APPENDIX
TO THE
PAPER ON
CYNANCHE LARYNGEA. *vol 8*

By J. R. FARRE, M.D.

Read Dec. 22, 1812.

WHEN the cases of Cynanche Laryngea, which I had the honor to communicate to the Society, were read, the learned President, Sir Henry Hallford, noticed the deficiency of communication in the various medical records respecting this form of cynanche, and briefly referred to the cases of Dr. David Pitcairn, and Sir John Macnamara Hayes, as instances of the same species. Respecting the former only of these distinguished physicians, was I at that time successful in obtaining the particulars which I wanted. In an interesting biographical memoir of Dr. David Pitcairn, published in the Gentleman's Magazine for April, and in the European for June, 1809, I read the history of the disease which deprived the world of this excellent

physician. A more valuable report, giving an account of both cases, has been recently presented to the profession by Dr. Baillie, in the third volume of the Transactions of a Society for promoting Medical and Chirurgical Knowledge.

The conversation to which my communication gave rise, has induced me to offer some observations on the diagnosis, and treatment of a disease which seems to be little known, and which assumes a more than usual interest from its having proved fatal to two physicians, notwithstanding their own practical knowledge, and the aid of the most eminent in the profession.

In all the cases of cynanche laryngea, the mucous membrane investing the epiglottis, glottis, and chiefly the external and posterior surface of the larynx, was the seat of the inflammation, by which the rima-glottidis was so much narrowed, that the vital functions were actually extinguished by the stricture. It is true that the tonsils, the arch of the soft palate, the uvula, the tongue, the internal membrane of the larynx and trachea, all, or several of them were inflamed; but this was only an extension of the action to one common membrane which invests the whole, whilst it was most intense at the mouth of the larynx. In both the cases communicated by Dr. Baillie, uneasy sensations were felt in the larynx. In one of them, this symptom appeared at the accession of the inflam-

mation, and strongly excited the patient's anxiety for the result, at a time when the apparent inflammation in the fauces was so inconsiderable, that upon a superficial observation it would hardly have been noticed. I did not see Essex alive; but the slight swelling of the uvula and tonsils which appeared on dissection, made it obvious that his disease could not have been mistaken for cynanche tonsillaris. In Case II. when I desired the patient to point out the seat of his suffering, he placed his fore-finger on the middle notch of the thyroid cartilage, to which the epiglottis is fixed. The difficulty of the diagnosis does not in fact lie between this inflammation and the cynanche tonsillaris, but between it and the cynanche trachealis. Dr. Pitcairn wrote on a piece of paper, that his complaint was croup. Croup very nearly approaches the cynanche laryngea, but the difference between the seats of the inflammation will appear by comparing the symptoms and morbid appearances which belong to each disease. In the cynanche laryngea the symptoms are, uneasy sensation in the larynx, difficult and painful deglutition, partial swelling in the fauces, a supervening and perpetually increasing difficulty of breathing, inflammatory fever. In the cynanche trachealis there is a difficulty of breathing *, without any swelling in the fauces, or

* The difficulty in the respiration is the symptom by which the danger must be estimated, for the ringing cough, without that adjunct, is of little importance. Many confound merely this symptom, which also not unfrequently occurs in the ca-

painful deglutition, the expirations, especially in coughing, are very shrill ; the fever is inflammatory. In both the voice is changed, and, in extreme cases, is suppressed : the termination is by suffocation. — The following are the morbid appearances : in the former, the mucous membrane investing the epiglottis and margin of the glottis is inflamed ; serum is effused under it, or coagulable lymph on its *external* surface, by which the *rima glottidis* is narrowed, or actually closed. (See Plate III.) In the latter, the mucous membrane of the larynx and trachea is inflamed, and a layer of coagulated lymph is formed on its *internal* surface, from the extremity of the epiglottis to an indefinite extent within the trachea, by which the *tube* itself is narrowed, or actually closed. A puriform fluid, instead of mucus, is found in the trachea and bronchia. These characters chiefly apply to simple cases of both species, for as they differ in their seats, but not in their nature, it is possible for both forms to be combined in the same patient, and it were an easy matter to prove that a still greater extension of inflammation than this does actually take place in these organs.

In comparing the morbid appearances with the symptoms of cynanche laryngea, it is not difficult to determine that the inflammation, from its limited

tarrhal affections of children, especially during dentition, with croup, which is comparatively a rare disease.

seat, from its not exceeding the bounds of the adhesive stage, and from the symptomatic fever, requires the use of the lancet. I may be here allowed to give an unbiassed opinion; for in neither of the cases which I have described did I order general bleeding: the first, I have already stated, was not attended by myself; the second was not in a state to admit of this remedy when I was consulted. Both were bled, it is true, but it was done in the very advanced stage of the disease. When the function of respiration can scarcely be carried on, the body will not then bear large bleeding; but although in the ultimate stage, the vital powers are greatly depressed by the copious abstraction of blood, yet on the accession of the inflammation this remedy seems to be less a matter of choice than of necessity. Dr. Pitcairn was bled once copiously on the third day, and died on the fourth. Sir John Hayes was thrice bled, to the amount, in the whole, of thirty or forty ounces, on the second day, and died on the fourth morning. In both these cases, it must be manifest to every one who reads the history of them, that the patients died not from exhaustion, but from strangulation. By those who will take the pains to consider inflammation as a process, it will be understood that it may be checked, but cannot be suddenly extinguished by the most active means; time must be allowed for the process to decline, even after the fairest efforts have been made to arrest its progress. Unhappily, this necessary time can rarely be ob-

tained in this disease, in which the activity of the inflammation is expended on a small, but most vital seat: for the glottis once narrowed, may be closed by the local action, even after the general powers are prostrate.

These simple, and, I trust, natural views of the subject, lead to a treatment which must be varied according to the stages of the inflammation: the first, or stage of congestion, is the period for active depletion; on the accession of the disease, in the first twenty-four hours, as soon as the patient feels the slightest uneasiness in the larynx, or a very painful and difficult deglutition, which the apparent state of the fauces cannot explain. There is not in this stage any objection to copious general bleeding, suited to the strength of the patient; but if this treatment fails to relieve, and the difficulty of breathing supervenes, it is too certain that the narrowing of the glottis has commenced. In this second and alarming stage, or that of effusion, it may be proper to try local blood-letting, by free cupping from the neck and shoulders, and by a continued oozing from numerous orifices made by leeches on the throat. In both stages it is reasonable to resort to those internal means which diminish the force of the circulation in the capillary arteries; and to produce this effect, none seem better adapted than the combined powers of the tartarized antimony and the submuriate of mercury, in doses suited to the strength of the patient.

In the advanced period of this second stage, when the glottis is so much narrowed that the signs of strangulation begin to appear, a perseverance in these or other ordinary means seem no longer to afford even a chance of preserving the life of the patient, his physician must now resign him to the horrid death of slow suffocation, or make a last effort to save him by the operation of bronchotomy. That the disease is a local one, that it is acute, and of short duration, that it affects a mucous membrane, which consequently does not readily take on the adhesive inflammation, or if it should be so acutely inflamed, easily sheds the lymph that had been effused on it, are circumstances which, in the otherwise hopeless state of the patient, justify a trial of this operation. But if it be further considered, that bronchotomy has actually preserved life under the more unfavourable disease of cynanche trachealis, the operation becomes expedient. And here I am happy to find that the resort to bronchotomy, in Case II. is supported by the opinion of Dr. Baillie, who had actually proposed this operation in one of his cases, which was only not performed because the surgeon arrived too late. He also enforces this opinion by the following advice. " If no substantial advantage is produced by this plan* in thirty hours, it might

* Viz : At the very beginning of the attack, one copious bleeding until the patient faints, followed by the use of opiates, to remove the spasm, which, in his opinion, has some share in producing the difficulty of breathing.

be advisable to perform the operation of bronchotomy at the upper part of the trachea, just under the thyroid gland. This operation would probably enable the patient to breathe till the inflammation in the larynx, more especially at the aperture of the glottis, had time to subside."

Different parts of the windpipe have been selected for the operation by different surgeons. This seems to me a matter of considerable importance; but to enter upon it would lead me out of my province. It is more within the line of my duty to consider what forms of cynanche admit of the operation. In the cynanche maligna, the inflammatory action, which is vehement, effuses coagulable lymph on the tonsils, and, in the worst cases, on the mucous membrane of the larynx; but the strength of the action is soon spent, the lymph perishes, and the surfaces which effused it die, and slough, or open into ill-conditioned ulcers. In such a disease, if symptoms of strangulation supervene, it is almost needless to say, that bronchotomy is inadmissible. But the badly ulcered or sloughing tonsils, with typhoid fever, sufficiently distinguish this malignant disease from the simple cases which demand the operation. In every uncombined case of cynanche laryngea, when other means have failed, I think that the patient ought to have the chance, even if it should prove a small one, which this operation affords. Every case of simple cynanche trachealis is so nearly allied, both in its nature and manner

of proving fatal, to the cynanche laryngea, that the same mode of treatment, with a little modification, which is applicable to the one, is also suited to the other. But when the cynanche trachealis is combined with pneumonic inflammation, of whatever kind, then the operation cannot avail. In proportion as the inflammation is extensive, it is less intense in the larynx, and I think it is not difficult to discriminate between the cases, at the period when the operation is required, by the manner in which the respiration is conducted. In the one, the difficulty of breathing is evidently that of impending strangulation; in the other, that of deep seated and extensive oppression. The difference may, perhaps, be illustrated better by a case of each kind.

Case of Cynanche Trachealis.

— Williams, a fine boy, at the age of two years and five months, was carried off by an acute disease in little more than forty-eight hours after the attack. The distressing and violent symptoms which marked its progress, and the rapidity with which it proved fatal, induced his mother to solicit me to ascertain, by dissection, the cause of his death. Previously to the examination, I minutely enquired into the circumstances of the case, and the following simple, but impressive history, is given nearly in her own words.

On the 8th of July, 1806, her attention was directed to the boy by his unusual hoarseness; his voice was gruff. He had also a peculiar cough, which a lodger in the house noticed, and said, it distressed him to hear it. But she was less on her guard, because the boy played as usual, and was quite cheerful: she applied, however, to a druggist, and purchased a mixture for his cough. - On the following day his skin was hot; he was thirsty; his urine was high coloured, and, on standing, copiously deposited a white sediment; his bowels were regular. His appetite was not yet impaired; at dinner he eat rather greedily a slice of pork, and some cabbage, and afterwards a great deal of fried meat; but at almost every mouthful, he said, water, mamma, more water. As the evening advanced, her anxiety on his account increased, and a nurse advised her to apply a blister to the upper part of the chest. Having complied with this advice, she sent for an apothecary, who told her that the child was in danger; that the blister was as good a remedy as she could use, and did not prescribe any thing else. The boy was yet playful, and at nine o'clock, whilst she held him in her arms, he remarked a kite in the air, and pointed it out to her. His breathing was then shrill and difficult. All the ensuing night his skin was very hot; he took no more food, but called for water continually. A noise attended every respiration, which she ex-

pressed by the monosyllables — flip, flap. It seemed to her that something was lifted up every time he breathed, and in striving to breathe, his head, body, and limbs worked *. On the 10th all the symptoms were aggravated, the respiration became every moment more difficult; he coughed less, and spoke faintly; his lips, neck, hands, and the bottoms of his feet turned livid, his skin became cold, and he seemed to be insensible for an hour before his death, which happened at four in the afternoon.

Examination of the body on the 12th, at six o'clock in the evening, fifty hours after death.

External appearances. — The body was very fat, and seemed to have been vigorous. The feet, hands, and lips were quite livid; the posterior parts of the body much discoloured, but not so entirely livid as the former.

Thorax. — When the sternum was removed, the lungs, instead of collapsing as they usually do, remained turgid with air. On each side of the chest the pleura was free from adhesion, and there was no serous effusion. The cellular membrane of the lungs, opened by sections of different parts,

* This simple description of the mother sufficiently marks the continued muscular efforts, partly involuntary and convulsive, which were made to prolong respiration.

was dry, except where blood-vessels or ramifications of the bronchia were dissevered: from the latter a whitish fluid issued. The pericardium contained very little liquor.

Throat. — The larynx, trachea, and larger branches of the bronchia were removed. On looking into the larynx, through the glottis, the passage seemed to be closed. The *external* mucous membrane of the larynx was not affected; but on cutting open the windpipe posteriorly from the rima glottidis to the subdivisions of the bronchia, a thick layer of coagulated lymph was found on the *internal* mucous membrane of the larynx, extending from the extremity of the epiglottis into the trachea about a finger's breadth below the cricoid cartilage. The rest of the membrane lining the trachea and bronchia was visible, and of a red colour. The sacculi laryngis were completely concealed, the greatest deposition of lymph having taken place near this portion of the windpipe, by which it was so much narrowed, that there was scarcely room for the point of a crow's quill to enter. It also contained a puriform fluid, some of which lodged in the narrow passage within the coagulated lymph, gave the impervious appearance before noticed, and probably occasioned, by its ascent and descent during respiration, the peculiar noise which the mother described.

In the head and abdomen the appearances were those which belong to the most perfect state of the several organs.

This was a case of simple croup, in which the life of the child might probably have been saved by the timely performance of the operation of bronchotomy. *

* This operation having been performed frequently and successfully in cases of foreign bodies lodged in the windpipe, it may be affirmed that, under the circumstances which demand its employment, whilst it constitutes the only means of preserving the patient, it is in itself, the mere operation being considered, nearly void of hazard. It has not been so frequently performed in cases of Cynanche Trachealis. On this account I may be allowed to extract from the inaugural Dissertation of Dr. Thomas White, published at Leyden in 1786, a most happy case of this kind. " Puer quinque annorum per duos vel tres dies signis Cynanches Trachealis laboraverat, cum medicus advocatus fuit. Ægrum invenit anhelum, fere strangulatum. Respiratio enim maxime fuit laboriosa, atque spiritûs emissio adeo impedita, ut vix flammâ facis speculove prope os admotis sentire posset. Die Februarii undecimo, Anno 1782, rebus ita se habentibus, emeticum hor. x. A.M. præscriptum fuit, atque omni horâ repeti jussum. Quot emetica devoravit, quidve vomitione ejectum, non didici; sed omnibus frustra usus est.

Hor. ix. vespertinâ nil remittente morbo, morteque ipsa minitante, complures chirurgi tracheam incidendam esse consentiebant; quod statim perfecit Domin. Andree. Incisione factâ, aer magna vi proruebat, respiratio protinus facilius absolvebatur, atque æger (cujus vox ante vix audiri potuerat) exclamabat, se nunc levatum, se nunc sanum esse. Tussis vehementissima per canulam argenteam, aut tubum cavum flexilem, (qui Gallicè Bougie vocatur) intra plagæ oras immissum excitata est, nec prius cessavit quam ea penitus fuerunt amota. Dein vulnus panno ex nebulâ lineâ confecto tegebatur.

Case of Cynanche Trachealis, combined with Pneumonia.

Miss S. three years and a half old, had been for three days affected with a catarrh and hoarse cough. Her mother during this period, had

Die Feb. xiimo. delirium leve noctu supervenit. Spiritum nunc facilius ducit. Calor et pulsuum crebritas minuuntur.

Die Feb. xiiimo. Nocte magna copia muci flavi pus referentis (qui a bronchiis plane excreari videbatur) e vulnere effusa est, totumque thoracem externè humectavit. Hodie facies, et præsertim musculi oris, levibus convulsionibus afficiuntur.

Die Feb. xivmo. Pyrexia multo minor, facilis per os spiratio, vox quæ ad hoc usque tempus submissa ac stridula fuit, nunc ad tonum naturalem redire incipit. Mucus minus copiosè ejicitur.

Die xvmo. Omnia symptomata leviora.

Posthac nil dignum notatu occurrit; intra mensis unius spatium vulnus perfectè fuit curatum, ægerque ad pristinam sanitatem restitutus.

Duobus abhinc annis valetudo permansit bona, nec ullum incommodum ab incisione expertus est puer."

The above interesting report seems to be deficient only in the particulars of the operation; and these, through the kindness of Mr. Astley Cooper, I have obtained. They are given in the words of Mr. Andree. "At nine in the evening, in the presence of several of the faculty, among whom was my esteemed friend Mr. Ford, surgeon, I performed the operation. The child being laid on his back, and kept as quiet as his great restlessness in struggling for breath would admit of, I commenced the operation by a straight incision from the thyroid gland towards the sternum, about one inch and a half in length. I then cautiously laid bare the anterior part of the trachea, without any material hemorrhage or difficulty, except what arose from the child's struggles. I then made a small transverse incision, or rather puncture through the membrane, which connects the second

twice given her a tea-spoonful of antimonial wine, which had freely vomited her. The last dose was given on Friday evening, July the 7th, when Mrs. S. also applied a large blister to her breast. On the morning of the 8th the symptoms were much aggravated; she then gave her an infusion of senna, and at noon sent for Mr. Newington, who considered the disease to be croup, and prescribed one grain of tartarized antimony in one ounce of an infusion of senna, of which a third part was to be given every half hour, till it excited vomiting. He also ordered that two leeches should be applied to one of her arms. Meeting with Mr. Newington in the afternoon, he asked me to see the child. The respiration was performed with considerable difficulty, but it was not noisy, nor was the cough so ringing as I have heard it in cases of Cynanche Trachealis. The character of a general oppression of the respiration,

and third annular cartilages, and then a similar incision between the fourth and fifth cartilaginous rings; the respiration was immediately relieved. I now proceeded according to the rules laid down by the most approved authors, and as myself had taught in anatomical lectures, to introduce a silver cannula into the trachea through one of the orifices. It instantly produced a most violent and incessant cough, until the instrument was withdrawn. A hollow bougie being introduced, produced the same effect. I then contented myself with dressing the wound superficially, cutting an orifice in the plasters to correspond with the openings into the trachea, and covering the wound with a piece of gauze laid loosely on the neck."

yet passive state of the child, as opposed to the convulsive and struggling efforts with which it is performed under a more complete obstruction of the upper part of the windpipe, in cases of simple croup, was striking. The child being of a vigorous habit, and the inflammation acute, it was proposed to draw six ounces of blood between the shoulders, by cupping. I did not visit this child again, but Mr. Newington communicated to me the following particulars: she was cupped, and in the evening a double quantity of the mixture, ordered in the morning, was repeated at four doses, without producing any other effect than great langour and cold perspirations. The breathing continued to be very laborious, but the cough was not so frequent. On Sunday morning, the 9th, before Mr. Newington saw her, her mother had given her a teaspoonful of antimonial wine; she vomited a little, and in the course of the morning had three evacuations from the bowels. In the afternoon the antimonial wine was given in the dose of a teaspoonful and a half without exciting vomiting. The countenance, which was at first very florid, had now become pale and languid; her pulse had lost its fulness and hardness. At seven in the evening he found her a little easier, but very languid. Her mother had administered, without his order, a tobacco glyster; about two scruples of the leaf had been infused for that purpose. On Monday her pulse was weak, and about 160, her breathing

very difficult, her head thrown back, her face pallid. She was perfectly sensible, and swallowed some milk in a hurry, as if in danger of being strangled. A squill mixture was given, and brought up some viscid mucus. In the evening the frequency of pulse and general langour had increased, her lips were slightly livid, but the rest of the countenance was pale, and about twelve o'clock at night she died.

July 12, 1809, the body was examined by Mr. Astley Cooper, in the presence of Mr. Newington and myself, and I noted the following particulars.

External appearances.—The general aspect was pallid. The growth proportioned to the age, and the abundance of fat proved the previous vigour of the child, and that she had been cut off by a very acute disease.

Thorax.—The right cavity of the chest being laid open, a dark coloured fluid appeared in considerable quantity. It had not the character of an effusion from an inflamed surface. A more particular examination ascertained that the œsophagus had been acted upon by the gastric fluid, which had also destroyed the pleura posteriorly, and thereby admitted of an exudation of blood

from the lung, which, together with some of the contents of the stomach, and probably some prior serous effusion from the pleura, made up the quantity of fluid. The left cavity contained a little serous effusion. A partial exudation of coagulable lymph, on some parts of the surface of the pleura, had made it somewhat rough, impairing that polished surface which is natural to the healthy membrane. The pericardium and heart were not affected. The tongue, pharynx, œsophagus, larynx, trachea, and lungs were removed together. On cutting open the windpipe posteriorly through its whole length, its membrane was found besmeared with a brownish mucus, under which it was every where covered with a thin coat of coagulated lymph, that extended into the ramifications of the bronchia, (see plate VII.) but was no where in sufficient quantity to close the pipe: even in the larynx the sacculi were apparent. The lungs had suffered excessive congestion; their parenchyma was very generally red and tumid, yet they floated when thrown into water. The effusion, therefore, into their reticular texture was serous, but the air-cells and minute ramifications of the bronchia were loaded with a yellowish white fluid, the secretion of an inflamed mucous membrane.

Abdomen.—The stomach had been extensively acted upon by the gastric fluid, and in many places

was in a state of dissolution. The other viscera in this cavity were not minutely examined — their general appearance was healthy.

The head was not opened.

This was a case of croup, combined with extensive catarrhal and pneumonic inflammation, in which the operation of bronchotomy was incapable of benefiting the patient.