On congenital fistulae of the trachea : A pathologico-therapeutic commentary ... / Translated ... by R. Knox.

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ON

CONGENITAL FISTULÆ OF THE TRACHEA.

A PATHOLIGICO-THERAPEUTIC COMMENTARY.

SCHWETSCHKE AND SON, 1829.

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PREFACE BY THE EDITOR.

The Monographs of the celebrated Dzondi and Ascherson "on the vestiges of fœtal and embryonic structures persisting in the adult," carefully translated, are sufficiently interesting to entitle them to accompany the beautiful memoirs of Autenreith and Fischer, now in course of publication in this work. Besides illustrating some points of great interest in practical surgery, their perusal, it is hoped, may afford matter for serious reflection on the slow progress of philosophical anatomy in England, Germany, and even in France. The distinguished Dzondi, so eminent as a practical surgeon, appears to have been ignorant, in 1829, of the scientific labours of his illustrious predecessors and contemporaries—Oken, Spix, Goethe, Trevianus, and a host of others; whilst the acute and learned Tiedemann, writing in the midst of all the philosophical anatomy of his day, describes, in his great work on the arteries, the supra-condyloid process of the humerus in man as a certain osseous tubercle occasionally present in the human humerus. Yet, long before the appearance of either of these works, the great doctrine of organization had been fully established—human anomalies having been traced through embryology to that great law—and the domain of the "Lusus Naturæ", and of "things wonderful, mysterious, and inexplicable," had been greatly limited. From a total neglect of "original authors" and "Monographs", and from a thoroughly national contempt for theory (involving most frequently first laws or principles), it, without doubt, happens that our own country is generally the last in admitting any "a priori" reasoning in science; but even after making every possible allowance for this national antipathy to principles, it must still startle us to find an English, *nay* a London, anatomist, as late as 1846–7, speak of the same supra-condyloid process in the language of Tiedemann. The philosophic theories here alluded to were, it is true, neither of London, nor yet of English growth—a consideration which must ever influence a practical man—and in their nature they are abstruse, not being adapted to the capability of all comprehensions.

But however this may be, we venture to recommend these and other Monographs (about to introduced) to the attention of the profession, reminding them of the waste of words, of idle cavil, and dispute, which would have been avoided; of the unfounded claims to discovery which never could have been obtruded, had the *original works of original authors* been in their possession; and had they been in the habit of referring to, and studying them, with that attention and care the importance of their contents renders imperative.—*Ed.*

MONOGRAPH
ON
CONGENITAL FISTULÆ OF THE TRACHEA

I doubt not but that most, on reading these pages, will be much surprised that observations concerning congenital fistulæ of the trachea, first spoken of by me, had never been made or mentioned by any surgeons from the most ancient times until the present period. And truly may we wonder that an anomaly so often noticed by one surgeon, should not have been observed by any other during such a series of years. But, however this may be, it appears at least certain that no writer has ever handed down by tradition any thing concerning this anomaly, (congenital fistulæ of the trachea); for although I have diligently searched all the chief writers on pathological subjects, I have found none who notice it. From this view it appears certain, at least, that this anomaly (although, perchance, it may have been noticed by some, which I doubt not,) had never been described or communicated to the public. That it may not be supposed I assert this without just cause, I shall briefly review those authors, and those sources of information, I searched with the intention of finding some mention of this matter, and state what I found. First, I examined the *Literatura Medico-Digesta* of Plouquet,—a very full work, and unequalled in science,—and there, indeed, I found fistulæ of the trachea twice mentioned, by no means congenital, but remaining after the healing of a wound. I afterwards consulted the collections of medical literature by Roth, Burdach, Ersch, Bernstein, and Spreugel, but in none of them did I find any mention of fistulæ of the trachea. I had already examined the pathological collections written by Lieutand, Sandifort, Baillie, Bichat, Cruveilher, Meckel, and Palleta, but I found that the anomaly of fistulæ of the larynx or trachea had not been observed by them. Next, I turned to the medico-chirurgical Lexicons, commencing with that verbose and copious French *Dictionaire des Sciences Medicales*. In vain I perused those works published by Barrow, Sue, Blancard, Bernstein, and S. Cooper; nor did I find any mention of it in the works of Lipenius, Mangetus, Haller, Richter, and Langenbeck. At length I looked over the surgical works of the principal authors from the founder of medicine, Hippocrates, "περι συριγγων", and that chief patron of the actual cautery, Albucasus, the Arabian, up to the most recent times, but I met with nothing to prove that this fistulæ had either been noticed or cured. Lastly, I searched periodicals, repetoria, and the best medical diaries of ancient and modern times, written in German, English, and French, which my library contains, but without success; nor do any of my medical colleagues, whom I have consulted, remember having observed this anomaly. Such being the case, either accounts of this anomaly are yet concealed in unexamined writings, or, being observed, had not been recorded, or were not at all

known to surgeons; that it had been often present but mistaken for an ulcer of a different nature, appears very probable to me, because the same thing occurred to myself at the beginning, and only after long and repeated observations in the first about to be related, did I at length learn to understand the true nature of the case. Be the thing as it may, however, I delay no longer, as I consider it my duty to communicate those facts to the learned which I have collected by experience, respecting the cure and diagnosis of congenital fistula of the trachea, this opportunity of writing being afforded; and also respectfully to invite those who have observed any cases mentioned by their contemporaries, or read of such in the works of our ancestors, kindly to publish them or communicate them to me. The following will be the plan of the pamphlet:—I shall first relate some cases, from which I derived certain knowledge of this anomaly; I shall then proceed to make some observations concerning the cause of the fatal termination of a case—and finally, I shall explain the symptoms of the anomaly, with a proper method of cure.

Case 1*st*.—C. Schwarz, a woman, æt. 28, the wife of a tailor at Halle, of delicate constitution, came to me in 1821, to request medical advice for a fistulous ulcer of the neck, under which she had laboured for some time. The ulcer was situated in the anterior and left part of the neck, about an inch from the centre of the trachea. During her childhood this swelling had been entirely overlooked, or perchance taken for an incipient scrofulous affection; afterwards, when it sensibly increased in bulk and extended across, it was stimulated by external applications, rubbing with the grey ointment of mercury and plaisters, and was at length opened by a surgeon. From that time a cure was in vain attempted by various remedies, such as injections, ointments, plaisters, caustic, &c. For this reason she requested my aid, and was for some weeks under my care. After various caustics had been tried to no purpose, the fistulæ was at last healed by injecting "liquor nitrici hydrargyri." After some weeks, however, the same swelling appeared in the middle or lower part of the trachea, about the size of a pea, in the region of the thyroid cartilage, and sensibly increased in size. Having made an incision, I examined more carefully the nature and tendency of the abscess, and I now found a narrow fistulous canal, deeper in the region of the incisura of the thyroid cartilage, entering the trachea. I suspected its true nature, though not yet its congenital anomaly. The liquor nitrici hydrargyri, being again injected, effected a closure of the fistulous orifice, but after some days a passage again disclosed itself and the flow of mucous continued. When I was preparing to attempt a cure by substituting another remedy and method of treatment, the woman did not return, and I, being about to visit France and England, neglected to attend the case. From this period I ascertained nothing concerning her; but I was lately informed that the woman lived till 1827, and was afflicted with fistula until the day of her death. A post-mortem examination was made, and the fistula found; it was examined by the medical man, but not so carefully as to make him certain, respecting the thread-like canal, as these sinuses are wont to be very narrow. From this case I first became acquainted with fistulæ of the larynx and trachea, but I did not yet suspect that they were congenital.

Case 2nd.—A woman, æt. 25, daughter of the celebrated Hebenstreit, who was professor of medicine at Leipsic, of a delicate constitution, yet enjoying good health, married Antou, a bookseller of Halle, and survives him. She consulted me four years ago respecting a small fistulous ulcer, in the anterior region of the neck. A careful examination being instituted, I found the disease in this state: In the middle of the anterior part of the neck, in the region of the incisura of the thyroid cartilage, there was a small round sore about a line in breadth, surrounded by a margin neither red, swollen, or with fleshy edges; little pain was felt on touching it, and some drops of purulent lymph flowed from it upon pressure. A cavity of two or three lines almost round it, upon being examined with a silver probe, shewed little depth. A deeper sinus could not be detected by the probe; nor when a smaller probe was used, could it be introduced into the trachea, on account of the narrowness of the sinus and its oblique direction; but if the nostrils were compressed and firmly closed, the air from the lungs being forced upwards by straining, bubbles of air arose from the bottom of the fistulous ulcer; a convincing indication that the fistula penetrated to, and into, the trachea.

The history, or previous condition of the fistulous ulcer was this: As far as the woman could remember the first years of her life, she always laboured under that fistula; about three years old she recollected having a small circumscribed swelling, lurking, from her earliest infancy, in the place where the fistula now is, and that she inadvertently (probably by scratching with her fingers, on account of the itching, or slight pain, which was palpably increasing) opened the inflamed apex. But she could not tell the time when the tumour opened externally. She remembered hearing from her parents that the swelling was congenital, and that her aunt (her father's sister) and unless she was mistaken, her father himself, laboured under similar fistulas all their lives, neither of them ever being cured. From these facts, which were thus far explained and shewn, it appears that this fistula had entered into the trachea, and that it was congenital; that the tendency was born in her, derived from her aunt and from her father, which often happens. I proceed now to the method of cure. Not only in her childhood, but afterwards also, had external applications and various injections, plaisters and ointments, been tried ineffectually by various medical men and surgeons, and by her father, the professor of medicine himself; the fistulous ulcer always remained unaltered. The prognosis, therefore, appeared unfavourable. Indeed, trusting to the efficacy of a certain remedy which I had used for the cure of fistulæ, and chiefly those abscesses termed "lymphatic," I hoped that this also could be healed. Experience had taught me that the liquor hydrargyri nitrici, made of double strength, was very effectual in the cure of fistulæ and lymphatic abscesses, irritating them by its power, and thus exciting a minor degree of inflammation, and contracting them, it brings strongly together the openings of the fistulæ, and the mouths of the excreting and secreting vessels, and impedes the flow of the humours. The walls of the membranes of the fistulæ being contracted and approximated to one another, and irritated by the inflammatory power of this liquor, more easily grow together, and in this manner are healed. For this reason I injected, by the aid of a small syringe, some drops of this liquor into the fistulous ulcer, on which the sinus was immediately contracted, and the flow of the mucous fluid

ceased; also after about eight days had expired, the whole ulcer was healed by a cicatrix. But in a short time after, about fourteen days, being again called to the woman, I found the fistulous ulcer again open and more inflamed; considering this greater irritation more favourable for a cure, I injected immediately a few drops of the pure liquor hydrargyri nitrici. Whilst I was doing this, the patient thought that she experienced some pain in the trachea itself, which was doubtless caused by the irritation of the fistulous sinus closely adherent to the trachea. The pain was not much increased; neither did more violent inflammation ensue; but after some days the orifice of the ulcer was again closed and healed, and even to this present day remains firmly closed, the white cicatrix being level and small; nor has the woman experienced any uneasy sensation from that time. The thyroid gland on each side appears to swell a little, but the place where the orifice of the fistula was, in the middle part of the neck as above described, does not at all swell.

Case 3rd.—The aunt of the matron of whom mention was made in the preceding case, had, from her earliest infancy, a small tumour in the same anterior part of the neck, which afterwards opened and poured forth a muco-purulent fluid, which could not be healed by any remedies; thus to the end of her existence this discharge continued, although occasionally small yet it still continued, sometimes a few drops exuding after a lapse of some days, at other times daily. These two examples are worthy of notice for this reason, that the aunt in the one instance and the grand-daughter in the other, were affected by the same disease, in itself of rare occurrence; so that we cannot deny that the disease was congenital, or that it at least arose from a congenital disposition. And if her father laboured under a similar fistula during his lifetime, which cannot be affirmed for certain, this is in fact the fourth case.

Case 4th.—A girl about eight years of age, in good health and not scrofulous, the daughter of Bilarikius, a ransomer of farms (Amtmann), being brought to Halle by her mother in October, 1828, consulted me about a small fistulous ulcer in the left and anterior region of the neck, a little below the larynx. An orifice, resembling the head of a small pin, discharged a little muco-purulent fluid, which was surrounded by no edge or fleshy elevation, but by entire skin not discoloured. The probe did not enter in a straight direction, but when introduced some lines length across, under the skin, in the direction of the larynx or upper part of the thyroid cartilage, it shewed a cavity of the breadth of two lines or somewhat more, and from five to six lines in length, so that the probe almost touched the left part of the thyroid cartilage. According to her mother's testimony, this fistula had been present almost from her earliest infancy; in the first year of her age, indeed, nothing but a tumour was noticed, which opened spontaneously, and could not be induced to heal by any remedies. I recognized a congenital fistula of the larynx or trachea, similar to that which I had cured in a former case, and I hoped that this could be cured in the same manner. The orifice of the fistulous ulcer, therefore, being dilated a little, I injected into the fistula, by means of a small syringe, a few drops of liquor hydrargyri nitrici. When this was done, I asked the girl "whether the liquid burned her"? "A little," she said. To whether the liquid burned internally, she answered, "I know not." Neither in this or in any other case did a cough ever follow the injection, or any other unpleasant sensation. This was done about nine o'clock,

a. m., on the 17th October. About five o'clock, p. m., I again visited the girl and found her well, being occupied with her usual playthings, and without pain; but I learnt from her mother that she had vomited the food taken at twelve o'clock, shortly after, but not the drink of coffee and milk. Since vomiting often follows surgical operations, I considered this by no means of particular consequence, or an evil omen. On the following, and also on the third day after the injection, she vomited her food easily without sickness, but retained the coffee; she was well, and appeared of her natural ruddy complexion, nor did she complain of anything. I imputed this vomiting to an affection of the nerves, and to the irritation arising from a cold which she had probably caught on the journey, and hoped that it would disappear spontaneously. And truly on the following day, the fourth after the operation, the vomiting ceased and her food was retained; but in its place a mild diarrhœa followed, without pain in the bowels or abdominal affection. The abdomen was natural to the touch and without pain, the condition of the skin was normal, nor was there anything in the whole body which foreboded evil. The girl was intent on her usual amusements. On the fifth and sixth day, occasionally four or five times a day, the diarrhœa continued, and the fœces caused suspicion more of a lientery than a common diarrhœa; although the matter could not be distinctly ascertained, on account of the fluidity of the food she took, which was administered in the form of mucilaginous broth. Mucilaginous remedies, with a thin decoction of Colombo root and a little laudanum, had no effect at all; and although the girl complained of no morbid affection whatever, she never left her bed the next day, but sitting up in it, spent her time in play. Besides the remedies just named, dry warm poultices were placed on the abdomen, and a mucilaginous enema was given. The face of the girl always remained of a florid colour. During these three days her appetite was impaired, but her thirst was not much increased. During the whole of this time the external orifice of the ulcer remained open, and a little pus was discharged; the surrounding margin had a slightly livid appearance, chiefly in the place where a few drops of the injected liquid had flowed out, but no vestiges of pain, swelling, or inflammation ensued. The pulse was unchanged, probably a little quicker and feebler than natural. The skin was a little dry, but not abnormally warm. The tongue was slightly white. This was the state of things on the 23rd October, the seventh day after the operation. On the morning of the following day, about seven o'clock, symptoms of apoplexy suddenly presented themselves; and a neighbouring doctor, on account of my absence, was called in to prescribe some remedies, but could not administer them to her in a dying state, since life was quickly extinct. Examination of the body was refused. What, then, was the cause of this sudden death? The question is indeed very difficult to answer! It must be attributed to a cold, for no symptoms of scoric affection were at all present. Nor was the termination that of the preceding disease, for the girl always enjoyed good health, at least for some months before she came here. It therefore remains for us to search for the cause of death in the method of treatment, which can be done with greater appearance of truth, the quicker the symptoms of the disturbed functions of the abdominal nerves followed after the injection was made. It is evident from this, that the liquor hydrargyri nitrici could not be alone blamed, because I have frequently injected a larger quantity, an ounce or

more, into lymphatic abscesses, fistulous ulcers, &c., without ever observing severe symptoms, not even more intense inflammation. How, therefore, could the injection of some five or six drops of liquor hydrargyri nitrici into a small fistula be the cause of death? For this reason probably: The pneumo-gastric nerve or its branches, or small filaments of that nerve, or of some other connected with it, were irritated by that liquid, so that it first produced vomiting; and afterwards, the nerve being affected by paralysis, was the cause of the diarrhœa; and at length, when the paralysis passed on to the other abdominal nerves, it became the cause of sudden death! That it was an affection of the nerves, and that it arose from the injection, seems evident from this circumstance—that the symptoms (vomiting) followed immediately after the injection. But it is clear from the symptoms that the abdominal nerves were chiefly affected; and it is known from anatomy, that the pneumo-gastric nerve passes through that part of the neck. As I feel how imperfect the opinions are which I advance, I invite in a friendly manner, nay I ask and beseech, all those skilled in medicine, kindly to afford me more information, and communicate their opinions either publicly or privately.

The symptoms of this anomaly, therefore, are a swelling in the region of the larynx from infancy, neither painful or red, nor always disappearing on pressure, sensibly increasing in circumference. Sometimes when the red summit itches, it is opened either spontaneously or by art, discharging a muco-purulent fluid, in small quantities, from a narrow round orifice. A very narrow oblique sinus leads to the trachea, with difficulty being explored by the probe, in the region of the incisura of the thyroid cartilage; it is never cured spontaneously, and unless attended by art, it remains during life almost in the same state. Bubbles of air arise from the orifice when air is forcibly sent from the lungs into the trachea, the nostrils being closed. It is not clear that this symptom is always present, chiefly appearing to occur in females. It remains for me to add some facts concerning a safer mode of curing fistulæ of the larynx, or trachea. The method of cure which I propose is double:—First, a mechanical one. Let the fistula be cut into, and opened even to that place where it enters into the larynx or trachea, and there the sinus, lined with its mucous membrane, should be wounded in a mechanical manner by rubbing or friction; whilst a cylindrical instrument, having a rough surface, is quickly turned about in the sinus, or rotated between two fingers, by doing which obliteration of the sinus will doubtless follow. Another plan is this:—After the sinus of the fistula is cut into and opened, even to that place where it enters into the larynx or trachea, a little concentrated sulphuric acid, or potassa fusa, should be inserted into the sinus with a thin instrument, by means of which the mucous membrane will be destroyed, and the cure effected by adhesion. The liquor hydrargyri nitrici does not destroy the mucous membranes, hence it happened that the repeated injection into a laryngeal fistula, as in the first case, was of no avail. Besides these cases, two of ulcers in the region of the trachea occurred to me; one was cured by the liquor hydrargyri nitrici. As, however, I am not certain whether the fistula was one of the larynx or trachea, I shall pass it over in silence. The other was not cured, and appears of the same nature, but was not then examined with sufficient care by me, as the girl did not live at Halle.

I shall reserve this case, probably, for another occasion.