

occasionally the heart, by giving impulse to the fluid through its mediastinal wall, may cause effusion to be mistaken for aneurism. I have never noticed any such effect.

When to Operate.—Experience has taught me always to operate without delay when the pleural cavity has become distended with fluid, and the dyspnoea is great; for I have found that when performed early, it prevents long tedious illness, future contraction of the chest and the probable development of tubercle, or perhaps a troublesome fistulous opening in the side. I also remove the effusion in all chronic cases where it will not disappear under a reasonable amount of treatment, for I have noticed that persons sometimes die suddenly of dyspnoea, with one side of the chest but partly filled with fluid. I never wait for pointing, nor necessarily insert the trocar at one when existing, choosing rather the most depending part of the chest; and dislike or refuse to tap in all cases where the intercostals are depressed, never feeling certain of seeing anything flow away.

Where to Operate.—The most appropriate spot for puncture is between the ninth and tenth ribs, in a line let fall from the lower angle of the scapula. I have, however, tapped under the axilla and even in the breast when the case seemed to require it. But in selecting the precise intercostal space of the back, I usually choose one about an inch and a half higher than the line on a level with the lowest point at which respiratory murmur can be heard in the healthy lung of the opposite pleural cavity.

The Operation.—The instrument I employ is a small trocar a little larger than the ordinary exploring trocars of our pocket cases of instruments. When possible the patient should be seated sideways on a chair, or astride with his face towards the back of it.

Having pressed the forefinger of the left hand deeply into the intercostal space, I plunge the instrument through at the depressed part, keeping as near as possible to the upper edge of the lower of the two ribs, to avoid injuring the larger branches of the intercostal arteries which run along their inferior borders. It is in my opinion, however, extremely difficult to touch these vessels with such a small instrument, as they are more likely to be displaced than cut by it; indeed among all the operations performed in Boston and its vicinity, for sixteen months, I have not known of bleeding having occurred but in one case, when it proved but slight, and followed on the withdrawal of the canula. I never incise the skin before the introduction of the trocar, (for I find when it with its canula will pass readily through buckskin or chamoin, as it should do when well made, its insertion will be easy and cause but little pain.—Ed.) Having withdrawn the instrument, see that the passage of the fluid is not impeded in any way through the tube, employing a blunt probe to ascertain the cause, and to remove any obstruction; then by means of a piece of very flexible tubing and a double valve syringe, similar to that of a stomach pump, (an ordinary bivalved enema syringe might be employed for want of better.—Ed.) draw away the effusion slowly, until by distress, or a sense of dragging, distension, or pain, the lung gives warning that it has undergone as much expansion as it can endure with safety. Having now removed the trocar, the wound will be found to contract and close so completely that no lint or dressing of any kind will afterwards be required.

It is wonderful to observe the effects produced by this operation, even upon the mind, which, like the lung, seems relieved from great oppression, and the patient, before quite weak, gets up and walks and talks and acts like a new being. The digestion becomes at once improved and the strength rapidly regained. The cough usually, however, augments during the first few days, the pulse retains its quickness, friction sounds occasionally become developed, and several months may elapse before the vesicular murmur becomes properly established. The amount of relief obtained bears no relation to the quantity of fluid removed, for I have found as much issue from half a pint as from a quart.

Surgeons generally have the idea that the entrance of air at an operation produces dangerous symptoms. I have never found this to be the case, even when from mismanagement of the syringe it has been pumped into the chest; nor am I alone in this experience; other operators, who have witnessed like accidents, corroborate the testimony, the only disagreeable effect being the oppression momentarily produced. I do not doubt, however, that it frequently introduced would prove injurious.

Some surgeons hesitate to operate for fear of wounding the lung. My experience on this subject is, that the puncture of any portion of the lung that can be reached with this small instrument, even if it were likely after anastomosis, is but of trivial moment compared to the great benefit to be derived from drawing off the effusion. I have once punctured the lung, Dr. Wyman confesses a similar accident, and I have witnessed a third surgeon not only injure it with the trocar, but work the suction pump whilst the canula was in its substance notwithstanding which all these patients got well as usual, although bloody sputa was occasioned by one of them.

I do not pretend that this operation will cure every case in which it is employed, but feel confident that in my hands it has been the means of saving many lives; and I believe that several patients within my knowledge, who have died while under the care of other physicians, might have recovered had it been had recourse to.

It is comparatively harmless and gives but little pain, and, in my opinion, ought never to be allowed to fall into disuse by the profession.

It was in my earlier years of practice that I first noticed and endeavored to prevent sudden death from pleuritic effusion, meeting with but indifferent success, owing to the imperfect state of surgery at the time, when my attention was first drawn to Dr. Wyman's mode of operating by means of a small trocar and suction pump, which I at once adopted as the means I had so long sought after. Modifying his plan, however, I employed a flexible tube in the canula, that it might not be disturbed whilst was drawing off the fluid. I have employed this instrument ever since, and the result is the experience here given. I consider the operation so simple that I would as lieve perform it, as to draw a tooth or vaccinate a child.

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One of the most agreeable and efficient agents for removing the odour left on the hands after making autopsies, is the solution of the permanganate of potash or soda.—*Pacific Med. & Surg. Journal.*