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## PARACENTESIS THORACIS.

*To the Editor of THE LANCET.*

SIR,—The expediency of having recourse to the operation of paracentesis thoracis, in cases of hydrothorax, has not only been doubted by some practitioners of the present day, but some have even deemed it altogether inadmissible. It is advanced in support of these opinions, that cases of primary hydrothorax rarely occur, it being generally associated with disease of the heart and lungs. Mr. Lawrence, in his lectures on surgery, as reported in the eighteenth volume of THE LANCET, says, "that, in general, hydrothorax is merely a symptom of organic disease of the heart or lungs, or some other part of the body, and of course the removal of the water, in such a case, can be of no benefit to the patient." He further observes, "*I have never seen a case where it was at all desirable to resort to it with a view to procure temporary relief.*" The danger of acting upon such sweeping assertions is great, for I believe them to be well calculated to mislead the inexperienced practitioner. The following case at once proves the fallacy of the latter opinion, and affords a pathological demonstration that serous effusion into the chest does not, of necessity, always depend upon disease of the adjacent organs, but that it may exist as a primary affection, and that the adoption of the operation of paracentesis thoracis under such circumstances is not only calculated in an especial manner to afford temporary relief, but even to render life supportable, and protract it to an indefinite period. I am induced also to forward this case to your valuable Journal, as being remarkable for the large quantity of fluid evacuated by the operation. Dr. Davies stated, in a discussion which took place at the *London Medical Society* some time since, that he at one time succeeded in evacuating nine pints of fluid from a patient affected with hydrothorax; but the patient sank soon after the operation. In the

case now about to be detailed, the quantity of fluid removed at the second operation was nine pints and a half.

*Case.*—William Roberts, aged 40, of an athletic constitution, was admitted a patient of the *Lowestoft Dispensary* in Aug. 1834. He described himself as having been, about nine months prior to this, attacked whilst in perfect health with severe pain in the right side, and other symptoms characteristic of pleuritis. Some days elapsed before he could obtain medical relief. Venesection and blistering soon removed the acuteness of the pain, but the difficulty of breathing continued rather to progress, and has of late become so embarrassing as to render life painfully burdensome. The symptom which particularly arrested my attention to the true condition of the pleural cavity was the noise produced, on succussion, by the contained fluid, which could be distinctly heard by the patient and by-standers. My diagnosis of the case was also materially assisted and confirmed by the respiratory murmur being inaudible, the sound dull upon percussion, and the affected side evidently enlarged.

Independently of these symptoms, his general health seemed good, his appetite was unimpaired, the functions of the bowels were properly performed, and no disease of the heart was appreciable. I determined upon puncturing the chest, which was done by first dividing the integuments between the sixth and seventh ribs, guarding as much as possible against wounding the fibres of the fleshy digitations of the serratus magnus muscle. A trocar was then plunged into the thorax, and four pints of sero-purulent fluid were evacuated.

After the operation the lungs seemed to rise towards the surface of the pleura, which was evidenced by a return of bronchial respiration; the dyspnoea greatly subsided, the wound healed in a few days, and the patient returned to his occupation, which was that of a sailmaker. For many months he enjoyed uninterrupted good health, and continued thus till about three months since, when he began to experience a return of the difficulty of breathing,

which gradually increased to an alarming degree. These symptoms, no doubt, were much aggravated and accelerated by the indulgence of intemperate habits. On Saturday the 29th of August last, he was again admitted a patient at the Dispensary, when there were present all the former symptoms, with the exception that the rattling noise of the fluid could not be heard upon succussion. This I attributed to the pleural cavity having become completely distended with fluid. From the very embarrassed state of his respiration, and his inability to assume the recumbent posture, it was very evident that the effused fluid had already begun to press upon the opposite lung and heart, so as materially to impede their functions, and to render advisable a repetition of the operation, which appeared to be the only means of protracting his existence. *Nine pints and a half of fluid*, of the same character as the former, followed the introduction of the trocar. During both operations the only inconvenience the patient sustained was a temporary feeling of syncope. The dyspnoea greatly abated, the wound soon healed, and the patient was again dismissed, to all appearance in good health.

There can be no doubt as to the expediency of the operation in this case, in spite of the authority of more influential opinions, and that it was eminently calculated to mitigate the sufferings of the patient, and to rescue him from impending danger. In all probability at some future time the fluid will reaccumulate, the morbid action set up in the pleura having become habitual. Should circumstances again warrant another operation, I shall not fail to acquaint you with the result. I am, Sir, your obedient servant,

W. C. WORTHINGTON, Surgeon.

Lowestoft, Sept. 15th, 1835.

## EXPERIMENTS ON FIRE-DAMP.

*To the Editor of THE LANCET.*

SIR,—When lately in London, I made a promise to Mr. Pease, M.P., and to Mr. Nicholas Wood, an experienced and accomplished viewer in this neighbourhood, that I would take the first opportunity which might present, of analysing the most explosive fire-damp of the coal-mines in this district. Besides, on the 18th of June last, when upon examination before a select committee of the House of Commons on accidents, I gave my opinion, founded upon recent authorities, that in some of our coal-mines we have occasionally heavy

carburetted hydrogen or olefiant gas. Under these circumstances I considered it my duty to fulfil my promises, as soon as possible, by putting the question beyond an opinion or a conjecture; and I have now the pleasure of transmitting to you, for insertion in *THE LANCET*, the following facts, which I hope will be found acceptable to your numerous readers.

At my request Mr. Thomas Elliott, master wasteman at Pensher Colliery, near Sunderland, transmitted to me, in a very suitable manner, four specimens of, what he called, "very pure and very strong fire-damp," and which he had obtained by emptying quart bottles of spring water, in the current of a "blower" of fire-damp, in one of the coal-mines belonging to the Marquis of Londonderry.\*

A portion of one of the specimens of the fire-damp was treated eudiometrically, by nitrous gas, at the common temperature, but I found that it contained no oxygen gas. The same occurred with all the specimens.

I experimented upon all these specimens with carbonate of lead, fresh precipitated, by carbonate of ammonia, from the acetate, and diffused through a small quantity of water, but found that no change of colour took place. Therefore in none of these experiments could any hydrosulphuric acid or sulphuretted hydrogen gas be detected.

Observing this, I treated a specimen of this fire-damp with a solution of caustic potash, and found that it contained eight per cent of carbonic acid gas. In another specimen I found seven, in another five, and in another eight.

I could not fire, by iron, at a cherry-red heat, any of these specimens, when mixed with atmospherical air in the proportion of one of the former with seven or eight of the latter; nor when the iron was even at a white heat; but it was only effected when the iron was in a state of sparkling combustion.

I burnt a portion of this fire-damp, when in a current through water, in an apparatus of my own invention, and I found that the flame was not only feeble, but also that it proved to an experienced eye that it contained no olefiant gas.

One measure of this fire-damp required two measures of oxygen gas for complete combustion, by the electric spark, in Dr. Ure's improved eudiometer, and from

\* I beg to remark that, for at least twenty years, I have declined using bladders or silk gasholders, in collecting or experimenting upon gases, for reasons now well known to men of science.