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UNIVERSITY COLLEGE HOSPITAL.

CASES OF STONE IN THE FEMALE: LITHECTASY, LITHOTOMY, AND LITHOTRITY.

Under the care of JOHN ERICHSEN, Esq., Professor of Surgery in University College, and Surgeon to the Hospital.

[Reported by D. B. RAIN, JUN., Esq.]

MR. ERICHSEN has, during the last few months, had three cases of stone in the female bladder under his care; as this affection is comparatively a rare one, and as each case required a separate and distinct mode of treatment, their relation will not be without interest.

In the clinical remarks which Mr. Erichsen made from time to time on these cases, he stated that the treatment of stone in the female bladder was conducted on three principles, viz.: 1st. The extraction of the stone through the dilated urethra, or lithectasy; 2nd. Lithotomy; and 3rd. Lithotritry. Each of these methods admitted of at least two modifications. Thus, in lithectasy the calculus might be extracted through the urethra, simply dilated, or the canal might be incised as well as dilated. This plan of treatment was only applicable to small and moderate-sized calculi. Lithotomy might be performed in two ways, either by the incision through the anterior wall of the vagina into the bladder, or by the supra-pubic operation. This procedure is only applicable to large calculi. Lastly, lithotritry in the female may be effected in two ways, either without previous dilatation of the urethra, the fragments being left to be expelled by the natural action of the bladder, or after the urethra has been dilated, when the fragments may be at once extracted by means of a scoop. This operation is applicable to all calculi, except those of the very largest size.

CASE I. Moderate-Sized Calculus: Dilatation of Urethra: Extraction. Mary Ann Doe, aged 3 years, was admitted into University College Hospital, under the care of Mr. Erichsen, on the 9th May, 1855. She is a native of London, but resides at Barnet, whence she was sent by Mr. Swindell.

About twelve months before admission, symptoms of stone were first observed. At that time she was sounded by several surgeons, but no calculus was detected. The symptoms increasing, the patient was brought to Mr. Erichsen, who passed a sound, but did not distinctly feel a stone; on first trial, it felt as if there were merely some sacculous matters in the bladder. Upon the 5th May Mr. Erichsen distinctly struck a stone by a sound, and patient was admitted into the hospital on the 9th.

May 9th. At 1 P.M. a sponge tent was introduced into the urethra, and that canal gradually dilated. At 2 P.M., by means of a small two-bladed dilator, made for the purpose, the canal was sufficiently dilated to admit a pair of strong polypus forceps, with which Mr. Erichsen extracted a lithic acid calculus, of the size of a hazel-nut, and possessing rather a rough surface. After this operation, the patient did well, and was able to retain urine, passing about four ounces at each micturition.

The day before leaving the hospital the bladder was examined, but nothing but a roughened state of its walls

could be detected. The patient was discharged, perfectly well, during the same month.

Eight months after the removal of the calculus the child was in perfect health, able to retain her water, and in no way suffering from vesical irritation.

REMARKS. In his clinical remarks on this case, Mr. Erichsen pointed out the difficulty that had been experienced in detecting the calculus. This was not uncommonly the case in children, owing apparently to the urine escaping during the operation of sounding, and the stone thus becoming enveloped by folds of mucous membrane in the enclosed bladder.

The treatment in this case was of the simplest kind, consisting merely in dilatations, and then extracting the stone with a slender pair of forceps. The result afforded a good illustration of the readiness with which the urethra will contract after dilatation, no incontinence of any kind being left, though, for so young a child, the canal was considerably dilated.

CASE II. Very large Calculus, obstructing Parturition; Craniotomy: Vesico-Vaginal Lithotomy. Ellen Dickison, aged 26 years, married, was admitted into University College Hospital, under the care of Mr. Erichsen, on Friday, 2nd November, 1855, suffering from stone in the bladder. She is a native of Hertfordshire, whence she was sent by Mr. Packman, of Puckeridge, under whose care she had previously been. Before marriage she was a dressmaker; since then she has assisted her husband in the business of a shoemaker. She always had good appetite, and enough to eat, but no particular diet. Her general health was good till her confinement, since when she has rapidly emaciated. She knows nothing as to diseases she suffered during her infancy and childhood. There is nothing particular in her family history, except that her father has long been troubled with gravel.

As long as she can recollect, micturition was always painful and frequent. When quite a child she dared not run about, in consequence of the pain caused by jolting of the body. Up to the age of fifteen she was troubled with aching pain in the right loin, but it was then relieved by leeches, and has not reappeared, though a little tenderness remains there even now. The disappearance of this pain was not attended by any aggravation or change of symptoms. Her urine never was clear, at times being thick, with mucus. Defecation was painless. These symptoms were getting very gradually worse till her confinement, three weeks ago, when all her symptoms became aggravated, and she was unable to lie on her side in consequence of the pain attendant on this position. Since childhood she suffered from sudden stoppage of urine during micturition; but it is only during the last three weeks that she has been obliged to lie on her back to evacuate the bladder; this sudden stoppage is attended with considerable pain. Up to her confinement, she kept up her health, strength, and flesh, but has since wasted considerably. She has had but one child, and then, in consequence of the obstruction offered to the passage of the head, craniotomy was performed three weeks before admission. Before the difficulty experienced in delivery, no suspicion was ever entertained of the existence of a calculus. The surgeon (Mr. Packman) who attended her felt through the vagina a large mass in the bladder, obstructing the descent of the head, in consequence of which craniotomy was rendered necessary. On introducing a sound he detected a calculus, and after performing craniotomy, extracted the child.

Diet half extra. Beef-tea one pint. Wine six ounces.

November 7th. Since admission she has been in constant agony, requiring repeated doses of laudanum and morphia. She is rather better to-day, though she has passed a very restless night, constantly moaning. There is great tenderness of the anterior vaginal wall. Urine alkaline, highly albuminous, very much mixed with mucus; presents under microscope an enormous quantity of triple phosphate crystals and pus-cells; no casts.

Operation. The patient having been put under the influence of chloroform, a straight grooved staff was introduced into the bladder. The extremity of the staff was firmly pressed down against the inferior fundus of this organ, so that it could readily be felt through the anterior vaginal wall, when it was fixed by the operator's left index finger. An incision was now made along the groove in the staff, through the anterior wall of the vagina, into the bladder. Through this incision, which was from one and a-half to two inches long, Mr. Erichsen readily extracted, by means of a scoop, a very large oval calculus, the measurements of which were as follows:—long circumference, eight inches; short circumference, six inches; thickness, one and five-eighths of an inch. The weight was five and a-half ounces. There was little or no hæmorrhage; a piece of sponge was, however, placed in the vagina, and the patient taken to bed.

During rest of day and evening she felt much relieved; no more moaning; countenance improved. Constant stimulation, with repeated small doses of laudanum. Sponges were removed in the evening, and bowels were well opened. She slept towards morning.

November 8th. She is faint; her expression is tranquil; she has no pain. Pulse 140; regular, small, and very weak. Tongue and lips brown and dry. She has thirst, and little appetite. Wine, brandy, eggs, light pudding, and beef-tea, are constantly given, combined with opiates.

November 9th. She is improved. Tongue moist and almost clean. Pulse 140; regular, stronger, and fuller. The same treatment was continued. She took some mutton to-day. Urine escapes freely.

November 10th. Rather depressed and feverish in the morning, complaining of pain about right kidney. Ten minims of tincture of opium were given. Hot fomentations were applied to abdomen. She rallied in the afternoon, and the pain disappeared.

R Quinae disulph. gr. ij; acid. sulph. diluti ℥x; syrup aurantii, tinct. aurantii, aa ʒij; aquæ ʒij. M. Fiat haustus ter die sumendus.

November 12th. Every few hours she falls into a low typhoid condition, and only recovers after vigorous stimulation. The bowels being confined, were opened by some castor oil, after which she felt better.

November 13th. She is much the same; her appetite is better. She took some mutton to-day, together with three eggs, a pint bottle of stout, a half pint of porter, some potatoes, and six ounces of wine. Towards evening the pulse became intermittent, and she had occasional hiccup.

November 14th. She is rather worse: the relapses are more difficult to get over.

November 15th. She gradually sank, and died at 12.35 this morning.

POST MORTEM EXAMINATION nine hours after death. Upon opening the abdomen, nothing abnormal was at first seen. There was no evidence of peritonitis at any part. The intestines, except the rectum, being removed, the ureter was observed much enlarged and flaccid. The whole of the genito-urinary organs were removed for examination. In doing so, the right kidney was found firmly adherent to the surrounding cellular tissue, and what remained of the left was found in the same condition.

The *right kidney* was notably enlarged; the capsule was very thin, but separated without tearing renal tissue. On making a section, the interior was found considerably disorganised, the calyces enlarged and irregular. The ureter was considerably dilated, and its coats thickened;

its mucous membrane was highly injected in some parts, and covered with phosphatic concretion in others.

Left kidney. No vestige of renal tissue could be found. There was nothing but a dilatation of the calyces, so that when slit open, it appeared as a cavity with many recesses. The ureter was dilated as much as on the other side, and in some places bridle strictures were found. The remains of this kidney were so small, that, on first opening the abdomen, and feeling for it, it was supposed to be entirely absent.

The *bladder* was very much contracted, and its coats thickened. Its cavity did not appear larger than the stone it previously contained. On slitting open its upper surface, in the antero-posterior direction, the incision by which the stone was extracted was readily seen, and was found about one inch and a-quarter in length. Its lips were rather injected and ecchymosed, but no evidence of reparative action. The incision, as seen from the vagina, was the same as above described.

The *uterus* was rather enlarged, yet not notably so.

REMARKS. In the clinical remarks which Mr. Erichsen made in this case, he dwelt upon three points of special interest presented by it:—

1st. The long continued existence of the calculus without the occurrence of symptoms of sufficient gravity to induce the patient to seek for surgical assistance. From the history it would appear that from the earliest childhood the patient had suffered from symptoms of stone in the bladder, yet they had never acquired such a degree of intensity as to require surgical interference; and this, although the stone weighed between five and six ounces, and the irritation produced by its presence for so many years, had induced an amount of renal disease, that tended materially to the fatal result.

2nd. The point of special interest in this case was of an obstetric as well as surgical importance. The presence of the calculus not being suspected until it impeded parturition by its bulk, when the accoucheur, examining into the cause of the obstruction, found that the tumour was in reality a large vesical calculus.

As to the frequency of obstruction to parturition from a large calculus in the bladder, Mr. Erichsen could not speak from his own experience; but he had made many inquiries amongst accoucheurs in London in reference to this case, and he had not met with any who had actually encountered such an obstacle: and, indeed, the only very distinct reference to this point that he had met with in the works he had consulted upon the subject was contained in Dr. Blundell's Lectures in the *Lancet* of 1828. Dr. Blundell says: "Urinary calculi connected with delivery are by no means of frequent occurrence; if known before delivery, they ought to be taken away. But what is to be done if the calculus remains undiscovered in the bladder until parturition begins? Why, if the calculus be small, we may allow the head to pass, the accoucheur not meddling. But if the calculus be large, then it would be advisable to urge the stone from the brim of the pelvis. If, again, a calculus obstructing delivery could not be got rid of in this way, it would then become necessary to open the head, or the bladder, or the urethra; and probably of these practices the most advisable would be the removal of the calculus." In the case under consideration, the latter alternative was scarcely practicable, owing to the enormous size of the stone; and Mr. Packman consequently very properly adopted the only other plan of effecting delivery, viz., to open the child's head.

3. The third point of interest in this case was with reference to treatment. The great difficulty consisted in dealing with a stone of such unusual magnitude as the one in the present case. Mr. Erichsen stated that he had never seen, nor had he met with any account of, so large a calculus in the *female* bladder. In a paper by Dr. Yelloly in one of the earlier volumes of the *Medico-Chirurgical Transactions*, on Calculi in the Female Bladder, the largest stone mentioned weighed only three and a half ounces.

In discussing the line of practice to be pursued, Mr.

Erichsen stated that extraction through the urethra was clearly impracticable, owing to the size of the stone; that lithotripsy did not appear expedient, owing to the irritable state of the bladder and the size of the calculus; and that, consequently, no plan presented itself except lithotomy. In the female, lithotomy may be done in one of two ways, either by the supra-pubic or the vaginal method. The supra-pubic operation appeared to Mr. Erichsen not to be so applicable to this case as the vaginal method, chiefly for two reasons; viz., 1. That it was a more severe operation, and consequently more immediately hazardous in the depressed state in which the poor woman was; and 2. That, as the lower fundus of the bladder was in an extremely tender and irritable condition, he feared that eventual sloughing and ulceration might take place through it. He accordingly determined upon performing the vaginal operation; and though this was attended by the inconvenience of a fistulous aperture being left, he hoped that by some plastic operation, performed at a late period, when the general health was re-established, this might be closed. The operation was accordingly done as just described, and certainly occasioned as little disturbance as was possible after such a procedure; death appearing rather to have resulted from chronic disease of the kidneys, leading to disorganisation of these organs in a very low and depressed state of system, than from any other cause.

CASE III. *Large Calculus: Lithotripsy in a Young Child: Cure.* Fanny Horne, aged 2½ years, was sent into University College Hospital by Mr. Thomas Thompson, under the care of Mr. Erichsen, on 27th December, 1855, suffering from calculus vesicæ. Her father and mother and one sister are alive and healthy; none are troubled with the same complaint. About a year ago, her mother observed that the patient experienced pain in micturition, and that the urine would often be expelled involuntarily. These symptoms came on after pain previously existing in one of the lumbar regions had disappeared, but were not ushered in by any exacerbation of pain. She was treated by a surgeon for slight irritation of the bladder, but without benefit. About six weeks ago, she was seen by Mr. Thompson, who detected a stone by the sound, and extracted some small pieces of calculus after the use of a lithotrite. The great mass of the calculus remaining unbroken in the bladder, she was sent to the hospital.

On admission, the urine was found neutral to test-paper, and exhibiting under the microscope nothing but a few pus-cells. The bladder was in a very irritable condition.

R. Tincturæ hyoscyami mx; acidi nitrici diluti ℥v; decocti cinchonæ ʒj. M. Fiat haustus ter die sumendus.

The diet was, beef-tea, a pint; milk, a pint; light pudding, and two ounces of wine.

Dec. 30th. Micturition is very painful. She is unable to hold her water for any length of time.

Dec. 31st. The bladder is much quieter.

Jan. 2nd, 1856. This afternoon Mr. Erichsen performed lithotripsy. The patient was put under the influence of chloroform, and the calculus readily struck by a sound. Some little difficulty was experienced in keeping a sufficient amount of water in the bladder after it had been injected, as, when the parts were left to themselves, it readily escaped between the mucous membrane of the urethra and the instrument: however, by making pressure round the orifice of the urethra, the water was sufficiently well retained. As an ordinary lithotrite was found to be a long and unhandy instrument, Mr. Erichsen introduced a small but strong pair of forceps, having well-serrated blades, slightly curved, with a fenestrum in each, something like a broad and strong pair of polypus forceps. With this instrument the stone, which appeared to be about the size of a small plum, was readily seized and crushed up, with the exception of the nucleus, which was afterwards seized and extracted, being oval, and about the size of a pea. Some of the fragments were afterwards crushed up and extracted, and the bladder well syringed out with tepid water, by which a good deal of detritus was carried away.

Jan. 3rd. She passed a bad night. Countenance na-

tural; surface cooler than previously. Pain above pubes, but little tenderness on pressure. Pulse 160; tongue brown and moist. Generally she is much improved. The urine dribbles away. Some small pieces of calculus have passed.

Jan. 4th. She slept after taking three minims of liquor opii sedativus last night. Skin moist; expression natural; tongue cleaner; pulse 150. Diet, beef-tea, milk, light pudding, two ounces of wine, one egg. Small fragments in considerable quantity continue to be passed.

Jan. 7th. She had a good night. Pulse 160; respiration 64; skin cool and moist. A good deal of cough on examination. Consolidation of posterior base of right lung was found, dulness on percussion, and tubular breathing. She holds urine better; she held it yesterday for two hours.

R. Vini ipecac. ʒij; tincture camphoræ comp. ʒij; syrup. tolutani ʒss; potassæ nitratis ʒij; misturæ acaciæ ʒss; aquæ ad ʒiij. M. Sumat ʒj ter die.

6 P.M. Dulness extended higher; respiration more impeded.

R. Vini antimonii ʒiij; potassæ nitratis gr. iij; aquæ ʒij. Sumat ʒj 3rtis horis.

Repeated doses of antimonial wine, till vomiting is produced.

Jan. 8th. Better. Pulse respiration ratio 4:1. Respiration more easy; bowels open; skin cool. To omit antimony.

R. Hydrarg. chlor. gr. j; pulv. ipecac. gr. ss. Ter die sumat.

Jan. 9th. Lying on back. Pulse 166; respiration 56. Apparently easier, but was very restless during night. Skin cool; tongue clean and moist, slight fur posteriorly; bowels relaxed; cough easier. No appetite; takes milk only. Can sometimes retain urine for three hours; no more grit has passed. Micturition painful. Swelling of labia much diminished. All left back quite dull on percussion. In consequence of the mercury purging when given by the mouth, the powder is omitted, and unguent. hydrarg. gr. xv to be rubbed night and morning into thighs and axillæ.

Jan. 10th. Tolerably good night. Pulse 168; respiration 68; bowels open twice. Can hold water for two or three hours, but micturition still painful. Tongue moist and clean. Craving for fish.

Jan. 11th. A large irregular piece of calculus, about the size of a small nut, was passed without pain, and was found between the labia. In the evening, she passed a similar piece.

Jan. 12th. The urinary symptoms being considerably relieved, the patient was transferred to Dr. Jenner, in consequence of a recurrence of the pneumonia; and she continued to be treated in the physicians' wards until

Feb. 1st. At this time she had recovered from pneumonia, but was very weak. She could retain urine for three hours, but occasionally passed it involuntarily.

Since this time the child has rapidly improved in health. She can now retain her urine for a proper time without any difficulty, and suffers in no way from vesical irritation.

REMARKS. In his clinical remarks, Mr. Erichsen stated that this case affords a good illustration of the successful application of lithotripsy to stone in the female child, even of a very tender age; the operation having been perfectly successful in removing the stone, and the attack of pneumonia that came on during the treatment being apparently in no way connected with the operation, but an accidental occurrence.

Mr. Erichsen stated, in connexion with this case, that he believed lithotripsy to be the safest mode of removing all stones of moderate size from the female bladder. The shortness and dilatability of the urethra rendered the removal or expulsion of the fragments easy after the stone had been crushed; and as it was not necessary to expand the urethra to any material extent before the operation, there was no danger of incontinence of urine, as after ordinary extraction.

There was, however, one difficulty in the operation, and

that was the retention of a sufficient quantity of urine in the bladder to make it safe or indeed easy to seize the stone and to crush it without danger of implicating the mucous membrane. This inconvenience, however, Mr. Erichsen had obviated by tilting the pelvis backwards, and by compressing the urethra against the instrument.

Mr. Erichsen had found the ordinary male lithotrite a very awkward and unhandy instrument for manipulation in the female bladder, the shaft being too long. He had accordingly had constructed a female lithotrite, about three or four inches shorter than the ordinary male instrument, which possessed the advantage of being less unwieldy.

In the case just related, however, Mr. Erichsen used a strong though small pair of forceps for the purpose of crushing the stone; and he found that with them the operation of lithotripsy was more conveniently done than with any form of lithotrite. He has accordingly had constructed, and showed to the class, a very strong pair of crushing forceps, narrow in the blade, well toothed, and accurately adjusted, the blades of which are approximated by the action of a powerful screw. This instrument, the blades of which can be introduced into the female bladder with a very trifling degree of dilatation of the urethra, is as handy in its use as an ordinary lithotomy forceps, and at the same time sufficiently powerful to crush any moderate sized calculus, such as is usually met with in the female bladder. This instrument, when made proportionately large and strong, and fitted with a wedge-shaped cutting-tooth inside one of its blades, might be used as a crusher in those cases of lithotomy in which the stone is found to be too large to be extracted through the incisions in the perineum.

CITY DISPENSARY.

CASE OF HEART-DISEASE.

By JOHN COCKLE, A.M., M.D., F.R.A.S., Member of the Royal College of Physicians, Physician to the Dispensary, etc.

SUMMARY. *Extreme Dilated Hypertrophy of the Heart, hereditary, congenital (?), without Valvular Disease: Pericardium universally adherent to the Heart: Firm Adhesion of Pericardium to Left Costal Pleura: Cirrhosis of the Liver: Degeneration of the Kidneys.*

CASE. Robert Pearson, aged 41 years, spirit distiller, was admitted in December 1845. *Previous History.* Five of his family, including his mother, had died within fourteen years from disease of the heart. From his earliest infancy he was subject at times to cough, difficulty of breathing, and throbbing of the heart; he was also very susceptible of cold. With these exceptions, he had enjoyed tolerable health up to the year 1853. Some time prior to this period, however, he had been addicted to the excessive use of ardent spirits, which habit he had now altogether abandoned. At the period named, he for the first time suffered from pain and uneasiness in his loins, attended with frequent micturition, more particularly by night: indeed, this latter inconvenience so much attracted his attention that he frequently observed to his wife how strange it was that, whether he took fluids or totally abstained, the irritation of the bladder by night continued the same. A few months after the accession of these symptoms, he complained of pain in his chest, for which he was in the habit of applying mustard poultices of his own accord, and, usually, with at least, temporary relief. He had never, however, any marked attack of thoracic inflammation, nor had he ever suffered from rheumatic fever. His health now gradually gave way; the uneasiness about his chest, with palpitation, dyspnoea, and cough, being more or less constantly present. In August last, he was suddenly attacked with severe pain and tenderness in the right hypochondrium and abdomen, with bilious vomiting; and it was then supposed by his medical attendant that the liver was in a state of acute inflammation. Shortly afterwards, dropsy supervened, first attacking the legs, and then the abdomen. From this at-

tack he recovered sufficiently to resume his occupation for a short time. About Christmas, the dropsy recurred, the same sequence being again observed with regard to its progress; and it was at this period he first came under my care. The following observations were made.

Inspection. Face anxious, congested; eyes lachrymose; nares dilated, in forced action; lips and tongue slightly livid; distension permanent even during inspiration, with occasional pulsation of the jugular veins, throbbing of the carotids, with rhythm disturbed from time to time. Chest broad, symmetric, without either præcordial bulging or retraction; no constant visible impulse; occasionally, faint undulatory movement. According to his wife's statement, however, the heart palpitated violently at times. Respiratory movements quickened, thoracic, and extraordinary in their character. Abdomen enormously distended to the ensiform cartilage. Feet, legs, and thighs, greatly swollen; both feet and hands of bluish tint. Orthopnoea.

Palpation. No impulse, or but a faint one perceptible. Apex difficult to determine. No *frémissement* or arterial thrill. Pulse about 90, occasionally irregular, generally soft and full.

Percussion. Unusual amount of præcordial dullness, extending nearly across the chest; lower border difficult to limit with accuracy, from the commingling of intestinal tympanitic note. Pulmonary sound obscure over chest generally. The abdomen yielded a tympanitic note above, gradually replaced by dullness towards the middle and lower portion.

Auscultation. The heart, examined with the stethoscope, conveyed no sense of heaving or concussion to the ear. The systolic sound, explored about and above the normal site of apex, was indistinct; and such absence of sound of closure existed as to lead to the suspicion that the mitral valve was diseased. The second sound existed with distinctness, and was tolerably diffused. At neither aortic or pulmonic cartilage did any great difference of accent exist. No trace of murmur, or indeed of any abnormal sound, could be detected over any portion of the cardiac region. Occasional arrest of the heart's beat was observed. Sibilus and muco-crepitant râle, though varying in amount, existed pretty generally over the lungs. The expectoration was usually copious; and, on standing, heavy yellow mucus was seen, covered by a thinner transparent portion.

The urine was scanty, and always, when examined, highly albuminous. After taking elaterium for some time, the dropsy was again so much lessened as to admit of his walking out once or twice; but the effusion rapidly recurred, resisting all treatment. His former symptoms were greatly aggravated. The function of the kidneys was nearly suspended. Drowsiness and occasional delirium, not violent, supervened; and he sank, apparently in a faint, about three months from the time of his admission.

The *Autopsy* was made about thirty hours after death, by Mr. J. A. Kingdon, Dr. Webb and myself being present. The body was not much emaciated. The face, hands, anterior and posterior surfaces of the body, exhibited over a large part of their extent a deep red colour, probably owing to the semi-erect position which he had for so long a period preceding his decease been compelled to maintain. The walls of the abdomen (which was enormously distended) had already assumed a deep greenish hue. A tympanitic note was elicited by percussion over the upper part of the abdomen, while the lower part and sides yielded a duller one, from the presence of the contained fluid. Upon percussing the chest, it was found that the area of the heart's dullness was greatly increased, extending along the border of the diaphragm for several inches on each side of the sternum, and upwards as high as the superior border of the third rib. The area of dullness had not the regular pyramidal form of pericardial effusion, but rather resembled the figure of a scalene triangle, the most acute angle of which would correspond with the lower end of a line drawn directly downwards from the right nipple to the diaphragm.

Before commencing the section, a trocar was introduced