

the depth is at his command. I think the wisest course is to keep respiration present, avoiding on the one hand its complete absence and on the other such an amount of respiratory movement as to defeat the aims of insufflation. Pressure should be kept below 25 mm. Hg; above this the safety valve should blow off. In feeble and in emphysematous patients, or in operations on the chest where one lung is disabled, pressure must be kept proportionately low. The anaesthetist must take care that compression of the trachea during thyroidectomy or the forcing back of the tongue or lower jaw in mouth operations, or flexion of the head in the prone position, does not interfere with the free return of air. Reductions in the air stream are made a few times a minute to allow the great veins of the thorax to fill and the slight collapse of the lungs to drive out any excess of carbon dioxide. Towards the end of the administration, less ether can be given, and finally pure air alone is driven into the lungs. Normal breathing is resumed almost immediately after the catheter is withdrawn, and the return to consciousness is very rapid.

#### AFTER-RESULTS AND COMPLICATIONS.

Time does not allow me to enter fully into this subject, which has received adequate attention elsewhere. Briefly it may be said that vomiting is very infrequent. A boy of 11 after an hour's operation for glands of the neck did not vomit at all. It has been noticed that patients who have previously had anaesthetics have made a much more comfortable recovery, without nausea or sickness. I have not met with severe vomiting; kidney cases have been conspicuously free from this complication. The same may be said of the mouth cases, in which blood cannot enter the stomach during operation.

*Pharyngitis* is liable to occur in the early period of the anaesthetist's practice from unskilful handling of the laryngoscope.

*Laryngitis* occurred once, and was of a mild degree. A very small number of patients, chiefly women, have complained, on being questioned, of some discomfort; it passes off in a few hours.

*Bronchitis, Pneumonia.*—Figures from nearly 2,000 cases show that the least that can be said of the method is that post-operative pulmonary sequelae are not more common than after other methods. Indeed, there is reason to believe that their frequency is less. Peck<sup>4</sup> found that in 216 cases no post-operative pneumonia occurred, while during the same period he had five other pneumonias following other methods of anaesthesia. In the busy routine of a large general hospital, many cases of lung sequelae pass almost unrecorded; their number is certainly fairly high. Complications due to, or occurring after, new methods receive a larger share of attention. This is but right, but makes a true comparison difficult. We have now, however, the figures from the Mayo Clinic for the year 1912,<sup>5</sup> which show 89 cases of post-operative pulmonary lesions in 5,835 operations. Ether was the anaesthetic most used; the lesions followed almost entirely operations in which the peritoneum was handled, renal operations, and thyroidectomy. Of abdominal operations, as is to be expected, a large number were above the umbilicus. This is my experience with intratracheal insufflation. An atypical case of Graves's disease with some bronchial catarrh at the time of operation had an exacerbation which quickly passed off. There was one case of bronchopneumonia of a mild type following gastrotomy in a man with carcinoma of the oesophagus, and two of bronchitis after gastro-jejunosomy, the symptoms in one being subacute. I had at that time substituted a motor and pump for the foot-bellows, and have no doubt that the absence of a suitable air filter and wash-bottle to cleanse the air of oil and saturate it with moisture was partly responsible for these complications. They have not recurred.

Meltzer and Githens have shown that the insufflation of ether for one hour every day for ten days in dogs already suffering from lobar pneumonia produces no harmful result. An interesting case occurred in my series which enforces this lesson. A young man was admitted to the hospital late one afternoon with acute abdominal symptoms. Nothing abnormal was found in the chest, and although the case was not considered in every way typical of perforation, exploratory laparotomy was advised in view of the urgency of the symptoms. All the viscera

were healthy, and the abdomen was closed. The same night early left basal pneumonia was diagnosed. The disease ran a mild course, and the patient was sent to a convalescent home on the eleventh day.

#### DISADVANTAGES.

After a careful inquiry into the after-condition of each patient, and without being, I hope, unduly enthusiastic, I feel that the objections to this method are three in number:

1. The apparatus is costly.
2. The apparatus is somewhat cumbersome and the outfit elaborate. Much simplification is possible if foot-bellows are used, and the cost is considerably reduced, but I think that the continuous mechanical ventilation by the motor and pump is more efficient. Good specimens of these are not noisy.

3. The introduction of the catheter is the stumbling-block which at present stands most in the way. Each anaesthetist must decide for himself whether he will learn a new method and adopt a new technique, or be content to dispense with the most valuable addition to his weapons and the most notable advance in anaesthesia made for many years.

There has been such a considerable amount of evidence collected, the method has been so thoroughly tested, and the comments by onlookers on the type of anaesthesia, its advantages, and the freedom from post-operative distress have been so uniformly favourable, that intratracheal insufflation may be said completely to have made good its claims and definitely to have established its value.

The ether apparatus is made for me by the Surgical Manufacturing Company, Mortimer Street, W.

#### REFERENCES.

<sup>1</sup> *Journ. Exp. Med.*, 1909, xi, +22. <sup>2</sup> *Loc. cit.* <sup>3</sup> *Brit. Journ. Surg.*, 1913, i, 94. <sup>4</sup> *Ann. Surg.*, July, 1912, 192. <sup>5</sup> *Ann. Surg.*, May, 1913, 718.

## A CASE OF A RUPTURED ANEURYSM OF THE DESCENDING AORTA.

BY

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THE following case is interesting in view of the fact that (1) the man had not complained of any previous symptoms; (2) for years he had been doing severe muscular work without any inconvenience.

J. H. E., aged 54, a rail-straightener, formerly in the Royal Artillery; had never been ill in his life except for accidents. His wife states that he sometimes complained of pain in his chest, which he called a chill.

At 8.30 p.m. on November 2nd, whilst in a public bar, he was suddenly seized with acute pain in the pit of the stomach which caused him to fall to the ground and doubled him up and made him shout. The pain radiated round the right side and up between the shoulders; it made him catch his breath, but there was no shivering. He was taken home, and was seen by Dr. Weeks at 9.25 p.m. He was then walking about the room, groaning and holding his breath. His face was cyanosed and had an anxious expression. He stated that he felt as though there was something closing round the bottom of his oesophagus. He tried to retch, but there was no vomiting during the whole of the illness. The pulse was 100, regular and equal on both sides; the volume was rather poor; there was no thickening of the arteries.

The first sound of the heart at the apex was weak, and was followed by a faint systolic murmur. The second sound was absent both at the apex and over the aorta. Breath sounds were heard all over the lungs, but were diminished, owing to his restricting respiration. There was neither dullness nor friction. There was no rigidity of the recti muscles, but there was pain on deep palpation just below the xiphisternum. The liver dullness was present and the liver was enlarged.

The patient became somewhat easier and went to bed.

He was seen again at 11.30 p.m. and at 9 the next morning, and on neither occasion was there any change.

Dr. Mackinlay saw him at 3 p.m., when he was sleeping. At 5 p.m. he got out of bed to try to get relief, and was again seized with intense pain, starting in the abdomen and shooting through to the back and up the right side. He was seen again about 6 p.m., when he was moaning a good deal; and turning him over in bed to examine him at once aggravated the pain, which was then mainly over the base of the right lung. At 7.30 he was seen by Dr. Weeks. There was then marked dullness at the base of the right lung, with absence of breath sounds. There was marked pulsation in the epigastrium, but no murmur. Up to this point we were in favour of ruptured duodenal ulcer into the lesser sac, but the evidence was not sufficient. Dr. Weeks did at one time think of aneurysm as a diagnosis, but as the patient's condition was not improved he was removed to the infirmary, Middlesbrough, where he was seen by Mr. Dickie at 9 p.m. After examining the patient Mr. Dickie was unable to arrive at a diagnosis, except that it might be some early chest condition, and advised no operation. The patient gradually became weaker, and died at 7 a.m. on November 4th.

A *post-mortem* examination was made the same afternoon. The right pleural cavity was full of blood, which was pushing the lung upwards. The left lung was normal; the heart was enlarged and fatty; the arch of the aorta was dilated and covered with calcareous patches. At the point where the aorta passes through the crura of the diaphragm there was an aneurysmal dilatation on the posterior side the size of an orange. It had eroded the eleventh dorsal vertebra to the depth of half an inch and the circumference of a two-shilling piece. The walls were firm, and looked like normal arterial walls. On the anterior wall and to the right there was a large perforation into the right pleural cavity. There was marked extravasation into the cellular tissues up the spine and into the abdominal cavity extraperitoneally. The liver was enlarged and fatty. The gall bladder contained a number of large stones. All the other organs were normal.

### A CASE OF SPONTANEOUS HAEMO-PNEUMOTHORAX.

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J. P., aged 17 years, a junior clerk in a commercial firm, was admitted to the Northern Hospital on July 21st, 1913.

#### Onset.

On the morning of July 21st, while running to catch a boat, he suddenly felt giddy, his legs gave way, and he fell over; being unable to rise, he was conveyed by ambulance to the hospital.

#### Condition on Admission.

He was in a state of profound collapse, with rapid shallow respirations, barely perceptible pulse, pinched features, and cold extremities. The percussion note over the whole of the left side of the chest was absolutely dull, with the exception of Traube's area, which was resonant; the heart was displaced to the right of the sternum nearly to the right nipple line; the breath sounds on the left side were inaudible. The condition of the patient precluded any very searching examination.

The patient was of poor physique, and his mother informed us that she had always considered him delicate, but that he had had no special illnesses, and had not been troubled by any cough.

#### Course.

On the following day the physical signs were much the same, except that resonance over Traube's area was now abolished. The collapse had in great measure passed off.

The left pleura was explored, and a syringeful of blood withdrawn.

In the course of a week or two, while the heart remained displaced well to the right of the sternum, the dull percussion note over the front of the left side of the chest became gradually replaced by a tympanitic note, extend-

ing to the level of the fifth space in the mid-axillary line, passing abruptly into absolute dullness; the level of dullness passed round to the back to the level of the eighth dorsal spine. There was free shifting of the level of dullness, the tympany in front being replaced by dullness on the patient being turned towards his face, and the basal dullness becoming changed to over-resonance. The breath sounds over the resonant area were greatly diminished; at places distant amphoric breath sounds were heard. The *bruit d'airain* was not obtained.

Subsequently the fluid reaccumulated till the left pleural cavity was once again filled to its full capacity; he was tapped, and a pint of deeply blood-stained fluid was removed. From this time he made steady improvement. After a period during which the physical signs of pneumothorax predominated, breath sounds returned and the heart resumed its normal position. He was discharged from the hospital on October 29th, at which time no morbid signs were observed, with the exception of impaired percussion and feeble breath sounds at the extreme base of the left lung.

#### REMARKS.

There was some suspicion of his being of the haemorrhagic diathesis. This was supported by the fact that troublesome bleeding had occurred on the occasion of teeth extraction, and by his statement that he bled freely from small wounds; there was, however, no record of any other case in the family history, and the bleeding from the extraction of teeth did not appear to have been of any great severity.

The case was regarded as one of rupture of the lung, probably due to a small superficial cavity, with simultaneous laceration of a small vessel.

### LITHOPAEDION.

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EARLY in the year 1870 a small, active woman, then aged 25 years, who had had three children, became pregnant for the fourth time. Matters progressed as usual for six months, then seemed to stand still; later the milk left the breasts, fetal movements lessened, and finally ceased. Her girth decreased, and in a few months only a firm mass was felt at the brim of the pelvis.

Anxious and puzzled, she consulted a doctor, who doubted that she had been pregnant, and advised leaving the mass alone as long as no serious inconvenience was felt. She followed his advice, and as time passed she had four more children; at each pregnancy the mass rose with the growth of the fetus, and returned to its old position after the birth of the child.

In January, 1912, she consulted me for long-continued costiveness, which she said was increasing. She did not then tell me of the events of 1870. I tried cathartics with only temporary relief; then suspecting obstruction, an examination showed more than one mass in the pelvis. I advised an operation. She entered the Victoria Hospital, Toronto, and with Dr. C. H. Thomas an operation was performed in March, 1912. Dr. J. E. Forfar gave the anaesthetic, and we found a lithopaedion at the brim of the pelvis; the head was easily movable, but the lower part of the body was almost surrounded by firm cartilaginous bands attached to the uterus, omentum, and intestines. The calcified placenta was found opposite the third sacral vertebra, and so bound down by adhesions that it was difficult to remove it. To make matters worse, a fibromyoma had formed in a loop of intestine where it touched the placenta; thus we had to resect over 3 in. of the intestine; the adhesions made this much more difficult.

The head was covered by a thin membrane containing some blood vessels; the antero-posterior circumference was 8½ in. and the occipito-mentum circumference 9½ in.; the frontal, parietal, and occipital bones were well marked, and there was only a slight depression of the fontanelles; the eyes, nose, chin, and mouth were easily seen; the head was flexed and turned toward the left shoulder, and had a rough, stony feel. The legs and arms were flexed, with their outlines more visible on the right side;