my second visit yesterday. He had a good night. There was no tenderness over the neck.

April 21st. The patient sat up without pain. The head was more vertical. He was dressed, and walked into the next room.

April 22nd. Without any painful force, the two muscles measured the same length.

April 24th. Yesterday being Sunday, the patient began to-day his medical gymnastic exercises as before the operation.

April 25th. The right muscle contracted a little when the patient attempted to flex the head when lying on his back.

May 3rd. The patient could place the head in a perfectly normal position by a voluntary effort. When lying on his back, he could flex the head comfortably, showing complete union of the divided muscle within twelve days of the operation.

May 4th. The patient was exhibited, practically cured, at the meeting of the Brighton Medico-Chirurgical Society.

May 10th. Last visit, within the month of commencing treatment, with moderate effort, the patient could make both sterno-mastoids quite symmetrical. A month later, this photograph was taken (Fig. 3), showing a perfect cure of the deformity.

Fig. 3.

In June 1883, more than a year afterwards, the mother writes: "I am happy to tell you Henry continues quite well, and his head perfectly straight." On July 31st, I saw the patient, and found the muscles both measured exactly five inches and a half.

CASE II.—Miss D. C., aged 7, daughter of an Indian officer, was sent to me by Dr. D. Brown on April 6th, 1880. The patient had scarlet fever the previous October, and held the head on one side ever since. The right sterno-mastoid was one inch shorter than the left. The clavicular insertion alone was tense, the sternal portion being rather wasted. Slight lateral spinal curvature was present.

After one month's treatment by "medical gymnastics," which failed to elongate the shortened sterno-mastoid, its clavicular portion was divided from the outside on May 27th, Mr. H. N. Smith of Brighton giving chloroform. Four hours after operation, the patient was so comfortable that she refused to believe any operation had been performed.

May 31st (fourth day after operation). Medical gymnastic exercises were recommenced. The patient could now hold her head quite straight when thinking about it.

June 9th. The head was held perfectly erect, and was as often flexed laterally to the left as to the right.

July 3rd. Last week for treatment. Both muscles were of equal length a little over one month from the day of operation. Six weeks later, Dr. Brown wrote: "Little Miss C. was really wonderful before she left for Caunterets." Two years later, there had been no relapse.

CASE III.—Master M. P., aged 6, only son of a clergyman, was examined by me on May 27th, 1879. The patient had always held the head bent to the left. The left sterno-mastoid was one inch shorter than the right. The clavicular insertion of the affected muscle had disappeared. There was slight lateral curvature with upper dorsal convexity to the left. At the urgent request of the parents, "medical gymnastics" were persevered in for two months, but only a quarter of an inch of elongation of the shortened muscle was obtained. Therefore, on August 1st, I divided the sternal insertion of the right muscle in the usual way to the outside, chloroform being given. Five hours afterwards, there was some pain, caused, no doubt, by severe vomiting due to solid food having been given contrary to orders shortly before the operation.

August 2nd.—There was no pain anywhere.

August 3rd.—The patient was dressed, and sitting up. The head could be placed quite straight without pain.

August 4th (third day after operation).—The boy recommenced the medical gymnastic treatment. The two sterno-mastoids were of exactly the same length. The patient could hold the head perfectly straight on paying attention.

August 7th.—The left muscle contracted a little while the boy was lying on his back, on attempting to raise the head from off the couch (flexion of the neck).

August 9th.—The divided muscle had healed sufficiently to contract rigorously, although only the ninth day after the operation.

August 30th.—The patient ceased treatment. The spine was quite straight. The two sterno-mastoids remained of equal length. A year afterwards, there had not been any relapse, and the head remained quite straight.

From the above notes, it will be observed that I employ no apparatus whatever, either before or after the operation, and that I do not insist upon any rubbing of the affected muscle. A couch with movable back and horizontal seat (of which I gave an illustration in the *BRITISH MEDICAL JOURNAL* of March 5th, 1881) is useful, on which the patient is trained to hold his head in the best possible position. Walking about is allowed as usual during the whole treatment, except during the two days immediately after the tenotomy.

The results in these three cases will compare favourably, I believe, with any published, especially in regard to the rapidity with which a complete cure was obtained, and with no tendency to relapse a year or more afterwards.

The treatment I here venture to bring forward is based on rational surgical principles, and I trust that other surgeons may be induced to try it. It consists essentially of (1) a week's preliminary daily training of the patient's neck-muscles; (2) tenotomy; and (3) two or three weeks' daily further perseverance with prescribed medical gymnastic exercises, and a re-education of the patient's muscular sense as to the proper position of the head, without the employment of any mechanical contrivances throughout the treatment.

PATHOLOGY, SYMPTOMS, AND TREATMENT OF CELLULITIS OF THE NECK.¹

By G. HARRISON YOUNGE, L.K.Q.C.P.I., etc.,
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STRANGE to say, cellulitis of the neck, although a most important and dangerous affection, is not even mentioned in the ordinary text-books on surgery. Yet a glance at the anatomy of the neck is sufficient to show how important is this disease. When inflammation of the cellular tissue of the neck takes place, serum and pus are effused under the cervical fascia, giving rise to severe and dangerous pressure, not only on the larynx and trachea, pharynx and œsophagus, but also on the large blood-vessels passing to and from the brain, and on the sympathetic and pneumogastric nerves. As Mr. H. G. Croly of Dublin says, when writing of this affection, "Diffuse inflammation of the areolar tissue of the neck is one of the most serious and fatal forms of disease which the erysipelatos type assumes."

Causes.—The causes of cellulitis of the neck may be divided into predisposing and exciting, the former being the same as in all other erysipelatos inflammations. In fact, this disease may be predisposed to by anything that tends to lower the general health, such as want of attention to hygienic conditions, intemperance, want of proper food, and also the opposite extreme, namely, overfeeding combined with deficient exercise.

Diseased states of the blood, especially those occurring in Bright's disease and in the gouty diathesis, predispose to erysipelas, and therefore to this disease. In many cases, however, the disease comes on suddenly in strong healthy persons, without the previous existence of any of these conditions. The exciting cause is always exposure to wet and cold. The disease, therefore, almost always occurs in winter, and is most prevalent in low damp situations. Cellulitis of the neck, unlike other erysipelatos diseases, is rarely, if ever, traumatic, and is, probably, never due to infection.

Symptoms.—The symptoms of the disease are always well marked and characteristic. For a few days before the local symptoms become established, the patient complains of general malaise, there are frequent chills, with a feeling of great languor and inability for all exercise. A dull aching pain in the back is almost invariably complained of. At the same time there is severe headache; the tongue becomes thickly furred; there is nausea, and occasionally vomiting, and the bowels are obstinately constipated. The temperature is always above normal, but

rarely exceeds 102° Fahr. After the general symptoms have lasted from twenty-four to forty-eight hours, the local symptoms set in. The patient now complains of severe pain in the neck; there is some pain and difficulty in swallowing, especially solids, and there is a clear, ringing, metallic cough, very like that heard in the first stage of croup. Then the neck becomes swollen, the swelling extending from one angle of the jaw to the other, and then downwards along the sterno-cleido-mastoid muscles to the clavicle. In a small number of cases the swelling is unilateral, and then extends from the angle of the jaw downwards to the inner end of the clavicle. The right side is, I believe, invariably affected when the disease is unilateral. The swelling is at first tense and elastic, but, after about twenty-four hours, it becomes soft, has a brawny feel, and pits on pressure. The neck has now a most characteristic appearance. When looked at from the front, it is seen to be considerably swollen from the jaw down to the clavicle, while the centre of the swelling presents a horizontal depression corresponding to the attachment of the cervical fascia to the os hyoides. This gives to the swelling an appearance exactly as if a muff had been twice folded round the neck. When this brawny feeling of the tissues is established, the symptoms of the disease become greatly intensified, as now effusion of serum and pus has taken place beneath the deep cervical fascia, and is exercising injurious, and if not relieved fatal, pressure on the deep structures of the neck.

There is now great difficulty of breathing, in bad cases amounting to orthopnoea, while the voice is a mere whisper, or there may be complete aphonia. The patient is entirely unable to swallow solids, and occasionally even fluids, these regurgitating through the nose when attempts are made to swallow them. The pressure on the veins of the neck retards the return of the venous circulation. The face, therefore, becomes congested and livid, while cold clammy drops of sweat collect on the forehead. At the same time congestion of the brain takes place, giving rise to great anxiety, restlessness, and occasionally to delirium.

In cases where the effusion extends underneath the sterno-cleido-mastoid muscles, serious pressure is exercised on the sympathetic and pneumogastric nerves, which greatly increases the dyspnoea, and gives rise, at first, to violent and irregular action of the heart, and afterwards to great weakness of this organ.

If, when effusion has taken place, the tension be not relieved by free and deep incisions into the cervical fascia, œdema of the glottis may set in and prove rapidly fatal; or the dyspnoea may gradually increase, and the patient die comatose from carbonic acid poisoning; or, what still more frequently happens, sudden spasm of the glottis may occur, the result being suffocation. Even if these dangers be avoided, deep and destructive sloughing of the tissues of the neck will take place, if the matter be not allowed free vent.

There is never any difficulty in diagnosing this affection. The characteristic appearance of the neck, the brawny feel of the tissues, and the subsequent pitting on pressure, distinguish it from every other disease found in this region. In this disease, although there is abundant effusion of serum and pus, fluctuation is never obtained. This is due, I believe, to the fact that the effusions are always situated under the deep cervical fascia, which binds them down so firmly that we cannot detect fluctuation.

Pathology.—This disease consists essentially of an erysipelatos inflammation of the areolar tissue, which fills up the spaces between, and connects together the deep cervical muscles. This tissue rapidly breaks down, giving rise to sloughs, while at the same time serum and pus are effused into the intermuscular spaces. As nearly all this mischief takes place beneath the deep cervical fascia, which is dense and unyielding, we can at once see what an amount of pressure is exercised on the important anatomical structures of the neck, and how necessary it is to give relief to this pressure by free incisions.

Treatment.—Of all the diseases to which man is subject, none require more prompt treatment than cellulitis of the neck; for if relief be not afforded by surgical means, the disease is almost necessarily fatal, or if recovery do chance to take place without operation, it will only be after sloughing has set in, and extensive disorganisation of the muscles of the neck has taken place, which will give rise to stiffness and great deformity. From the first, our treatment should be such as to support the strength of the patient, and all remedies which tend to lower the powers of the system should be carefully avoided. It is to be remembered that the patient is suffering from a disease of a highly asthenic type, and will also have to pass through a period of prolonged suppuration before recovery takes place. Lowering treatment also tends to increase the chances of pyæmia occurring. The patient should have a good purgative at the commencement of the disease, as the bowels are always constipated. He should then be placed on a mixture containing chlorate of potash combined with tincture of the perchloride of

¹ Read before the Bengal Branch of the British Medical Association.