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DR. JOHNSTON, *President*, in the Chair.

A Case of Paraplegia Successfully Treated by Ice to the Spine. By E. R. TOWNSEND, jun., M.D., T.C.D., L.K. & Q.C.P.I. Read 12th February, 1868.

JOHN N., aged thirty-two, a shopkeeper in Kanturk, was admitted into the South Infirmary and County Cork General Hospital, January 27th, 1866, under the care of Dr. E. R. Townsend.

History.—About five months before admission into hospital, having been engaged in hay-making under a very hot sun, and whilst perspiring freely, lay down to rest on the damp ground, and got chilled. Towards evening he got rigors, and suffered from pain in the back; a few days afterwards noticed that he had some weakness of the lower extremities. This became rapidly worse, until he became completely paraplegic. The pain in the back became very severe, being much increased by pressure over the sacrum; also had pain in the legs shooting upwards, increased by motion. For this he was leeches and blistered, without much benefit. He thinks he also got ergot of rye; but not feeling better, he came to Cork, and was admitted into hospital, January 27th, 1866.

Symptoms on Admission.—Complete paralysis of motion over lower half of the body; has full power over the bladder; urine acid and healthy in appearance; bowels confined, not acting without medicine; temperature of body normal, with a great tendency to perspiration. He says that at one time the pain in his back extended to the dorsal region, and that his arms were slightly paralysed. He also had great difficulty in swallowing. This he still occasionally suffers from, accompanied by a choking sensation in the throat. On applying a pair of compasses to the legs he cannot feel the points as two at a less distance than six inches apart; reflex motion much affected; feels tickling the sole of left foot more than that of the right; the toes of left foot move slightly under the stimulus; those of the right do not stir, though he feels a disagreeable sensation when tickled. He never had any sensation of formication in the legs, nor any sensation as if a cord were tied round his waist, and did not show any tendency to the formation of bed sores. From the history of this case, as well as from the symptoms which he presented on his admission into hospital, I came to the conclusion that it was one of inflammation of the membranes of the spinal cord, probably with exudation of lymph on

* These reports are supplied by Dr. Purcell, Secretary to the Society.

them, and that the cord itself was not engaged, and ventured to hope that the patient might ultimately recover some power over his lower extremities from the length of time (five months) that he had been paralysed. It was evident that the time for very active treatment had gone by, and that as the affection had become somewhat chronic, we could only expect any improvement to be very gradual. I commenced treating him January 27th, by giving every night a pill containing four grains of aloes and one of capsicum to regulate his bowels, which were very obstinately confined. As he complained of pain over the sacral region, I ordered six leeches to be applied, to be followed by the cupping glasses, and to take one ounce of the following mixture three times in the day:—

R Extracti ergotæ liquid. Ph. Brit., ʒij.
 Potassii. iodidi, ʒijss.
 Infusi gentianæ, ʒx.
 Syrup. Simp., ʒss.
 Fiat mistura.

To have full diet and a bottle of porter every day.

January 29.—The leeching and cupping somewhat relieved the pain. To continue his mixture.

February 2.—To be dry cupped over the sacrum.

February 4.—Bowels were yesterday affected without the pill or other aperient medicine, being the first time for the last three months that they had acted without it; reflex action slightly improved.

February 6.—Tenderness still continues along the back, over the upper part of the sacrum. To be dry cupped every second day.

February 15.—Complains of feeling much stiffer in the morning, upon first getting out of bed, than when he has been up for some time; reflex action improved; feels tickling the soles more than at first; when in bed can now draw up his left leg so as to bend the knee, but cannot stretch it down again; to have a hot and cold douche along the spine night and morning.

February 19.—Bowels slightly confined; to take a dinner pill containing aloes; to be dry cupped again along the spine.

February 20.—Can bear pressure better along the spine; there is one spot still tender; complains of sore throat, and has some difficulty in swallowing; omit douche.

February 24.—To be dry cupped every day.

March 6.—To have a pill containing one quarter of a grain of extract of belladonna twice a day; to continue his mixture and the dry cupping.

March 8.—Electricity to be applied to the lower extremities every day, and along the spine, with the magnetic electric machine.

March 12.—Feels more power over his legs; can now draw up both legs slightly.

March 16.—Progressing favourably.

March 20.—To take half a grain of extract of belladonna in each pill, and to have a large belladonna plaster, spread on leather, applied along the spine. He can now draw up both legs in the bed, and can raise the left heel a little off the bed; reflex power improved, but still very deficient; but as he is gradually loosing his appetite, he thinks change of air to his own home for a while might serve him. He accordingly left the hospital on March 21st, promising to take his medicines regularly whilst at home, and to take car exercise every day.

August 15, 1866.—Patient was re-admitted. He states that he has steadily persevered with the above treatment. Since he left hospital has been constantly taking exercise on a car, taking long drives about the country; that he feels more power over his lower extremities, and that his bowels, which were constantly irregular whilst in hospital, are quite regular now, not requiring any aperient medicine; appetite good; also the pain in his head and back are much less.

Symptoms on Re-admission.—Nearly complete paralysis of motion in right leg, with atrophy of muscles of the calf; reflex action much impaired; two points of a pair of compasses cannot be felt as such in the longitudinal direction at a less distance than three inches; has a good deal of power in left leg, being able to raise it about a foot and a half off the bed. When lying down he feels two points as two at a distance of one inch; urine acid; appetite indifferent; has very slight pain and tenderness on strong pressure over lumbar and sacral regions, and particularly at a point corresponding to the fourth lumbar vertebra; has some dysphagia occasionally, having now taken ergot and iodide of potassium steadily for nearly seven months, and having improved up to a certain point, where he remained stationary, I concluded that the chronic meningitis had been subdued, but that the nerves, having been so long pressed on in the narrow canals by which they pass out of the spinal cavity, were in the same state as the nerves in the axillary plexus in cases of long continued pressure against a chair, which we sometimes see giving rise to a local form of paralysis of the arm without actual nervous lesion, and which requires a powerful stimulus to the nervous centres to enable them to pass a current of nervous influence through the nerves so pressed on. I therefore determined to try the alternate effects of heat and cold applied along the spine by means of ice, and hot water as recommended by Dr. Chapman, for the purpose of increasing the vitality of the spinal cord. Accordingly, on August 17th, I ordered that pounded ice, mixed with common salt, should be applied along the spine for half an hour in one of Chapman's spinal ice bags, and on this being removed, that the hot water bag be applied for same space of time.

August 18.—Ice and hot water to be applied for three quarters of an hour, as he felt no inconvenience from the first application.

August 19.—Ice and hot water bag for one hour.

August 21.—This was increased to one hour and a half.

August 22.—Ice to be applied for two hours; hot water bag for one hour; electricity to be applied every day; to take half a teaspoonful of tinctura quina aurantii three times in the day in water, as his appetite was failing.

August 24.—States that he feels much more power over his lower extremities, and his appetite is improving.

August 25.—Ice could not be procured to-day, so I applied Richardson's ether spray along the spine for fifteen minutes, followed by the hot water bag, to be applied for an hour.

August 26.—Patient states that the ether-spray did not produce a greater degree of cold than the ice-bag, and found himself in no way better after its use. Whilst using it I found the back quite as sensitive to pressure over the tender part of the spine as previously.

August 27.—Ice and hot-water to be used as before; he continued this plan of treatment steadily, gradually increasing the time of application of the ice-bag until he could easily bear it on for three hours, and says he could bear it for five or six if necessary. He has been constantly improving since August 17th, when he first commenced the ice treatment.

September 10.—Improving very much the last few days, being now able to stand, for about 30 seconds, on both legs without assistance; the right leg is stronger in a marked degree, the patient being now able, as he lays in bed, to raise the entire limb fully two feet off the bed; can stir the toes quite well of the left, but not of the right foot—yet, does not complain nearly so much of the tenderness on pressure over the back.

September 17.—Patient is able to stand for nearly two minutes; marked improvement in all other symptoms.

September 24.—Exercises himself, supported between two men, and walks nearly half the length of the long ward without stopping. On first standing up feels pain and stiffness in the back, which gradually wears off as he walks; he perspires freely from the exertion.

September 30.—Complains of dull pain over the kidneys, and a burning sensation in passing urine, which is rather high coloured, but of normal reaction; ordered to drink kali-water, and to be dry cupped over the loins.

October 9.—Pain in kidneys relieved; has no pain in passing water, which is acid; to resume his ice and hot-water treatment.

October 14.—Patient is now able to walk the entire length (140 feet) of the ward with crutches, without any assistance; he raises the left leg with perfect ease and lays it firmly on the ground, but has a slight drag in the right; he spends his day exercising himself about the ward.

October 21.—Is now able to lay the right leg more firmly on the ground, and can now walk with the aid of two sticks; the reflex action

which was almost lost in right leg is now nearly perfect, the limb jerking about when the sole is tickled, and the toes sensitive to the least touch.

November 5.—He is now able to walk for a short distance without sticks, but his feet come to the ground with a spasmodic jerk.

November 15.—Is able to walk much more firmly without sticks, but says it requires great exertion on his part, his back feels so weak, though the tenderness and pain on pressure has almost disappeared.

December 21.—Ice to be discontinued; he is so much better.

January 2.—Left the hospital of his own accord, feeling almost well, and wishing to resume his business which he had been unable to attend to for a year and a half. Exact state on leaving hospital, is able to walk a hundred yards without sticks; on placing the right leg on a chair he is able to support the weight of his body on the left, but cannot do the same with the right leg yet, he can walk very well with a stick. This man called at my house last August to let me see the improvement in his state. He says he can walk several miles without fatigue, and has no jerk or drag in his gait, but cannot walk very fast; he can stand on either foot and raise the other without support; he can stand any length of time by having one hand or even one finger resting against some fixed support, such as a table or the counter of his shop, but would totter if not touching something when standing still; he can ride nearly as well as ever; his muscles are firm and well nourished, the right calf, which had been so wasted, is as plump and firm as it ever was, and his weight is the same as before his illness.

The improvement in this case was very gradual, and from the day he began to amend, it went on steadily. From the first this man was taken out of bed every day, and his position changed as often as possible, to lessen spinal congestion, and also to relieve the back from pressure, and thereby prevent stripping. From the day the ice treatment was adopted he began to improve, and during the entire time, over four months, that he was using it he took no medicine, except a little tincture of quinine to give him an appetite. That the favourable result of this case was due to the effects of the ice treatment, I think admits of no doubt.

Dr. Chapman, in speaking of this plan of controlling the circulation, and acting thereby on the sympathetic and cerebro-spinal systems, says: "I have discovered that a controlling power over the circulation of the blood in the brain, in the spinal cord, in the ganglia of the sympathetic nervous system, and through the agency of these nervous centres, also in every other organ of the body can be exercised by means of cold and heat applied to different parts of the back. In this manner the reflex excitability or excito-motor power of the spinal cord, and the contractile force of the arteries in all parts of the body can be immediately modified. In order to lessen the excito-motor power of the spinal cord only, he applies ice in an India-rubber bag along that part of the spinal column

containing the part of the cord which he wishes to act on. On the same principle, he says, the vitality of the spinal cord may be increased by applying hot-water and ice alternately if very energetic action be required ; if less vigorous action be required, ice or iced-water only should be used, it may be repeated several times a day, with a long interval between each application, he then continues :—"If it be desirable to increase the circulation in any given part of the body, this I have found myself able to effect by exerting a soothing, sedative, depressing or paralysing influence (according to the amount of power required), over those ganglia of the sympathetic which send vaso-motor nerves to the part intended to be acted on. This influence may be exerted by applying ice to the central part of of the back, over a width of from four to four and a-half inches, and extending longitudinally over the particular segments of the sympathetic and of the spinal cord on which it is desired to act."

He also states that by applying ice to the back of the neck and between the scapulæ, he can direct a flow of blood to the brain ; that the circulation in the thoracic and abdominal viscera can be influenced in like manner by applications to the dorsal and lumbar regions, &c. Now without going quite so far as this with Dr. Chapman, in his ideas of the effects of his discovery, as he terms it, I must say that I quite agree with him in considering it a valuable therapeutical agent, and one of great power when applied to suitable cases ; and I certainly think that it is deserving of more extended trial, particularly in hospital practice, where the exact results can be more satisfactorily arrived at, than in private practice. I have several times applied ice followed by hot poultices to the nates and sacrum to prevent the formation of bed-sores, as recommended by Brown-Séquard, on much the same principles, and with very satisfactory results. I believe the application if resorted to in time, and before the skin is actually broken, will be found in almost all cases of paralysis, to prevent the formation of bed-sores ; but this case is the first in which I have applied the ice-bag to the spine itself.

Selections from the Dutch Archives of Medical and Physical Science, Vol. iii., Parts I. and II. "Nederlandsch voor Archief Genees en Natuurkunde," Deel iii., 1^e en 2^e Afleveringen, Utrecht, 1867. Translated by WILLIAM DANIEL MOORE, M.D., Dub. et Cantab., M.R.I.A., L.K.Q.C.P.I., Honorary Fellow of the Swedish Society of Physicians, of the Norwegian Medical Society, and of the Royal Medical Society of Copenhagen ; Secretary for Sweden, Norway and Denmark, to the Epidemiological Society of London.

1.—*A Contribution to the Pathological Histology of Affections of the Intestinal Canal in the so-called Cattle Plague*, by A. Wirtz, Lecturer at

the Royal Veterinary School. In the course of last year Professor Koster applied to me for information on some points relating to the pathological anatomy of the then prevailing cattle plague, and for objects for particular investigation, especially parts of the intestinal canal. Our intention was to enter upon a more extensive histological examination. From various circumstances, chiefly connected with official duties, our intention was carried out only to a very limited extent. The literary and historical facts which I had already collected are little adapted for communication in this journal, but I thought it might be interesting to say a few words upon a single point: the histogenesis of the processes in the Peyerian and solitary follicles, according to the results of the investigation carried on in the anatomical museum here. For this opinion I had two reasons. 1. The fact that two authorities on the subject of veterinary pathology—Brauella and Ravitschb—differ entirely in opinion on this point. 2. The question whether the nature of the intestinal affection in the typhus of man does or does not agree with that in the cattle plague.

Brauella thinks that the local process in the intestinal mucous membrane consists chiefly, in addition to fatty degeneration and exfoliation of the epithelium, in a new formation, increase of the cellular layer of the mucous glands, the product of which also passes more or less rapidly into fatty metamorphosis. Meanwhile this is, however, also discharged from the glandular openings, and then forms on the surface of the mucous membrane, the, in proportion to the progress of the degenerative process, softer and softer matter, which is so often incorrectly described as exudation.

Ravitsch, on the other hand, infers, from extensive investigation that the mucous glands are not the principal seat of the disturbances. He points especially to the connective (follicular and adenoid) tissue of the mucous membrane as the starting-point of the changes. These consist in a proliferation of the corpuscles of connective tissue, and a more or less abundant production of small, round, lymphoid cells in the follicles of the intestinal wall, the mucous tissue surrounding the follicles, and in great part, also, in the sub-mucous connective tissue. The newly-formed elements break up more or less rapidly into a state of molecular detritus, with which a destruction of the mucous tissue is combined. This degeneration, both of the tissue elements and of the cells, occurs earlier and more extensively in proportion as the latter are accumulated in greater quantity, so that these are found also in extraordinary abundance in the places where loss of substance is already perceptible.

^a *Neue Untersuchungen, betreffend die pathologische Anatomie der Rinderpest.* Dorpat, 1862.

^b *Magazin für die gesammte Thierheilkunde* von Gurlt Hermy, Berlin, 1864, 30^{ter} Band, 3^{ter} Heft, pp. 313-56.

The Peyerian and solitary glands are, in the commencement of the disease, always swollen, and loaded with lymph cells, with which the interfollicular tissue also is so infiltrated that it can be recognized only by its fibrous fasciculi. Moreover, there exists everywhere a very intense proliferation of the connective tissue corpuscles, particularly evident in the sub-mucous membrane, and between the glands of Lieberkühn. At a later period of the disease the follicles are in great part, especially in their centre, filled with yellow molecular mass, and burst in their arched portion. The contents which have partly escaped then form larger or smaller, firm or partly softened yellowish white laminæ of varying thickness. Some follicles are also of a deep red colour, and are covered with extravasations or dark red crusts. The degeneration of the follicular tissue spreads, moreover, towards the circumference, so that after removal of the lamina or crusts, the areolated gland remains with rough, corroded follicular walls, or, more rarely, with great loss of substance in the form of ulcers. The affection of the tubular glands is secondary, and proportionate to the intensity of the process described; the glands are either still present, or, in consequence of the alterations in the surrounding tissue, are more or less destroyed, and are finally wholly changed into a molecular mass.

The microscopical examination, in the anatomical museum here, of solitary and Peyerian glands, where the process had just begun, entirely confirmed the correctness of Ravitsch's views. Swollen parts were met with where the mucous membrane still completely traversed the surface, and distinctly exhibited the as yet unaltered glands of Lieberkühn; while beneath the same, and between the bases of the glands, a swollen mass of connective tissue, infiltrated with lymphoid cells (adenoid tissue), was found. If the process be somewhat farther advanced, so that in the centre of the augmented mass the first traces of destruction and formation of detritus are apparent, the mucous membrane, also, is abnormal, scarcely exhibiting the glandular layer, and is soon drawn into the process of infiltration and destruction, so that either an opening occurs through which the mass of detritus is discharged from beneath, or larger pieces of the mucous membrane are thrown off as a dead mass with the subjacent layer.

In a histologico-pathological point of view we might, therefore, place the intestinal affections in the so-called cattle plague, and in the typhus of man in one line. It would, however, be at least very venturesome, merely on the ground of this analogy, to express a positive opinion with respect to them.

II.—*Fibroma at the Base of the Brain and along the roots of some Cerebral Nerves*, by W. Koster. In the middle of the month of August, 1867, I made in the hospital here the *post mortem* examination of a strongly-

built and powerfully muscular man, aged thirty-three, in whom, during life, the symptoms of a tumour in the brain were observed. Neither these symptoms, nor the history of the case in general, require any detailed description, as they presented no peculiarities worth mentioning. It is necessary to state only that during the last two months of the affection the man began to be deaf. The deafness increased so much that it was soon complete. This was a strong confirmation of the diagnosis which had already been made that the seat of the tumour was the posterior part of the base of the brain. There was no disturbance of vision. Occasionally the occurrence of cerebral hyperemia threatened to cause death, which finally took place without perceptible signs of paralysis of the medulla oblongata.

In the body no morbid changes were met with, except within the skull. Sanguineous congestion of the large and small vessels, dropsical distention of all the ventricles, especially of the third, and a considerable tumour at the under surface and anterior edge of the cerebellum, at once struck the eye. It is in fact the nature and extent of this tumour, which seemed to me to be deserving of a short communication. The tumour consisted, like the cerebellum, of two lateral portions, connected in the middle by a transverse piece, in front of the pons varolii. The swelling was greater on the left side, and projected in front of and above the hemisphere of the cerebellum of that side, forming, as it were, a second and smaller hemisphere. It was, however, firmly connected with the cerebral mass, as the whole tumour, having arisen beneath, *or, at least in*, the pia mater, had penetrated also, though not deeply, into the mass of the cerebellum. On the right the tumour projected less, formed, as it were, the anterior and inferior surface of the hemisphere of the cerebellum itself, the substance of which, as well as on the other side, was partially involved in the tumour. These particulars were of course not visible until the tentorium cerebelli had been removed. The centre piece of the tumour lay flat in front of the pons Varolii, and extended only along the clivus Blumenbachii, through the great opening of the tentorium, forwards to the tuber cinereum. The surface of the clivus (basilar process), and the dorsum ehipphii (sella turcica), were excavated by the pressure of the tumour, while, at the same time the cavity for the pituitary gland was thereby diminished, and the latter was itself atrophied. Posteriorly the lateral portions of the tumour had rounded edges, which lay on the depressions of the occipital bone, and had there produced some further excavation, and wear and tear of the bone. Anteriorly appendices of the tumour were continued along the origins of some nerves, especially along the nervus trigeminus, and along the auditory and facial nerves in the meatus auditorius internus. The nervus vagus and the glosso-pharyngeal were only pushed aside. On taking out the brain, when the tumour along the basilar process came into view, the

abducent nerve did not appear. Nor, after taking out the brain, could I recognize the origin of the nerve, as the middle piece of the tumour lay firmly pressed against the anterior part of the pons Varolii. I suspect that the nerve lay pushed forwards and upwards.

The tumour formed within the distended meatus auditorius internus a mass rounded at its extremity, whose surface was seen in the skull after the cavity of the tympanum was opened, so that the vestibule was quite pushed away. I should have been glad to have delineated more accurately the change of form of the other parts of the skull (a drawing of the tumour is given in the original), but the *post mortem* examination was made in secret, and the chiselled out petrous bone was all that I could obtain, and that not without difficulty. A more accurate investigation, *in situ*, of the continuation of the tumour along the nervus trigeminus and the Gasserian ganglion especially would have been of importance. The dura mater, which covers the so-called Meckel's cavity, was separated, and the pushed out and scarcely recognizable mass of the nerve and of the ganglion was contained in the increasing tumour, which was demonstrable as far as the superior orbital fissure.

When I began the closer examination of the parts of the tumour taken out, I thought I should again find a sarcoma, such as so often occurs in the cavity of the skull, and has formerly (*Nederlandsch Archief*, Deel i., p. 429), and subsequently repeatedly been observed by me. However, the knobby state of the surface, and the hardness of the tumour on the left side, had already attracted my attention. It seemed to me, on microscopical examination, that the tumour must be looked upon as a fibroid, or, rather (on account of its growth and extension), as a diffuse fibroma. The most freely projecting left part had quite the appearance, on section too, of one of those small fibrous tumours which are so frequently met with in the uterus. The softer parts of the tumour consisted, also, entirely of fibrous connective tissue, but with a considerable number of blood-vessels. On examining the parts of the tumour which had grown along the origins of the nerves, nerve tissue was, as might be expected, met with.

Only in some parts of the tumour was a tendency to cell formation visible. Thus, in place of the round or slightly elongated nuclei of the connective tissue, groups of large irregularly situated cells were seen, but so scattered and so little characteristic were these that I would not venture to call the tumour fibrous carcinoma.

Besides its situation and extent, the tumour is consequently distinguished also decidedly by its composition. Essentially fibrous formations are rare in the cerebral membranes and brain. Besides some cases scattered in literature, Förster mentions an observation of Rokitsky concerning a cavernous tumour of the pia mater, and a case by Thilenius:—"A fibroid of the size of a hen's egg in the pia mater; the

tumour was externally tuberculated and internally uniformly fibrous" (Förster, Handbuch, i., p. 604.)

While the cerebral tumours, particularly accurately studied by Virchow as sarcoma fusocellulare and gliosarcoma, form a peculiar group of neoplasmata of the nervous centres, in contrast to the fibromata (neuromata) of the peripheral nervous system, tumours such as that above described make the transition, so far as concerns their seat, evident. In this point of view, and in connexion with the increase of the fibroma described by me along the trigeminus and the auditory nerve, the words of Förster are remarkable:—"The neuromata occur mostly on the peripheral trunks of the spinal nerves, sometimes, also, on the cerebral nerves, particularly on the auditory."

III.—*A Salivary Calculus in the Whartonian Duct*, by A. Ilcken. In No. 54, 1866, of the *Wiener Wochenschrift*, the case is described as being remarkable, of a salivary calculus removed on the 20th February of that year, in the "Hôpital Lourcine," at Paris, from the Whartonian duct of a woman aged twenty-four. The greatest measurement of the calculus amounted to 1 centimetre.

From this communication I infer that the salivary calculus taken by me from the Whartonian duct, is still more remarkable than I at first thought. In fact, this calculus is $3\frac{1}{2}$ centimetres (1.3779") in length and 1 centimetre in breadth. It weighs now, on the 2nd October, after having been freed from the adhering mucus and well dried, 2 scruples 1 grain.

The patient, a lady of seventy years, had only a short time before observed that there was something not right in her mouth. Her chief complaint was of the saltish taste of a fluid which bubbled up beneath her tongue. On the 13th of June she came to me. I found the whole right half of the floor of her mouth hard, and this hardness was perceptible, also, externally, on pressure behind the angle of the lower jaw. Close to the frenulum linguæ, on the right side, was an opening, the dilated orifice of the Whartonian duct, whence, on pressure on the floor of the mouth at that side, a yellowish thin fluid was discharged, which produced the saltish taste. A probe introduced into this opening immediately struck against a hard body. I dilated the opening with a button-pointed bistoury, and could then also see the point of the calculus, but my efforts at extraction were in vain. On the following visit, too, a couple of days later, I was obliged, after having divided the soft parts on the calculus with a strong Cooper's scissors to a tolerably great extent, to desist from the removal of the stone, chiefly on account of rather violent hemorrhage. On my third visit, however, after the lapse of two days more, the calculus came out with tolerable ease at the first pull.

It has the form of the Whartonian duct, and is, therefore, slightly curved. The part which was turned towards the frenulum is the thickest. The surface is rough, with the exception of a small portion at the outer end. In order to preserve it uninjured I have abstained from having it chemically examined. Such an examination would certainly have yielded no other result than that of other salivary calculi and of the calcareous salts, which, in some people, become deposited on the teeth (tartar). The patient is toothless, and had formerly a quantity of tartar on the teeth. The laminated structure of the calculus is visible at the inner extremity, from which, in the efforts at extraction with the forceps, pieces are chipped off.

A few days after the removal of the calculus this lady no longer found anything wrong with her mouth. The inflammatory hardness in the neighbourhood of the Whartonian duct and in the sub-maxillary gland speedily gave way.

IV.—*Fracture of the Os Calcis from strong contraction of the muscles of the calf of the leg*, by Dr. van der Lee, of Velp. The following history relates, in my opinion, to a surgical lesion too rare not to deserve a word of mention :—

On the evening of the 24th October, 1866, I was called to a woman aged sixty, who, having walked the short distance from Velp to Arnhem, in the latter place, going down a step, came with the left foot across the channel, and, at the same time, losing her balance, fell down. She attempted to get up, but found that she could not stand upon the left foot, and that the latter was very painful. A surgeon was called, who was obliged to cut off her shoe and stocking, and after applying a simple bandage, at her own request had her brought home.

On removing the bandage, no unusual condition of the leg and foot was observed. The patient complained of pain above the heel and in the ankle. In the former situation the following was observed :—About two fingers' breadth above the os calcis was a hard crescentic mass, which appeared to have been separated from the os calcis; the skin between this mass and the heelbone was drawn inwards, the epidermis in the place where the skin was strongly stretched by the same mass, was raised by effusions of blood, and was very painful.

All movements of the foot were possible when the leg was fixed in the usual mode, and the foot was moved with the other hand; there was, consequently, no luxation. Fracture, in the ordinary sense, was not demonstrable, as both the position of the foot was natural, and crepitation was entirely absent.

From all this we diagnosed: rupture of the tendo Achillis, with a piece of the os calcis attached.

The prognosis was so far unfavourable that complete union would be extremely doubtful, while the treatment must be directed to the object of

promoting union as far as possible. A firm bandage was, therefore, the first indication.

It appeared not advisable to apply a starch bandage on the first evening, as we feared that the skin could not bear the strong pressure. We determined, therefore, to apply a simple bandage, and to have it covered with compresses of cold water. On the following day the swelling was not diminished, nor did we even then think it well to use the starch bandage, as this would hinder us from observing the state of the skin, as often as might be necessary.

Union would be possible only if the os calcis were brought as close as might be to the extremity of the tendon; relaxation of the muscles of the calf was to this end as necessary as a good position of the foot. To effect all this we had an apparatus made consisting of three parts connected one to another by hinges.

We bound the lower leg and foot from above downwards in order to bring the tendon as much as possible towards the os calcis, and we placed the whole leg in the apparatus described in the position indicated in the figure. The under surface of the knee rests upon α , while β is made as obtuse as possible, whereby the heel is brought backwards and upwards, and the toes downwards.

The course and treatment of the case were in other respects tolerably simple. From time to time we renewed the bandage, and at length we thought we might try how far the patient had regained the use of her foot. In the beginning of January, 1867, she was so much improved as to be able to stand upon the left leg, though the support of a stick was indispensable to her. Between the os calcis and the tendon some intervening matter (ligamentous mass) had formed, which made it possible to bring the heelbone upwards, although this movement was not free. The hard mass was still plainly to be felt.

I refrain from further remarks upon this case, which I communicate only on account of the comparative rarity of the lesion. Although practitioners seem sometimes to have felt themselves called upon to adopt more energetic modes of treatment (Poncelet cut the tendo Achilles in order to approximate the pieces of the os calcis^a), this case proves that good results may be obtained by ordinary simple management. As to the origin of the lesion I imagine that two causes have co-operated:—1. A force from without acting on the fragile bone (the woman was sixty years of age); and 2. The strong contraction of the muscles of the calf which takes place when a false step is made, and which, no doubt, must have been the principal element in the accident.

V.—*Origin of the Congenital Renal Cystoid*, by W. Koster. In the preceding volume of the *Nederlandsch Archief* I published an essay upon

^a Emmert, Heelkunde, vert. door Polano D. iv., Aft. 3, blz. 232.

"Uric Acid Infarction and Renal Cystoid." On account of the difficulties there specified (pp. 179, *et seq.*) I thought that Virchow's opinion, that the congenital renal cystoid owed its origin to a "fetal inflammation of the renal papillæ," must be considered incorrect, and I gave another view of the course of such cases. It was to the effect, that the origin of the cystoid kidney was deduced from an *abnormal development*, a lesion of evolution, analogous to atresia ani, non-development of the urethra, abnormal development of the spinal canal, causing hydrocephalus, spina bifida, &c.

Although this view does not at once throw much more light upon the details of the development of the renal cystoid, it differs widely from Virchow's opinion; and it brings us a step nearer the truth if actual proofs of its correctness are discoverable. As such I could formerly mention only: the total absence of the renal calyces, the renal pelvis, and the ureters in many cases of congenital renal cystoid, and the want of special arguments in favour of the existence of fetal inflammation of the renal papillæ. This last is rather assumed as a postulate of the theory, which looks upon the renal cysts as "retention-cysts," than proved by facts.

The way to arrive at greater certainty lay evidently in the investigation of the development of the kidneys in the embryo. It is notorious that our knowledge of the details thereof is still very defective, and that the investigation is attended with extraordinary difficulty. While I was lately engaged with Heer J. G. van der Lijth in researches upon the development of some parts of the internal genitals, with special reference to the descent of the testicles, upon which subject something will soon be published, I was anxious, also, to study the development of the kidneys. Meanwhile, Kupfer's essay on the development of the kidneys appeared in the "*Archiv für mikroskopische Anatomie von Max Schultze*, Bd. 1, Heft 2 und 3." From this it appeared that the *kidney proper*—that is, the blastema for the tubuli uriniferi—is developed by itself, independently of the evolution of the Wolffian duct, which becomes ureter and renal pelvis. If this fact be confirmed, the origin of cystoid kidneys is explained together with *total absence of renal pelvis and ureters*, while it would be incomprehensible if the renal tubes were formed as out-runners of the renal pelvis. Want of time and material prevented me from repeating and extending Kupfer's important investigation. I therefore thought that I might call attention to the applicability of the fact ascertained by K. to my views as to the origin of the cystoid kidneys. The question of the *how* of the abnormal development is not yet thus answered, it is only made evident *that* an abnormal development may occur, which places the kidney in process of formation under totally different conditions from those existing in ordinary cases, where there is connexion between it and the renal pelvis. Evidently an entirely different process takes place from that understood by *inflammation* of formed renal papillæ.

MR. CROLY ON OPERATIVE SURGERY.

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