

open; free diaphoresis, with less of that characteristic odour.

8th.—Has continued quite free from pain ever since the last visit, moves about the bed with ease and comfort, and considers the weakness to be her only ailment. Pulse 80; heart sounds natural. Substitute for the Potassæ Nitras (which she has taken to the present time) carbonate of ammonia, in infusion of quassia, three times a day.

#### CASE II.

Thomas Barton, aged 32 years, a gatekeeper on the South Western Railway, sent for me, September 16th, 1850, and states that he has been ill three days. Was first taken with rigors, pain in the limbs, and symptoms of general cold. He now complains of pain in the left knee and right ankle, which has been very acute the last two days. These joints are swollen, red, hot, and tender, and not benefitted by repeated frictions of "Dredge's Heal-all." Much thirst and heat of skin; no difficulty of breathing; pulse 100; tongue furred; bowels constipated; urine depositing lithates. R. Pulv. Cath., scr. j., statim.—R. Pulv. Pot. Nit., scr. j., quartis horis ex oz. iss. Mist. Camph. Wrap the joints in flannel and take slops.

17th.—Much the same; urine scanty and high coloured; sediment abundant; bowels freely open. Diaphoresis.

19th.—Is in less pain in the knee and ankle; feels a stiffness of the shoulders; has perspired profusely; urine more abundant and clear.

21st.—Much better. Continue medicine.

23rd.—Walked out. Omit the Nit. Pot. and take a tonic for a few days.

28th.—Walked to and from the surgery, a distance of two miles, and resumed his duties.

Ringwood, October 21, 1850.

#### OBSERVATIONS ON

### HYDATID DISEASE OF THE LIVER.

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I. *Illustrative Cases.*—II. *Descriptive and Minute Anatomy of Acephalocyst Hydatids; Theory of their Entrance into the System; Remarks upon their Generation, Development, Distribution, Progress, and Decadence.*—III. *The Symptoms, Diagnosis, Prognosis, and Treatment of the Disease.*

#### PART I.

THE interesting paper, embodying observations and inquiries concerning hydatids of the liver, by Dr. E. Lyon, and which lately appeared in this journal, has tempted me to put in form some notes on the same subject, which I hope will draw further remarks from those who have had extensive opportunities of studying this important subject.

Case 1.—About four years ago I opened, in company

with Messrs. Hunter and Thornton, of Margate, the body of a man accidentally killed. Besides the fractured skull, which caused his death, we found four large and superficial hydatid tumours of the liver. The remaining organs were healthy. These tumours were in the right lobe, were close together, and nearly equal in size. One of them was carefully examined. It was perfectly globular in shape, and nearly two inches in diameter; was partly received into a cup-shaped depression in the substance of the liver, and the rest had pushed up, and was covered by the capsule of the organ; of a glistening white colour; it gave an odd sort of thrill to the finger when percussed; and was evidently filled tensely with a colourless limped fluid. The substance of the liver in immediate contact with the fibrous outside of the tumour was apparently healthy; the fibrous membrane, however, could not be readily separated from it, as there was evidently a vascular connexion.

On opening the tumour, a jet of colourless fluid occurred, and an albuminous and tolerably firm tissue was seen to line internally the whole of the fibrous membrane which formed the external wall of the tumour. The fluid which remained after the puncture was colourless, limped, contained no albumen, and was slightly saline. At the bottom of this great cyst, and floating in the fluid, were hundreds of small bodies about the size of the smallest pin's head; under a moderate magnifying power they turned out to be echinococci,—oval, transparent, colourless, entozoa. The surface of these creatures was destitute of any hair, spine, or sucking apparatus; but a canal passed from the anterior part inwards to a circlet of hooks, which, when decomposition occurred, was pushed up through the canal, and became external, forming a sort of headpiece to the creature.

Many of these echinococci were found adherent to the albuminous tissue in immediate contact with the fluid. These hydatid tumours then consisted of an external dense membrane, an internal albuminous tissue, and a fluid in which echinococci abounded. The external membrane had no connexion, except that of simple contact with the internal, and was evidently laminated, and consisted of concentric layers; the remains of bloodvessels could be traced in it, and in more than one spot on its internal surface; and of course in contact with the albuminoid membrane were hard patches, of a light yellow colour, which looked like the deposit occasionally seen in the arteries, and which consisted of a mass of crystals and oil. No structure could be made out in the internal membrane, which appeared to be easily torn. Echinococci were seen in contact with it.

There could be no doubt that these tumours were hydatids—acephalocysts—which were simple, not compound, as were those in the following case:—

Case 2.—The subject of mitral disease of the heart, he died dropsical, and suffered a little before death from congestion of the liver. In the midst of the right lobe of the liver two large hydatid tumours were discovered; in each the external fibrous membrane was dense, and sepa-

nable into layers; it was also in many cases of a bony hardness. The internal membrane lined the external completely, and was friable, white, and had many echinococci in contact with it. The fluid of the tumours was, as usual, limped, colourless, and saline, and in it floated numerous cysts, varying in size from that of a pea to that of a filbert. They were tense, from containing a fluid like that in which they floated; and they consisted of a membrane, forming a closed sac, resembling the albuminoid friable tissue, which has been spoken of as lining the inside of the external layer of the tumour. Echinococci were found both inside these secondary cysts and in the fluid which surrounded them. The tumours were surrounded by the hepatic substance, and were far removed from the peritoneum; they appeared to be acephalocysts containing others. Of these two varieties of acephalocysts the compound, or the kind last described, are the most common; but in either case the entozoa, called echinococci, are formed within them, and determine the precise nature of the growth.

*Case 3.*—A boy, of the name of Goody, living at Halstead, in Essex, was admitted into the Colchester Hospital in the winter of 1848. He had been out of health for some time, and had suffered much from dull aching pains in his right side and shoulder for many months, but never had had jaundice or attacks of vomiting. He has never had a rigor. His body is barrel shaped, the circumference of the lower ribs being much greater than that of the upper or of the iliac bones; there is also a decided protuberance beneath the cartilages of the ribs of the right side. A tumour occupies the whole of the epigastric, and slightly encroaches upon the umbilical region; it is also very palpable in the right hypochondrium, extending nearly to the crest and anterior superior spine of the ilium. The liver, moreover, encroaches upon the right side of the chest, and pushes upwards the corresponding lung. The tumour is not painful to the touch, does not move with the respiratory efforts, is globular and regular in its general outline; in no part does it present any depression. On percussing over it, a most remarkable thrill is given to the finger on which percussio is made, such a thrill as a sudden tap over a tense bladder produces. This thrill can be felt over the whole of the tumour, and in the eighth intercostal space, which is greatly increased in size. A slight impression could be made upon the tumour by gradually forcing the tips of the fingers upon it, but no sense of fluctuation could be said to exist. The lungs and heart appear to be healthy, and the urine is generally highly lithic; the appetite is bad; tongue furred and foul; bowels constipated, the motions being dark and hard.

Alteratives, slight purgation, and careful dieting, diminished his bulk, produced a better appetite, and improved the state of the secretions, but after a while the tumour increased from right to left, and affected the position of the heart's apex.

The position of the tumour, and the history of its growth, indicated that it was connected with the liver.

There were no febrile symptoms, nor had there ever been any to indicate abscess; and the youth of the patient, and the regularity and enormous size of the tumour, were against the probability of there being carcinoma of the organ.\* The thrilling sensation on percussion, the fact of the boy's not losing flesh, the globularity of the tumour, and its lack of hardness, were evidences contrary to the notion of its being simple hypertrophy of the liver, and tended rather to enhance the probability of the view which insisted upon the tumour being caused by a collection of fluid in one or more cysts, with dense and tense membranes. From the fact of the tumour not moving with the ascent and descent of the diaphragm, it was evident that it was adherent to the parietes of the abdomen; and the fact of there never having been symptoms of jaundice, or of any great constitutional disturbance, rendered it impossible for the gall-bladder to have been distended, and become cystiform. I diagnosed hydatid disease of the liver from the before-mentioned evidence.

The progress of the case was slow, and after many months' sojourn in the hospital, he went out larger than ever, and with his heart beating above the left mamma. He then came under the care of my friend Mr. Sinclair, of Halstead, who informs me that the tumour gradually increased, until the abdomen and lower part of the chest were enormously enlarged. The heart sounds were to be heard midway between the mamma and clavicle, and the respiratory murmur was audible immediately below the clavicles only; there was great effusion into the peritoneal cavity and œdema of the legs supervened. He died from the effects of the pressure of the diseased mass upon the organs of circulation.

The *post-mortem* examination showed the heart pushed up as far as it could be, and the lungs compressed into an astonishingly small compass. The heart was very small but healthy, as were also the lungs. There were a few old adhesions of the pleura, whose cavities, moreover, contained fluid. An enormous mass of hydatid cysts was in connexion with the liver, lower ribs, stomach, diaphragm and small omentum; a considerable portion of the liver substance still existed, but was remarkably hard, indeed almost coriaceous in consistence, and of a dark brownish red colour. The cysts were of all sizes, and all the larger contained others; some of the latter contained an innumerable number of secondary cysts, varying in size from a pullet's egg to a pea; they were thin and nearly transparent. The peritoneum contained two and half pails full of fluid. These compound acephalocysts had evidently arisen from the liver, and had produced adhesions between it, the surrounding viscera, and the parietes of the abdomen. By steadily increasing in size, these cysts, being bound down inferiorly, had formed a mass which pushed upwards the heart and lungs, and had so pressed upon the larger portal veins, as to produce ascites to a considerable extent.

*Case 4.*—Mrs. Hurst, aged 22, a little lively brunette, presented herself in January last for admission into the

Colchester Hospital. She complained of a tumour in the right hypochondrium. Her health has been good up to the present time; she complains simply of occasional pain in the region of the tumour; the catamenia are as they should be; the appetite is good, bowels open, motions of good colour, urine normal, and she sleeps well.

The clergyman of her parish informs me that she received a blow in the right side, from her husband, some months before the tumour appeared. The first symptom of her present ailment presented itself more than a year ago, in the form of a slight uneasy aching sensation beneath the right breast. There is no decided globular tumour, nor does the liver extend beyond its normal boundaries, but the cartilages of the false ribs are slightly elevated, and there is a hard and not very defined swelling in the epigastrium. Pressure causes slight pain, but there is no elasticity or sense of fluctuation in the tumour. She is not, nor has she ever been, troubled with jaundice, sickness, or pain in the shoulder, neither does she suffer from the flatulent distension of the intestines, so often noticed in liver diseases. Iodine was given internally, and was rubbed over the affected region. The disease gradually progressed, and three months after the above report the following was her condition:—She is thinner, and is unable to stand upright, the body being drawn forwards, and to the right side; she suffers much pain in her side and right shoulder, but has had neither rigors nor jaundice. Her general health has not declined much, but the tumour has decidedly increased in size; the cartilages of the false ribs are much more elevated, taking on indeed, a decidedly convex outline. The hardness formerly noticed in the epigastrium is increased, both in intensity and in extent of surface; with the elevated state of the ribs it gives the notion of a not very defined tumour, with more or less of a convex outline. The tumour moves upwards and downwards with the respiratory efforts. The skin over the tumour is of its usual colour, and no enlarged veins exist. The tumour itself is not tender to the touch; is hard, elastic, and gives on percussion a peculiar thrill to the finger. It was a nice point for diagnosis, and there was considerable difference of opinion as to the nature of the tumour, and, consequently, as to the method of cure. I formed my opinion more from the negative diagnosis than from any direct reasoning upon symptoms. The gradual and progressive growth of the tumor, the absence of any hepatic disturbance, and her general good health, contra-indicated the existence of abscess of the liver. There were no symptoms of simple hypertrophy, passive congestion, or malignant disease of the organ. The symptoms of encysted gall-bladder and of dilatation of the ducts were wanting. The fact of the tumour moving with the ascent and descent of the diaphragm, showed that it was in no way implicated with the abdominal parietes, and the history indicated that it was becoming daily more prominent. The lungs, heart, and spleen were, as far as physical signs could prove, healthy; percussion over the renal regions did not give the idea of there being any enlargement of

those organs. There was no pulsation in the tumour, and she had no symptoms of pyloric disease. All the evidence went to prove that the tumour was connected with the liver, and that it was working its way towards the surface; it, moreover, contradicted the following morbid states:—hypertrophy, congestion, malignant deposit, dilatations of the biliary passages, collections of gall-stones, abscess, fatty deposit, any unusual malformation, aneurism of the coeliac veins or aorta, and any glandular enlargement about the small omentum.

I believe that I have enumerated all the diseases, with the exception of active hyperæmia and hydatid disease, to which the liver is liable. There were no symptoms of active disease, so that the slow painless growth, the absence of all constitutional disturbance, and the peculiar thrill upon percussion, led me to believe that the patient had an acephalocyst hydatid in the right lobe of her liver. My colleagues suggested, that as there was evidence that the tumour was not attached to the parietal peritoneum, it was not advisable to puncture it, in case of the escape of some of the fluid into the peritoneal cavity. The proposition of opening the tumour by caustic was also negatived and it was decided that we should wait. Three months elapsed, the tumour is now double its former size, and extends considerably towards the ilium; the thrill is most distinct. Her general health is better, she is fatter, and can stand upright. Although the increase of the tumour was undoubted, yet the amendment in her health gave the advocates for an operation no chance, and waiting was again advised. She came to see me a fortnight ago; the tumour has increased and her health is beginning to suffer. Being satisfied in my own mind, as to the nature of the disease, and seeing that the tumour was increasing I placed the matter as fairly as I could to her, explaining to her that the only method by which her life could be prolonged, was by surgical interference, but that any operation would be attended with very serious risk. She expressed a wish to have the contents of the tumour evacuated and went home to consult with her friends.

[The continuation of this case will be given in a future number of this journal.]

*Case 5.*—A half-crazy middle-aged man, named South, was admitted into the Colchester Hospital, under Mr. Nunn, who let out the contents of a bursa in the popliteal space. The fluid removed was straw coloured, contained a few epithelium scales, and was albuminous; it speedily returned and the bursa was as large as ever. A seton of two threads only was passed through the upper part of the swelling, a little fluid escaped, and suppuration occurred in the course of the foreign body, which was then withdrawn. A few days afterwards I was requested to see him. I found him semi-comatose, tongue dry, black and bleeding on protrusion, the knee joint distended, the bursa as large as ever, and a most suspicious red swelling over the third metacarpo-phalangeal joint of the left hand. There was slight dulness over the subclavicular region of the left side, where there was also slight tubular breathing and small crepi-

tation. My opinion was that he was dying from absorption of pus into the system, that it was deposited in small quantity in the phalangeal joint, and that he had pneumonia of the apex of the left lung. The distended state of the knee joint was difficult of explanation, either it arose from some connexion with the suppurating bursa, or else from a secondary deposit of pus.

*Post-mortem.*—The veins of the left leg and thigh were strongly prominent, oedema of the leg and great swelling of the knee joint were noticed; the swelling in the hand still existed. Careful dissection showed that the seton had passed into the bursa, and that between the threads and the skin was a tolerable-sized vein; there was pus in considerable quantity around the vein, which was filled with tarry blood, and was very friable. The bursa contained pus, it had no structural connexion with the knee joint, which was also filled with pus.

The third metacarpo-phalangeal joint of the left hand contained a dirty yellow collection of matter, and there was congestion and the first stage of pneumonia in the apex of the left lung. The right auricle was enormously distended. The left external iliac vein, was marked in many parts of its course by a honeycomb appearance; the microscope showed that in those spots the internal membrane was deficient, and that plates of cholesterine and oil globules existed in plenty in the meshes of the external tunic. The fringes of the knee-joint were intensely vascular. There were no purulent deposits in the enlarged liver and spleen. The stomach was large, and attached to it and to the extreme margin of the left lobe of the liver, was a hard white tumour. One half of the tumour was embedded in the substance of the liver; the whole mass was as large as a turkey's egg, situated beneath the ensiform cartilage, its position was not detected during life. On cutting into the tumour it was found to be an acephalocyst, which had undergone a sort of natural cure. The external fibrous membrane was nearly the third of an inch thick, and could be divided into many layers, between which a white cheesy deposit existed; it was also found in great abundance between the fibrous membrane and the true transparent membrane of the acephalocyst. The acephalocyst was folded up in an extraordinary manner, contained hardly twenty drops of fluid, and would, if it had been unfolded and filled, have contained a pint. On scraping the internal surface, echinococci were found in all stages of development, some with perfect teeth, others presenting the form of simple globules, with just the slightest appearance of these prehensile organs. There were no secondary cysts within this hydatid. The layers of the sac of the acephalocyst could be very well seen with a magnifying power of 300 diameters. A section at right angles to the circumference was made and placed under the microscope; no artificial fine-drawn lines could equal the regularity of those formed by the apposition of the layers of the albuminoid sac. The layers of the external fibrous membrane are of a very much coarser description; it is to be peeled like an onion. The cheesy matter between these fibrous layers, consisted of masses of exudation

corpuscles, cholesterine, and crystals, of either phosphate or carbonate of lime.

There can be no doubt but that a large tumour once existed, and that contraction of the external sac, induced absorption of the contents of the acephalocyst, which gradually shut itself up. He had an enormous appetite, but had not been seriously ill for fifteen years, and had, as I learn from the surgeon of his parish, never suffered from hepatic symptoms.

Mr. Fenn, of Nayland, has kindly sent me the notes of a case, in which there was an hydatid tumour of the liver, which burst through the umbilicus; subsequently repeated attacks of expectoration of pus, bile, and shreds of membrane have occurred.

*Case 6.*—A married woman, aged 31, had suffered for two years from hepatic symptoms, such as agonising pain under the right scapula and in the right arm, rendering it quite powerless, repeated attacks of jaundice, short dry cough, pain and tumefaction in the hypochondrium, and highly-coloured urine. There was also almost constantly present a sensation like the movement of the foetus in utero; to this movement she often called the attention of her husband, and but for the absence of other symptoms she would certainly have thought herself pregnant. The tumour gradually increased till it occupied the space from the right rib and ensiform cartilage to the crest of the ilium, when, in addition to constant pain, she also experienced great difficulty of breathing, in fact orthopnoea of the most distressing kind. One day the umbilicus rather protruded, and there was evident fluctuation; upon puncturing the protruding part, an enormous gush of pus, bile, and water, escaped, and presently it was perceived that a cyst had been opened; on taking hold of its walls, and using gentle traction, a cyst was removed which was capable of containing a pint and a half of fluid, the whole being white and opaque, and of the thickness of buckskin leather. A great quantity of bile and pus followed the extraction, and continued to flow in a gradually diminishing stream for a year afterwards, when it for the most part ceased, but every now and then would break out afresh and discharge a small quantity.

Very great relief to the long-standing pains, dyspnoea, and the biliary obstructions, followed the escape of the cyst, and so continued as long as any discharge took place, but upon the entire cessation of the discharge, a partial return of the former symptoms returned. She has not been relieved lately by the formation of pus and its discharge by the umbilicus, but instead thereof has occasional attacks of cough and expectoration of pus, bile, and shreds of membrane. Great relief follows these attacks, and in the interval she is tolerably comfortable.

Since the cyst escaped she has had no tumour in the hypochondrium, but preceding the attacks of cough and expectoration she has more or less of the old pain in the shoulder and arm. The secretions from the liver are not now interrupted, the evacuations being of natural appearance. The urine is also clear and healthy.

This most interesting case shows the great efforts that nature is capable of making, in order to get rid of foreign bodies. The growth of the hydatid cyst may be traced by the symptoms of hepatic obstruction, by the increased size of the organ, and its encroachment both on the chest and abdominal cavity. Forming adhesions, the cyst, after suppurating, made its way to the surface at the umbilicus, and discharged pus, bile, and water. The liver gradually decreased in size, and it only became apparent by the expectoration of shreds, bile, and pus; that another hydatid, probably a compound one, had burst into the lung, and was pouring out its contents into the bronchial tubes. Since the mechanical influence of the hydatids has ceased, the biliary functions have been healthily performed.

[To be continued]

### CASE OF SUDDEN DEATH SEVEN HOURS AFTER DELIVERY—AIR FOUND IN THE HEART.

By SAMUEL BERRY, Esq.,

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E. G., aged 22, pregnant with her first child, was taken in labour on the evening of June 16th, 1830. The pains at first were slight, and continued so during the night. In the morning of the 17th she became worse, and at two o'clock P.M., the pains were so strong as to induce her to send for her medical attendant, Mr. Dyer, who remained with her till seven o'clock in the evening, when she was delivered of a male child. In twenty minutes after the birth of the child the placenta was naturally expelled, with but little loss of blood. At half-past eight o'clock she was very comfortable, and at ten o'clock was carefully put to bed. At eleven o'clock she took some gruel, and expressed herself "as feeling as comfortable as she could expect." Her husband then lay by her side. About one o'clock in the morning of the 18th he became alarmed by her difficult breathing and feeling of faintness. He immediately sent for Mr. Dyer, but before he arrived, at two o'clock, she was dead. She lived seven hours after her delivery. The cause of death could not be accounted for, as there was no hæmorrhage, and apparently nothing in the condition of the patient to prognosticate such a termination. A *post-mortem* examination was allowed, and was made early in the morning of the 20th. The body was well formed and nourished. A thick layer of fat existed in the abdominal coverings. Upon opening the abdominal cavity, the uterus was seen midway between the pelvis and umbilicus; the peritoneum covering it and the intestines was healthy, but pale. The stomach contained a small quantity of fluid. Liver healthy. The kidneys presented a granulated appearance, and the urine which remained in the bladder was ascertained to be, by the application of heat, slightly albuminous. Upon cutting into the uterus it was found

empty, and the vessels where the placenta had been attached, patulous. The vagina contained, at its superior part, a moderately-sized clot of blood. Within the chest, both lungs were congested, and contained scattered tubercles in their upper lobes. The heart was the size of a male heart, and apparently distended. Upon making an incision into it, *a gush of air escaped, and the organ became flaccid; no blood was found in its cavities.* About one ounce of serum was observed in the pericardium. The brain was healthy in every respect. No signs of decomposition existed in any part of the body.

Olivier, in the article "Air," in the *Dictionnaire de Médecine*, p. 73, when referring to Legallois' experiments on the inferior animals, in which he had found sudden death occur from air penetrating into the vena cava inferior and heart, by the uterine veins, in female pregnant animals, asks the following question:—"Is it to a cause of this kind that we ought to attribute the sudden and unexpected death in females lately delivered, and where the autopsy disclosed nothing which could account for such a catastrophe?"\* Does the case above detailed answer the interrogation of Olivier? The labour was natural, and concluded within the ordinary period; the placenta was expelled with but little loss of blood; everything went on well for some hours; when suddenly the respiration became obstructed, and death followed in a very short period. Upon examination, nothing could account for these symptoms *but the congested state of the lungs, and the air found in the heart.* The mode in which the air effected its entrance appears to me to be as follows:—The uterus, after the removal of the placenta, contained a clot of blood, with the contraction of the uterus the clot was forced into the vagina, when the uterus relaxed air was drawn into its cavity, the clot in the vagina prevented the air from passing out of the uterus easily, and the mouth of the uterine veins being patulous, it was forced into them, and then passed into the general venous circulation. The entrance of the air was, in all probability, gradual, and, therefore, occupied some time before it reached the heart in sufficient quantity to give rise to those symptoms of obstructed respiration, which soon terminated in death. Dr. Simpson, in a communication to the late Dr. Reid on this subject, has expressed himself as follows:—"As to the mechanism of the introduction of air in such cases, supposing that to be the cause, I think we can understand it when we remember that the interior of the uterus after delivery, especially opposite the late seat of the placenta, is studded with venous orifices, and that, if the air does once become introduced into the uterine cavity, from relaxation of the walls of the organ, it will be liable to be forced into these orifices, and hence into the general venous circulation, provided the uterus, in again contracting, is unable to expel its contents through the os uteri."—*Dr. Reid's Physiological, Pathological, and Anatomical Researches*, p. 580.

\* *Dr. Reid's Physiological, Pathological, and Anatomical Researches.*