Hydatid Disease.

(Otto Wehn Smith)

Synon. Hydahid; Prim. Helazemouen.

Hydatids may be described as the prolocous form which the larval condition of the taenia echinococcus assumes in the body of its host.

They form tumors of various shape, size, and forms. They always contain fluid, and have been found in almost every part of the human body. This disease, I am sorry to say, very frequently met with in the Australasian colonies. In an experience, I remember well the first case of this which I met with. It was a very lasting of the apex of right lung which I am sorry to say I diagnosed as Phthisis; which put by the right truth by an older Practitioner, who had seen many such cases.
This was two years ago, at which time the English text books contained almost no reference to this disease in the lungs. Samuel in his "Practise of medicine" curiously dismisses the subject by saying, "Primary hydatid disease of the lung is hardly ever met with." Russell Reynolds in "A system of medicine" makes no mention of it. Even Roberts and Bridie in their works published within the last 3 years, simply mention it as a sort of medical curiosity.

Natural History.
The Taenia echinococcus belongs to the order Cestoda. It is a minute tapeworm varying in length from 5 in to 3 in and is found to inhabit the upper part of the small intestine of the dog, wolf, and jackal. It consists of four segments, the first of which is equal in size to the other three.

The first segment, or head measures about 0.3 mm. in length and has a projected rostellum, with a double
row of hooklets, varying in number from twenty to forty.

Behind the hooklets there are four prominent suckers.

The second segment is not well defined.

The third segment is four times the length of the former and has imperfectly developed male, and female organs.

The last segment contains fully developed male, and female reproductive organs.

In the so-called ripe Proglottis, may be found the ova, which may amount to five hundred in number.

When the Proglottis is ripe, it is thrown off, and passes with the feces of the Dog. In one annum, after the rupture of the Proglottis, the ova are set free, and as they are of very minute size may be blown about by the wind, or carried by running water into wells, ditches, etc.

The ovum consists of a big hooked embryo contained in a hard, external envelope.

Before this embryo can proceed
any further in its development it must find a suitable host; unfortunately this is not
true, there is a large number of animals in whom this can take place.
These animals are Pig, Sheep, Dog, Monkey, Horse, Deer, Camel, Giraffe, Zebra,
Kangaroo, Squirrel, Panther, Lemur, Turkey, and Peacock.

The mode of entrance into the host seems to be entirely by the alimentary
canal, either by the drinking water or by food, e.g. the uncooked vegetables,
salads, etc. But Dr. Reid of Melbourne is of opinion that the ovum may, during
perpiration, enter the air passages and thus find a resting place in the lung.
In this view he is to a certain extent borne out by the greater frequency
of Lung Hydatids in Australia, than in Europe: Therakia of Lung lesions
are being 1 to 4 in the former, 1 to 6 in the latter. In the summer
months in Australia, hot, dry weather

1 Reid on Hydatids of the Lung Melbourne 1877
2 Davies Thomas Hydatid Disease Adelaide 1884
3 Lehnhart Die Parasiten des Menschen Leipzig 1879
prevail, with clouds of dust; minute particles of which enter the air passages and there is no reason why the minute 
bud should not enter in the same way.
When the ova is swallowed 
by the host the shell is either broken, or 
digested, and the cercaria is thus set free.
As soon as this takes place the 
cercaria by means of its hooklets, proceeds 
to bore its way into the coils of the 
intestines; thence find out its way into 
the Liver by the Portal vein, or by 
entering the bile duct. It might also 
enter the Lachrymal system thence pass 
into the blood vessels, and so find its 
way into any part of the body.
Having found a suitable resting place, 
the hooklets are thrown off; the semi-liquid 
contents become thinner and eventually 
a clear fluid is formed to occupy the 
centre. This constitutes the stage of the 
Schistosome. The surrounding tissues 
the surrounding tissues are now 
found to closely invest the cyst thus 
form the capsule or advenititious sac.
This capsule is formed of connective tissue and is well supplied with blood vessels; and it is from this, that the cyst proper derives its name in French, muceaux.

The capsule varies in thickness; as a rule, the thicker the bladder, the thicker the cyst. Allen reports a case of a large bladder cyst of the pelvic cavity, which had no adventitious case, but which was attached to the peritoneum by a soft lymphy band of small size.

The capsule is also said to be about in the adhesions of the bladder and in the adhesions occupying the interior of the vesi., and arteries.

As the bladder worm continues to increase in size the cyst proper may be differentiated into 3 layers.

1. The ecto-cyst of Hurley, which consists of a thick, homogeneous elastic, membrane.
2. The endo-cyst which is much more delicate and is a thin, soft, granulated, membrane, from the interior of the

are derived, which, continuing to increase, become the brood capsules in which are formed the scolices or scolex round heads.

The fully formed scolices varies in length from 15 to 20 mm and has a rostellum, with a double row of hooks, and 4 suckers.

The daughter cysts are formed from the brood capsules, the scolices, and also directly from the endocyst or germinal layer. When they are developed from the germinal layer they may be either endogeneous or exogeneous; if the latter, they lie between the mother cyst and the adventitious sac.

The mother cyst may be completely filled with daughter cysts which may in turn from a pic's head turn this way.

These daughter cysts may in their turn produce brood capsules, scolices, and grand daughter cysts.

There is another form of hydatid tumor called the Muchi-torbellar, which has only been
found in the liver, lung, & peritoneum. 

By the old observers this growth was mistaken for cellular cancer, but Virchow first pointed out its hydatid character.

It is most frequently found embedded in the substance of the liver and forms a very hard, dense tumor. On section it is seen to be divided into numerous cavities, filled with a yellow, gelatinous substance. The cavities are filled with a sticky, gelatinous substance. Very few cases are like those found in this form which has a great tendency to ulcerahion, degeneration,

The Hydatid Fluid.

The fluid contained in the Hydatid Cyst is colorless, transparent, & slightly opalescent. The specific gravity varies from 1.007 to 1.015. The reaction is usually neutral. It contains no albumen, but is rich in chloride, chiefly as chloride of sodium; so that if a solution of nitrate of silver be added to the fluid a precipitate, white precipitate is formed.
After exposure to the air, the fluid sodic becomes fribrid, owing to the small amount of organic matter contained in it.

Hydatid disease is found in both sexes in about equal proportions.

It attacks all ages, but mostly young children. It is most frequent in persons between the age of 10 and 50. I have seen a girl 6 years old suffering from the hydatid of right lung.

Dawaini' cites two cases of tuberculosis occurring in old men of twenty-seven and eight-one years old.

No organ or tissue is safe from its infiltration; but, the most frequent seats of it are the liver, lungs, brain, kidney.

More than one organ may be infected in the same person at one time. In case I (see below) I found my hydatid occupying the liver, kidney, spleen, and lungs.

Dr. Thomas gives the following table of 1897 cases collected from all available cases with the conditions affected:

Table of 1847 cases collected from European, Australian, American, and Asiatic sources showing the proportion in which the various organs, and tissues were invaded by tuberculosis.

<table>
<thead>
<tr>
<th>Locality of Les.</th>
<th>No. of Cases</th>
</tr>
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<tbody>
<tr>
<td>I. Organ of the Haemorrhoidal Canal.</td>
<td></td>
</tr>
<tr>
<td>Liver.</td>
<td>1084</td>
</tr>
<tr>
<td>Peritoneum, mesentery, rectus coli.</td>
<td>26</td>
</tr>
<tr>
<td>Kidney.</td>
<td>90</td>
</tr>
<tr>
<td>Spleen.</td>
<td>40</td>
</tr>
<tr>
<td>Stomach.</td>
<td>1</td>
</tr>
<tr>
<td>Elsewhere in abdominal cavity.</td>
<td>35</td>
</tr>
<tr>
<td>In the true pelvis.</td>
<td>40</td>
</tr>
<tr>
<td>Uterus.</td>
<td>29</td>
</tr>
<tr>
<td>Ovary.</td>
<td>16</td>
</tr>
<tr>
<td>Bladder.</td>
<td>1</td>
</tr>
<tr>
<td>Prostate gland.</td>
<td>1</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>1,363</strong></td>
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</tbody>
</table>

II. Connected with the Nervous System.

<p>| | |</p>
<table>
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<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>The Pericranium, spinal cord.</td>
<td>83</td>
</tr>
</tbody>
</table>
| The Spinal Cord; its membranes & meninges. | 15 9/5
III. Organs of the Thoracic Cavity

Thymus. 220
Platysma. 19
Mediastinum. 4
Heart, Organs of Circulation. 35
Pericardium. 2
" Viscera". 1

Total: 251

IV. Organs of locomotion.

Muscles. 13
Nerves. 31

Total: 44

V. Subcutaneous Cellular Tissues.

Cellular Tissue. 21
Adipose Tissue. 2

tissue, & Limbs. 20
Face, Orbit, Mouth. 21

Total: 74

VI. Male Organs of Generation

Scrotum, &c. 6
Testes. 1

Total: 7
VIII. Miscellaneous.

- Foetid.
- Typhoidea.
- Discharged by the Inspectors.
- In the Commonwealth Bank.

Geographical Distribution.

I have no doubt that typhoid disease exists all over the world; that is today, in every place, where the pig is found in close relationship to man, as to the other animals mentioned above. It is comparatively rare in South America, and India. Dr. Fayrer in his book on Tropical Diseases, makes no mention of it. I do not remember seeing a single case of typhoid, while I was a student at the Royal Infirmary, Edinburgh.

In Iceland the disease cannot be transmitted. In 1869 Dr. Hjaltein, the late chief physician of Iceland, says...
Of all the cases treated in our Hospital this year, nearly every fifth has been a case of "chirmoceotia," either external or internal; and, of the many cases treated by myself, during the last year, none more than one tenth have been "chirmoceotia."

The frequency of the disease is, no doubt, due to the filthy habits of the natives; and add to the number of dogs which are kept. By dogs are also extremely common in Australia, New Zealand, in fact, one must always have the disease in manuscript while examining patients.

Thomas says: "Taking the hospitals of Victoria as a whole, we find that about one out of every one hundred and eleven-five of all the cases of "in-patients" was a case of our native disease." Speaking of the Kent Park Hospital which is situated in the South-Eastern part of South Australia, and which has a much milder climate than any
other part of that colony, he says, that one out of fifty-five in-patients was suffering from dysentery. In the Adelaide hospital one out of every two thousand ninety-two was suffering from this disease.

During the past year, I have seen in private practice four cases of undoubted dysentery disease.

This prevalence is striking due to the large number of sheep kept in Australia; and, also owing to the drinking water being almost entirely obtained from the surface i.e. from dunes, waterholes, tanks, to which sheep have free access. In or near which, their faces, containing the "tenirovenus ovae" are defecated.

Very few people in the country districts ever think of boiling or filtering the water they drink.

In other factors which come into play is the infection of sheep, cattle in Australia which may be infected with the disease and, thus keeps up the supply of "tenirovenus ovae" leads to
which

...tincture of the Old Age

General Remarks—

The vesical tumor usually increases very slowly, perhaps over years, if not decades, to grow to any appreciable size. While the underlying cyst remains of small size, it exerts very little influence on the organ itself which it has invaded or by which it has received itself. If it enlarges, it may act in various ways.

1. By pressure it may cause stasis, or degeneration of the surrounding tissue.
2. It may displace neighboring organs.
3. By pressing the veins it may cause ascites.
4. By diminishing the lumen of arteries it may cause death of the parts.
5. By compression of the ureters, it may produce obstructive renal disease.
6. Frequently chronic inflammation...

...to the tissues produced...
is set up by the presence of the foreign body in the surrounding parts. It is frequently found that the cure where the hydatidodeath is the rule.

Results.

The hydatidodeath may continue to increase or it may undergo spontaneous rupture. Should the rupture take place naturally or into the bowel, kidneys, or bladder, the result may be a complete cure, that is to say if the patient is able to get rid of all the contents of the cyst. In other cases, the rupture may be into a serious cavity, e.g., the peritoneum, pleura, or simply the wound in these cases being usually fatal. The cyst may also take an exsudative character, thus make its way to the surface with a favorable result.

A spontaneous cure may take place. I refer to the calvarious, or
On another class of affection of the
Tribulus Capsule. Knight reports a case of this
kind in Japs Hospital Reports vol. 111
Series I page 467.

II having the excessive production of
dotted cysts. Sir Thomas Tatard Chet

"Sometimes the whole colony perishes while
yet hid in its dwelling cave, all the ducts
the ducts losing their vitality, shrinking
up as their fluids are absorbed. It may
be seen that they increase in number,
and in size till the crowding and
pressure prove fatal to them.

Their former domicile now becomes
their tomb, and effectively prevents
any contamination of the fluids
the body, or irritation of surrounding
tissues, by their reemburts."

Diagnosis

An absolute diagnosis
is almost impossible without actually
placing the hostile under or cyst through

R Pod, if a fluid tumor because
of slow growth, causing little pain.

Lectures on the Principles of Practice of Physics, vol. II 1881.
Pain, or oppression, with a distinct rounded outline, more especially if on pressure the tumor gives a thrill, is pathognomonic, the tumor is more than likely a Pyodermoid one.

The Pyodermoid Tumors is checked by placing one hand firmly over the tumor, or with fingers of the other hand pressure firmly, but sharply, when in particular, vibratory motion is felt. swimsnow was the first to discover this symptom. He also pointed out that it was most distinct in cysts which contain very little extraneous fluid but which are closely packed with daughter cysts. I have had frequent opportunities of confirming this observation and have always found that if there were no daughter cysts there was no thrill. This probably explains why Ferriates only found this sign in about half the cases examined by him. If the surrounding tumor you get a clear, palpable, fixed, firmness
which contains no albumen, but has a considerable percentage of albumin of
sodium. If your diagnosis becomes more
certain, that if you can find the
the urine, the notebook, secolis, ed cyst
membranes, it becomes absolute.

Prognosis.

This varies according to
the seat of the disease. If it is situated
in brain, heart, or in large blood
vessels, and the tumor is increasing,
the result is invariably fatal.

When it occurs in any other organ
it must always be looked upon as
an almost certain disease-

[Note: the writing is difficult to
read accurately.]

Cited in Francis Bicknell's
Dictionary of Medicine states "that
excludes all cure by surgical interference.
the coelomic or bladder - woman
proves fatal in twenty-five years of
all the human victims it attacks.

As to the question of Life
Insurance, I do not think that any
person, who has once suffered from
the disease should be passed off; or, if the life be assured, that it should be very slowly and gradually treated.

The growth of the hydatid is so very slow, and incidents that were a careful examiner may overlook usually sooner with which the patient might have infected, at the same time, as the former one; more especially (as is often the case) if the rate of growth in the first two be different. I have seen a very large hydatid in the liver, add a very small one in the left (of the same patient) which might have easily been overlooked.

Treatment

This may be divided into

1. Medical, Surgical, Expectant, and Preventive.

1. Medical.

Various remedies have been suggested as curative in this disease. We can very well understand how vermifuges will act on parasites.
situated in the intestinal canal; but, in this disease, the case is quite different. Its parasites, although in the body, being quite expelled from it by the adventitious and also by its nature one.

Davaine has recommended mercury. Hyadine claims that by administering

tincture of kaunalia in 30 drops three or

times a day, he has caused the disappearance of the disease in twenty-two persons.

Robert of Melbourne gives iodides of

tannic acid and kaunalia with the said favorable results.

Davaine recommends the use of

collection salt. This to mean that this is that which, which good the salt country, are not affected by the disease and that cure aches suffering from the disease recover when they are removed to salt water.

The statistics brought forward by these observers are very strange, and unsatisfactory; and one is forced to the conclusion that medicine has little,
or no effect on this disease.

Hilton, Guyce, and Forster, have strongly recommended electricity: but it is doubtful if the escape of the few drops off the needle, has not more effect than the current of electricity.

II. Surgical

Laennec, forty years ago, was the first to suggest the surgical interference with the habitus; and in France and other countries, precautions had been made for the purpose of Diagnosis: but, the Australian practitioner declare the great offering the first to show that the surgical treatment of the habitus tumors was the direct and rational one.

Weston in 1861 gives his views as follows. "My own method is taking up with a very fine trepan, caudula 1/64 inch in diameter, and the subsequent use of solid dressings. These have produced such beneficial results as perfectly satisfy me.

Australian Medical Journal 1861 2 Lansd 1868 p.75.
The kind of Rulburne Nettlinge of Rundings, Thoms and Gardiner of Hale's side have followed in the workshops, & improved the authors just suggested by Dr. Furniss.

If a hydatid be found in the external parts of the body, the most successful treatment is, undoubtedly, the free incision of the tumor, with the immediate removal of the further cyst, & insertion of a drainage tube.

Where the echieverc occurs, the internal organs the treatment may be divided in 2 parts.

A. Puncture of the tumor and removal of the fluid. This can be done either, with the aspiration, by using a very fine short & cannula. If the latter be used, the cannula should have attached to it a piece of India-rubber tubing, the lower end of which should be inserted into a basin of water. By there means the hydatid vesicle is removed from the seminal vesicle, whereas it derives its nouris from.
shrivels up & frequently causes as further trouble. In some cases suppuration is set up in the sac (see Caten.) which will then require to be freely opened. Very frequently the fluid quickly reaccumulates requiring a second tapping, with possibly a worse result.

Where there is little fluid only daughter cysts this form of treatment is of little use, as the daughter cysts, being freed from external pressure, increase at a greater rate.

In these cases Pott recommends "that the needle, or trocar be freely moved about in the cyst as to break up the daughter cysts." I am afraid authors would he set up in the sac by this method as a considerable amount of force would be required to break up the small cysts & moreover many would remain unbroken. I would prefer in these cases to at once perform the radical operation - 

This seemingly simple
Operation is not free from danger, as a number of deaths have been reported following it.

Dr. Fagge reports a case in which a very small trocar puncture led to a sudden death. A large amount of fluid was removed after the operation, the patient became suddenly flushed, with great pain in his face, and fainted. He recovered on three occasions, had a kind of epileptic seizure, from which he never rallied. In this case, it was found that the trocar had punctured the portal vein. Dr. Fagge thought that, after the removal of the trocar, the residual fluid was sucked into the portal vein, and acted as a direct and fatal poison.

McKinlay reports another death in twelve minutes after puncturing a small cyst. At a meeting of the S.T. Branch of Brit. Med. Assn. on November 25th, 1878, there was reported a case in which alarming symptoms of collapse followed immediately after aspirating the contents of a small cavity of the spleen.
the needle, or tube, should be a very fine one, or very sharp at the point. It should be, at least, six inches long, especially in living cases. It should be thrust into the tissues firmly, but quickly, so that the cyst wall be not pushed away before it.

In withdrawing the needle it is always a safer, especially in abdominal cases, to press one hand against the parietes so that they shall be in contact with the cyst wall, and prevent the escape of any fluid into the Peritoneal Cavity. After the removal of the needle, the small puncture should be covered with iodidum, a firm flannel bandage should be applied; and the patient should remain perfectly quiet in bed, for a couple of days.

B. The Radical Operation.

This consists in the removal by different methods of the entire cyst and all its contents, and is without doubt the most scientific treatment.

Racierier recommends the application...
of Pouchon's cure. The tumor is to cause ulceration of Pariches, and adhesive inflammation. The set up before the opening takes place.

This is a very slow and painful process, and is also not free from danger. Pouchon reports a case in which it took twenty-one days to secure an opening.

II. Smerow advises double puncture and subsequent incision. A trocar is inserted into the tumor and the cannula is left in until adhesive inflammation is set up, and when Takes place to do between the serous surfaces. After some days another trocar, a cannula is inserted, a few inches from the first one, in the same manner. Two more days are allowed to elapse, when the 2 cannulas are withdrawn, and the 2 openings are joined by a free incision and the contents of the cyst evacuated.

III. Puncture of the Cyst with a large trocar, and cannula and digestion of the latter for some days. When the
Caunuma is removed a syringe, containing a saline solution, is inserted, and left in for twenty-four hours. If after this the opening is not sufficient, it should then be forcibly dilated with a strong pair of forceps, or a pipe-jointing tool may be used to enlarge the wound. A large perforated drain-plate tube is then passed down to the bottom of the cyst, which is removed as described above. If the cyst be near the surface or the lower parts, a tube can usually be inserted by the outer parts. It is also more easily replaced by dressing the wound.

If the drainage be perfect, and strict attention be paid to cleanliness, I have not found it necessary either to use the spray, or wash out the cavity. In a few days, the cyst priests, and may often be removed entire, but in many cases owing to the smallness of the aperture, the cyst clings away piecemeal, with adhering mucous epithelium.
Some operators prefer to insert the drainage tube at will through the cannula which is then withdrawn. The tube passed in this way can only be a small one, and the lumen is considerably diminished by the pressure of the parts. The drainage is not satisfactory, and the procedure is not recommended.

IV. Incision by Two Operations.

In incision is made through the skin, e.g., above to the cyst, which is then tied off by catgut or silk suture to the edges of the wound. In two days time a free incision is made into the cyst, and one to two large drainage tubes inserted. It is instructive that the cyst wall the children's health. The tumor was removed, reports a case in which this was not done with fatal result.

After 36 hours on the drainage being removed it was found that an intestinal hernia had taken place, in replacing this it was discovered that the tumor had sunk lower in the abdomen, and the upper part of the

Trans. Zimun of E. A. Brandt &. M. M. Grover 1882
Although the felt below the lowest point of the abdominal wound. Nothing further was done. Peritonitis subsequently set in causing death in eight days. In autopsy revealed a pepticated tumor, quite free of any adhesions, with a pedicle 8 inches in length.

5. Free incision into the cyst at the operating.

An incision, three or four inches in length, is made through the paries down to the cyst wall. All bleeding vessels are tied, or twisted. The cyst is then stitched to the edges of the incised wound by four or six sutures of catgut or silk. The cyst is then freely opened out so as to allow the fluid and daughter cysts to escape. The inner cyst, if possible, is also removed at the same time.

If the cyst be situated in the abdominal cavity an assistant should by careful pressure of the hands, or sponge, endeavour to prevent the entrance of any fluid into the peritoneal cavity. Two or two drainage tubes are inserted after ligatures around the body. The wound-
is dusted with Eosin powder, and covered with a pad of Hartmann's dextrose sublimate. Wool wool, enclosed in a gauge bag and over all a firm bandage is applied.

The wound is dressed every day, the drainage tube renewed, cleaned, and replaced, and, as the cavity heals up, may be shortened. When there is very little discharge the tube may be removed altogether, and the fibrous tracks soon heals up.

This is the method which is now usually adopted in South Australia not only in ruptured cysts, but in those where there are numerous daughter cysts, and also in those cases in which simple removal of the fluid has not affected a cure.

I have performed the Radical Operation in four persons. Three of whom are now in perfect health, and no trace of any tumor can be detected. The fourth was getting on very satisfactorily until the 15th day when Pericarditis
set in, and the patient died in twenty-four hours.

In the Transvaal, at the South Australian Branch of the British Medical Association, Gardner cites thirty-four cases with thirty-seven cured and seven deaths. The causes of death under the following: 1 from shock; 1 from peritonitis; 2 from septicemia; 6 from cardiac mischief. In the other 2 cases, drainage seems to have been very defective. The cysts were not entirely evacuated and the patients died from sepsis.

At the International Medical Congress held in Melbourne in January 1889, I believe some very interesting statistics of cases treated by the radical operation were brought forward as the Transvaal cases are not yet in print. I regret that I am unable to give them.

Briefly summarized, the features of the disease should be first puncture both for diagnosis and for possible cure. Would this not be effected? process
To the Radical Operation by Deep Incision.

The following should also be treated by deep incision:

All hydracids of the external surface
All subcutaneous hydriads.

All the hydriads containing numerous daughter cavities
All ruptured by darts in which the air charge of the contents is slow, and tuberculous; when the patient's health is becoming affected.

Procrastination Treatment.

When the tumour has ruptured, if the contents are thick, do not discharge either externally or into a nostril; the abdominal canal, or the urethra; and this process will not affect the patient's health materially. It is certainly advisable to wait and see if nature cannot effect a cure without surgical treatment. However, a cure frequently takes place in this way although the process may be very slow. Sometimes
Ten years ago I saw a lad 18 years old with an hydatid cyst of the right lung which had burst into the pleural cavities. In the course of six months he had expectorated all the contents of the cyst. It did not seem to affect his general health in the slightest and he is now in perfect health.

I have now under observation a young lady who is also gradually getting rid of an hydatid in the lung. The rupture took place about 2 years ago, but as her general health was very good I thought it best to leave well alone and especially as the cavity seemed to be getting smaller every time I have examined it.

Preventive Treatment.

Remembering the life history of the Toxocara canis, it is most important that all hydatid cysts found in the bodies of the domestic animals, cattle, sheep, etc. should be
cut out, and burnt at once. Dogs should not be allowed to frequent slaughter-houses and eat all the offal, garbage, etc., which is usually thrown out from these places.

All meat given to dogs should be cooked so as to destroy the parasites.

All vessels and vapour on dog should be destroyed.

The dogs should be periodically fumigated with spirits of turpentine to get rid of the adult worms from the intestines. The feet should then be burned or have boiling water thrown over them.

Kennels and the immediate surrounding should be frequently saturated with boiling hot water. Dogs should not be fouled or scratched, more especially by children.

No dog should be allowed to swim in any water used for domestic purposes.

No dog should be permitted to lick plates or drink out of...
which used by man.
All Palads should be thoroughly washed before they are brought to the table.
All drinking water should be boiled, and filtered.
Sinks and drains should be covered with wire to prevent the access of the infestations which might be thrown into them by the wind.

If there are chills were carried out especially in the countries most liable to the disease I am quite sure that a marked decrease in the number of cases would very soon be found.

In the Bush of Australia, man, dog, and sheep drink out of the same drain, and frequently camp for days alongside the water supply. ...
Hepaticos in Special Organs
In the Liver.

Hepaticos are more frequently found in the Liver than in any other organ of the body. In the Table, Page 10. There were 1084 cases out of 1897, in which the Hepaticos was situated in the Liver.

The Right Lobe is more frequently affected than the Left.

Some observers have thought that the greater frequency in the Liver is due to its contiguity to the Stomach, others suggest that the hepaticus embog makes its way to the Liver up the bile duct, but the most probable explanation, which is, that the embog is after finding their way into the Portal Venus, here meet with the first obstruction to their passage thus the cepillary system, and get encapsulated in the Liver. The Left may be simple, multiple, or multi locular: the last form is seldom met with in Australia. The most common situation
is on the outer surface of the liver, but the question arises if this be not due to the tumor increasing in the direction of the least resistance.

Symptoms.

While the liver is small and growing slowly, there may be no symptoms at all. As a rule, patients first discover that there is anything wrong by finding an abnormal tumor or sensation below the ribs or they find that their clothes are too tight for them. If the tumor increases in size the shape and vibrations of the liver are found to be changed. If the increase is towards the upper part of the liver, the diaphragmatic swing may be pushed upwards. The heart may be displaced to the left. A distinct tumor may be found below the ribs, where the tender parts are affected. Should the bile ducts be compressed, jaundice will be present. There will be obstruction of the bile ducts to the tumor pressing on the bile ducts.
Adenoma has sometimes been called due to pressure on the Vena Cava; but this is of very occurrence.

Difficulty of breathing and shortness of breath may often be present, where the tumor is large it presses on the lungs. The patient may suffer from lassitude, indigestion, loss of weight or other functional disturbance of the liver.

As a rule no acute pain is felt unless suppurative or inflammatory changes have set up by the tumor. But if the tumor is large, there is often a feeling of fullness or weight in the region of the liver.

Paroxysms in simple nonmalignant cases is never present; the circumference of the body is frequently increased. The fissures around the tumor may secrete cloudy serous fluid, and later breaking off parts of the liver may be caused by the continuous pressure.

In Pneumothorax a distinct number of regular, rounded pulsations...
is found. The present in connection with the liver there is a distinct feeling of fluctuation, on percussion, the so-called 'dribbling' sounds is often elicited.

In fact, in the later stage of the patient's health, very little interferes with. Infact, many normal persons suffering from the habits of the liver who have been able to do their ordinary work for years, were unaware that there was anything the matter with them.

**Diagnosis.**

The following diseases may be mistaken for hydatid of the liver: 

- Tumors, Carcinoma, Tumours of the Borta, Cystic Enlargement of Right Kidney, Fatty, & Albumoid, Disease of the Liver, Pneumonic Effusion, and Enlarged Gall-Bladder.

In this disease, the onset is sudden, whereas the growth of the hydatid
Cyst is extremely slow, in fact years may elapse before any palpable tumor is discovered. In its early stage it is always present. There is always very great pain tenderness & there is often a history of dyspeptic symptoms, jaundice, and vomiting. Rigor, night sweat, & extreme emaciation are usually pretty constant symptoms.

It must be remembered that not all the ducted tumors in the liver frequently takes on a suppurring action and should this be the case it is impossible to diagnose between the two but as the treatment in both cases is identical diagnosis of type of disease is unimportant.

In Carcinoma.

The rate of growth is very rapid - the tumor is irregular, nodular, & very hard. The edge of the liver or tumor is very uneven - there is no fluctuation. Pain is very severe. Symptoms of cancerous infection may be found in other organs. The
Carcinoma, although it is rare, may still occur in persons under 40, while tuberculosis may occur at any age.

Guerin.

In Guerinism, although the tumor may be rounded, there is always a distinct pulsation, and a rumble may be heard along the course of the tubule.

Cystic degeneration of the kidney.

In this case the tumor starts from the kidney. The urine is of low specific gravity, contains albumin or sometimes blood.

Fatty liver.

In this disease there is no distinct tumor, but the liver is uniformly enlarged, and there is no fluctuation.

In lupoid degeneration of the liver, the enlargement is also uniform and there is no fluctuation. The spleen
and other organs are also affected 

Dr. Hy is frequently present and there 

is albumen in the Urine.

PLEURITIC EFFUSION

Here we have a history 
of sudden severe pain on the side, 
with short dry cough, and fever. 
On careful percussion the upper line of dulness is level while that of 
the diaphragm is rounded or arched.

Unless the fluid is encysted, 

on changing the position of the patient, 
the fluid may be made to change its 
situation, whereas the liver's dulness 

is not affected by change of position.

In many cases it is impossible 
to differentiate between the two diseases 
without using the aspirator, and 
enamric the contained fluid.

Enlarged gall bladder

In this case the tumor 
is suprareum situated in the region 
of the gall bladder, tender to the touch. 

there is a previous history of gall stone pain.
Prognosis and Terminations

Hydatid tumours may last for years without visibly increasing in size in their host. On the other hand they may cause very serious disturbance either by pressure effects, or by rupture of their contents.

The tumour may undergo the atheromatous degeneration, dry up, give no further trouble, or it may suppurate and cause death by its haemorrhage etc.

The tumour may also rupture; this may take place either spontaneously, or from external causes e.g. from a blow, a fall, or a sudden strain.

Dr. Hunter mentions the following seven ways in which the hydatid may rupture:

1. Into the pleural cavity, or lung-tissue. This is the most frequent mode of rupture. If adhesions have formed between cyst and pulmonary tissue, the whole cyst, its contents may be
ruptured by the bronchial tubes, and recovery may take place after a long, and tedious illness with accompanying fever, the inflammation of death from this cause is however much more common, especially when the rupture takes place into the pleural cavity. Russell mentions a case of "two large tuberculous tumours of the liver, communicating one with the right pleural cavity, the other with the bronchial tubes of the left lung, and also with the stomach."

1. Into the Pericardium
2. Into the Peritoneum
3. Into the Peritoneum
4. Into the True Cava Inferior

When rupture takes place into any other cavities the result is inevitably fatal.

5. Through the abdominal parietes or lower intercostal spaces.

This is the most favorable site for rupture; but the recovery is very frustrated, as the internal opening is too small, and the retained cyst membranes set up so quick enlargement. Marthinvs.

Oberve of few cases of this kind where a spontaneous opening occurred, and of which I have collected notes. Five terminated fatally.

Marshall reports the case of a girl suffering from the effects of the liver who recovered after their discharge by fistulous opening.

6. Into Stomach or Intestines.

Davaine considers that there is much greater danger where the opening takes place into the Stomach. Of eleven cases where a fistula appeared to open into the Stomach, six were fatal, while of fifteen in which the opening apparently took place into the Intestine only one proved fatal.

7. Into the Bladder or Urinary Passages.

The walls of one or more cheeks may be destroyed by the pressure of the tumor, and thus the opening may be formed through which the cyst may be drained eventually reaching the external canal.

In one case cleft by the rupture took place (most probably) into the bladder as the patient passing large pieces of

...
membranes & also immemorable daughter
cysts per membrana.

Even when the cyst was ruptured,
and is being discharged in any of
these ways the patient may die from
the unhearing discharge, from Pyogenic
or from gangrene of the surrounding
theines. Where there is mention
of Hydatid cysts in the liver the
prognosis is very bad as is also the
case in the Multilocularis Feces.

Treatment.

As soon as a Hydatid cyst of
liver is diagnosed, the fluid should
be removed by the aspirator
and possibly a cure may result.
The small puncture should be covered
with collodion, over which a pad
should be applied so as to prevent
any escape of fluid into the Peritoneum.
The patient should receive quickly
in bed for a couple of days.
Very often this simple treatment
results in a cure. Should this not
In the case or should resection be set up, the radical operation should be at once performed.

An incision 3 or 4 inches in length (according to the size of the tumor and the amount of apoproteic time) should be made over the most prominent part of the tumor, through the abdominal peritoneum down to the cyst wall.

The cyst should then be fastened to the peritoneal wound by 4 or 5 stitches of silk or catgut. The cyst should then be freely opened; the fluid contents & daughter vessels evacuated and if feasible the cyst proper should be taken away at the same time. Two or two large drainage tubes should be passed into the cyst & tied in with tacks passing around the body. The wound should be dressed with balsamum and covered with some absorbent antiseptic dressing kept in place by a firm bandage. Nothing should be allowed by the mouth for 24 hours except ice to suck, with interrupable
does every hour.

The drain should be renewed every day, the drainage tube taken out, cleaned, shortened if necessary, and replaced. Solong as there is agree with the discharges I have never found it necessary to syringe out the cavity, which as a rule keeps perfectly sweet with ordinary cleanliness. As a rule, in uncomplicated cases the wound is quite healed in from 2 to 3 months.

Then the opening has been made in the intercostal spaces it is sometimes advisable to remove a portion of one or two ribs. This should always be done in young children, where the space between the ribs is small. So that a sufficiently large drainage tube may be inserted.

Hydriad of Lung

Next to the Liver, the Lungs are more frequently attacked than any other organ. In the Table page 9 out of 1894 cases 220 were found.
in the lungs, and 881 in the cavity of the thorax. Dr. van der Bree thinks that
lung abscesses are more common in Australia than in other countries.

The right lung is more frequently attacked than the left; it is possible
that this may be due to the closer connection of the right lung to the
liver; but it is an interesting coincidence that pneumonia is also found
more frequently in the right than the left lung.

The cysts have been found in all parts of the lungs but
the lower four or middle lobes seem to be the most affected. I have met
with three cases of the cysts in the upper lobe of the lung and it is a
curious thing that all three cysts ruptured spontaneously into the
air passages.

Symptoms (in unrepeated cases).

Where the cyst is small, there may
be hardly any symptoms; but as it
increases in size, the patient usually

"Of Cl. 12, 3"
was a short hard cough, but with little or no respiration. There is more or less Dyspnoea, especially in respiration. I have found Haemoptysis a pretty constant symptom; and I think it occurs quite as frequently as in Phthisis. Hearne says that Haemoptysis is the rule in cysts of the lungs, in four-fifths of the cases collected by him there was Haemoptysis.

When it occurs in a case of miliary cyst the bleeding is usually of small amount, and occurs frequently. This is most likely due whether to the inflammation of the surrounding lung tissues, or to passive venous congestion occasioned by the pressure of the cyst. When haemorrhage occurs at the time of rupture of the cyst it may be so profuse as to be fatal. Pain is not a constant symptom unless the cyst be large, or tend Pleurisy be set up. In most cases the patient complains of a dull heavy, achy feeling in the chest, than of
actual pain.

Where the cyst is very large, and it has encroached to a considerable extent on the lung from the effects of deficient blood circulation may be noticed. Hence there is often dizziness of skin, clubbing of fingers, and incurvature of the nails. There may occur the superficial veins of the skin over the tumor much enlarged when the tumor is close to the surface.

When the cyst is large the patient usually lies on the affected side so as not to compress the sound lung.

In uncomplicated cases little or no pyrexia is present. In the first stage, the general health and nutrition are hardly, if at all, interfered with. Where the cyst has attained a large extent, all the symptoms become very much aggravated. When the cyst has reached the symptoms are much more striking.
Pneumonia is always present, with localized pneumonia, or Brancato's around the ruptured lung. The cough is very frequent, and distressing. The expectoration is very profuse, purulent, and extremely offensive. It may contain shreds of membrane, and is almost invariably tinged with blood. In some cases the hemoptysis is very severe, may even be fatal.

When the membrane is of large size great difficulty is often experienced in clearing it. In 2 cases mentioned by the author death from asphyxiation took place owing to the membrane being impacked in the air passages.

Physical Signs

Distinct increase of the side affected, with bulging of intercostal space may be present. Where the lung is a large area. Even the ribs themselves may be bent outwards. Have seen a case of this kind where the lung occupied the upper half of the right chest.
When the cyst is small, and deeply situated in the lung, there may be very few physical signs useful in its diagnosis, or defective respiration with slight dulness; but when it is more superficial, of larger size, the signs become very distinct.

Dr. Seysan Bird gives the following account of a case:

"The cyanosis more or less sufficient on the affected side; murmuration but little affected; absolute dulness on percussion, with absence of respiratory sounds over a space of the chest wall not smaller than the palm of the hand, generally in the lateral or infra-clavicular regions, with absence of vocal fremitus in most cases. This dull space always presents a rounded outline, is limited by a line of demarcation so exact that it can be mapped out with pen and ink, and is marked by percussion. Beyond the boundary line, percussion is clear, resonant; the respiratory sounds, though inaudible.
over the dull surface, commence immediately beyond the bow but lie, and though probably rather harsh and peevish in character, are indications of healthy lung tissue. Provide the the anterior quickly vibrable third fluid may sometimes rub, not always be detected by percussion over the subclavian spaces. The percussion, respiratory sounds over the rest of the lung are probably healthy; not much altered.

In the case (Harrell, see below) the circumference of the affected side was much greater than the other. In this case the absence of pleuritic rubs was also very marked. Where the cyst is large it may displace the neighbouring organs thus the liver may be pushed downward so that its upper edge can be felt 2” to 3 inches below the ribs. The heart may be pushed over to the left or right according to the side affected. Should the cyst compress the pulmonary artery, or vein very marked dyspnea may be produced.
Drum mentions a case where there was tendency of the upper lobe owing to the pressure of lung hydatid cysts causing acinar obstruction. Williams mentions another similar one in which there was tenderness of the hand, pain being caused by the pressure of a large hydatid cyst in the lung.

Physical signs of the ruptured cyst:
In this case there are all the signs of a cavity in the lung with:
- Frequent, constitutional disturbance
- The percussion note varies with the amount of fluid in the cavity.
- If the opening be small so that the contents are not easily evacuated there is much resonance, the percussion note may be absolutely dull, but:
- In most cases you find dulness at lower part of lung and rales at the upper due to the contained air. Although there may be no fluid still the membranes if large, lying at the bottom of the cavity, may still cause a dull note.

On auscultation you find a peculiar gurgling, or splashing sound on inspiration, where the opening is small, and very little air enters. The cavity a cap-wheel rhythmical sounds accompanies inspiration, expiration — In one case I noticed a clicking, or flapping sound on inspiration, as if the opening had a valve which opened and shut.

The breathing is anæphoric, or Eupnoic, and Pneumathology is also present. Where the cavity is large one retains much fluid change of position may affect the physical signs.

Diagnosis.

Hydatid have to be differentiated from the following diseases.

Pulvis, Cancer, Pleural Effusion, Mediastinal Tumors, Hydatid Fever, & Sepsis of Lung.

Pulvisis.

In this case there is usually a Family History of Consumption. There is much extra cerebralical disturbance with night sweats.
Pneumonia, diarrhoea, possibly laryngeal symptoms. The vocal resonance is increased, not diminished or absent as in hydroa. The respiratory sounds are altered, not absent.

There is flattening of chest wall, instead of bulging, and there is no displacement of other organs.

In the later stage of phthisis where a cavity has formed, the signs become banal until that of the ruptured cyst, but in phthisis the general health is much more affected, and there are usually signs of further mischief in one, or both lungs. Then again the microscope aids us materially first by detecting the bacilli, second by detecting the tuberculous cavity, and last by detecting the bacilli which are only in cases of phthisis mean in effusion.

The previous history in many cases of severe pain, perspiration, shortness of breath is often of great service in assisting with diagnosis.
In pleuritic effusion the outline of the dulness is not rounded and there is frequently a change of the physical signs produced by change of posture. Dyspnoea is almost always present. Where there is a localized pleuritic effusion, confined by adhesions, it becomes even difficult and to arrive at a correct diagnosis.

The only absolute diagnosis obtained is reached. The contained fluid which in the thoracic empyema, contains no albumen, but has a certain percentage of chlorides of sodium and bicarbonate, mostly the bicarbonate.

Cancer

In a case of cancer there is always present. The catharsis and respiratory disturbance:

In cancer the mediastinal furs there is almost always visible nervous engorgement, with carcinomatous or asphygaly symptoms presure.

The treatment of both being the same the diagnosis from the state of the
is unimportant.
In all cases of doubt the aspirator
should be used to settle the matter.

Proposition and results.
The cyst may undergo degeneration
(atherosclerosis, etc., calcareous) and cause
no further trouble. This is a very
unfavorable termination.
As a rule
the cyst continues to increase in size,
and may do so much as to press the
tissue of the urethra and
cause death from the mere loss of

The cyst may rupture into
a urethra, which is the most
favorable natural termination.
If the patient be enabled to
discharge all the contents, but even
after rupture in this way death
may result from hemorrhage from
asphyxia in (owing to incomplete
of the
membranes) or from urethral
discharge. A period of six to twelve
years may elapse before nature
effects a cure by this mode.
When the rupture takes place into the pericardium the result is inevitably fatal. There are rare instances from this cause the patient was suddenly seized with intense pain in the precordial region over which breath could be detected a distinct "to and fro" friction around the pulse was very weak, it rarely he died in 24 hours but it is felt that I was unable to obtain a P.M. examination. The cyst may rupture into the pleural cavity. This is usually accompanied by an acute attack of urticaria. It is very clear that the fluid of small quantity under the pleura it is possible for the patient to live, in most cases the result is fatal. In St George's Hospital reports Vol 7 p 77 there is reported a case of this kind which was due to an accident. At the p.m. examination it was found that 20 of the ribs were fractured and had been a small rent in a big duct cyst which had evacuated its contents into the pleural cavity. I think that it is quite probable
The patient in this case might have recovered, had the radical operation been performed on least time, at once on his admission into the hospital.

The cyst may be discharged afterimg through the intercostal spaces but this although a fortunate terminal abortus of rare occurrence is apt to cause an attack of adhesive Pleuritis.

Should the cyst rupture into a large vein or artery the result is quickly fatal.

The disease runs a very slow course in the lungs and may be present for years without causing any serious disturbance. Pulmonary vein may be set up in surrounding lung tissues, may prove fatal. It is never amiss for the patient to seek medical advice.

Treatment

In all cases of large pleural cysts it is advisable to aspirate with the aspirator and remove as much of the fluid as possible. Never never found it necessary to give an anesthetic.
in using the fine needles of the anaesthetist, as the pain is very slight. In withdrawing the needles it will be
necessary to press the hand against the parietes of the chest, in order to prevent any coincidences of the third into the pleural cavity.

Exhibit in or near the region of the heart, or quite useless a hydatidic cyst in whatever part of the lungs can be
reached, whether by adding needle, if the cyst be situated to hinder the septa, in can be easily tapped from the cystula.

This operation is not free from danger as Thomas has a record of deaths after this simple operation.

In one case rupture occurred to have been fatal, at operation of puncture, into a hydatid; the patient died apparently
from fluid in the air track of both lungs. Hayward mentions a case of a circular

nature, but in which the patient recovered in 8 of the other cases recorded by Thomas.

Death resulted from the empyema, and I think of the radical operation.

Tracis of 64 kroneh BMA 1268. 2 same p. 139.
had been left at once, performed recovery might have taken place.

Have frequently found found

on using the aspirator especially where a great suction is employed that a piece of the membrane may be drawn into the opening of the needle which completely blocks it and prevents any further express of fluid. To prevent this ensure that the aspirator is very slowly and

so always close the needle with collodion; apply a flannel round around the chest, and keep the patient quiet in bed for a couple of days.

Should the needle contain little

fluid any daughter cysts. The whole operation will be of little use; but I think that in all cases this should first be tried, and if not sufficient to effect a cure then proceed to the radical operation.

In cases of supposed cyst in which there is no prospect of cure by natural evacuation, or in which the patient's health is being seriously affected by
The re-arranging discharge it is advisable also to proceed at once to this operation.

Radical Operation:

The patient must be fully under the influence of an Anaesthetic. On bisected three or 2 inches long is made in interspace over the centre of adnexa down to the intercostal muscles. All bleeding vessels are to be carefully tied, or transcotched. A large bistoury and cannula are then pushed through the intercostal muscles and placed into the cyst. The process is renewed, when the Verdanoid thread small daughter cysts are evacuated. The cannula is left in for some days until adhesions are formed around the track. If the opening be not sufficient it may then be further dilated by leaving a Laminaria stem in the track for 24 hours. When this is removed the opening may be still further dilated by forcibly stretching it with strong vertical forceps, or by cutting it to a finicked feel with an electric cautery.
but think the latter means should only be employed at the external aperture, for when the position of the intercostal artery must be borne in mind. Then the patient is put in a suitable position, or when he coughs, the cyst may present at the external opening; by careful manipulation this, if possible, should be entirely removed, but in many cases the cyst only comes away pierced.

A large drainage tube is then inserted and carefully fixed with tapes around the chest for the purpose of preventing the tube either, slipping into the chest, or, if being pressed out by coughing, movement of the patient. Should the drainage tube ever get great difficulty is often experienced, in removing it. The wound should be dressed in the same way as described when treating of liver cysts.

The dressing should be changed once a day when the tube should be taken out, cleaned, replaced. As the cavity enlarges...
The drainage tube is shortened, and in the discharge vessels may ultimately be left out, when the track above heals.

Where the drainage tube is sufficiently large to secure sufficient drainage, it may not be necessary to insert the cavity in cyst in some cases where the cyst was along time of coming away in the case left remaining the action of the injecting apparatus evaporated to withdraw large pieces of cyst which would otherwise have taken a long time to disintegrate and come away.

In the Proceedings S.A. Branch of the British medical Association 1885 p 78 there is a record of pulmonary hydatid treated by radical operation by various surgeons. There were twenty-five resections and 5 deaths.

In all these cases death seemed to have resulted from deficient drainage. The opening not having been made large enough to secure the complete evacuation of the membranes.
I have met with the dural cysts in the工地 and also in the pericranium in the same patient particularly of which I find further one.

The Echinococcus cyst has been found in almost every organ tissue of the body and there is very probability of affecting a cure by surgical means, except in those cases situated in the brain, spinal cord, heart, large blood vessels.
Case I. Samuel T.—aged 34.
He was born in England, but has been in South Australia for twenty years, latterly has been employed as cook on a Station at Alice Springs in Central Australia. While in the North he had to get drinking water from bores and waterholes. He has suffered for the last ten years from moderate evaporation, only getting the bores open by constantly taking salts, castor oil, etc., and occasionally beer. Previously he had always enjoyed very good health. I saw him four weeks ago when he seemed very ill.

During August 1887 received a telegram stating that he was very ill, suffering from intense pain in the abdomen with obstinate constipation, and went to consult a medical man. On 13th October 1887, he arrived in Clare, in company of his son.
Condition. He had had travel in a buggy over rough roads, for about 150 miles, and the jolting gave him great pain all over his abdomen.

He told me he first noticed a swelling below the ribs about April. After this he occasionally had jaundice, was very feverish, and was often delirious. His breathing was very short, and his appetite was very poor. He has done no work for two months. In less than two months he passed what was presumably a turbid and cyst for the bowels. He said that this was about the size of a hazel nut and on breaking it he found it to contain clear fluid. About the same time he noticed that he often passed what he called safe grains with his water.

On his arrival in Clare he was very thin, and emaciated. The breathing was very short, and hurried. The bowels could not be opened without physic, and the abdomen was very much enlarged. There was no thirst.
showing about an inch below ribs and about 1/2 inches to right of middle line. There was a rounded tumor about four inches in diameter occupying the umbilical region, the centre of which was about the umbilicus. On percussion this was absolutely dull and gave a most distinct thrum. Dorsalis, to thrill. The tumor was separated from the liver dullness by about a finger's breadth. The liver was very tender on palpation. It was very much increased in size. The dullness extended from about the 8th rib to three inches below the tumor ribs in right mammary line. The left lobe of liver was superficially soft. There was no indurated feeling of fulness, and some dullness in right lumbar region. The temperature was normal. Pulsus about 80 per minute but very weak. The urine was muddy and contained a large number of very minute hydatid cysts, varying in size from about a pin's head to large cafe au lait. The right testicle was very tender to the touch, and
Furnished an anterior surface, a rounded fluctuating tumor measuring about 3/4 inch in diameter. The borders nothing abnormal could be felt. The lungs were healthy, but inspiration was very hurried owing to the upward pressure of liver against right lung. The heart was normal and was not displaced.

While he was under my care he (at intervals of some days) passed many small white, semi-liquid stools. The wretching. He also passed patches of membrane in the same way spread out and one piece (which I saw him pass) which I found was as large as the palm of the hand. It was of a dirty white colour, 4 of about the thickness of thin chamomile leathers. He had frequently great difficulty in passing these membranes. He could almost always tell when he was going to pass a filthy membrane, he would then keep his water as long as he could, then forcibly make it, when a portion of the membrane would
present at the meatus; and by careful manipulation, he was able to withdraw it. Luckily for him, both the meatus and urethra were very patent. After Feb 1871 he did not pass any more cysts or pieces of membrane and the urine became quite normal. On Nov 30th openly opened the stone projecting below the skin, and evacuated about 8 ounces of pus. Inverted a drainage tube, about 3 inches long, which seemed to pass backwards and to the right. This opening continued to discharge for about 2 months, but neither cyst nor membranes were ever discharged from it.

On Dec 13th to the benefit of the patient, a large abscess continued to increase very quickly. Opened it with aseptic precautions and put gauze and broken sterile cyst membranes. But I could not admit any daughter cysts. There she inserted a small drainage tube. This opening was healed in about 12 weeks.
as the tumor in medical refutes claim. Where no connection with the brain above it I considered that this was a separate tumor of the peritoneum filled with serosanguinous cysts, and, determined to perform the radical operation, as I thought simple tapping would be of little avail.

On January 14th 88 other was administered by my partner Dr. Bain, and Mr. Quadrishan kindly assisted me at the operation. I made an incision about 5 inches long over centre of tumor in line with the lower border of the peritoneum. There was very little bleeding which soon stopped, no veins requiring to be tied. The peritoneum was then carefully opened to full length of incision wound, when the cyst wall presented itself. I then stripped the cyst wall with 6 or 8 sutures of 0 to wound in the parishes after which freely opened the cyst, Mr. Quadrishan at the same time, making careful inspection with his hands around
the tumor. To prevent any fluid getting into the peritoneal cavity — there was very little free fluid fluid — but there must have been hundreds of daughter cysts (the largest being about the size of a pigeon's egg) which cleared out with my fingers. The adhesional sac was very thick, resembled wash leather in appearance.

I wrapped a large drainage-bag around the parts well with vaseline and a thick pad of Vaseline wool was laid applied over the wound, which was kept in place by gauge bandages. In the evening the temperature was normal. The patient felt very comfortable. For the first 24 hours the only narcotics needed allowed by the nurse was a teaspoonful of iced milk every hour. Temperature was normal.

On Jan. 15th, he seemed very well and was free of the pain, slept nearly all night and has not been sick since the operation. On the 16th I removed the dressings and found the cyst adherent to the
The patient was discharged, as I removed the sutures. The drainage tube was taken out, cleaned, and replaced, and fresh dressings were applied. The cyst was very adherent to the body, causing great difficulty. After the introduction of the drainage tube, it was not until the end of April that the opening was entirely healed until the middle of June.

On Jan 24th, he complained of great pain, all over the liver. It had a slight rigor, the temperature being about 100°F. On Jan 26th, the temperature still kept up and the pain caused by the increasing fever. I inserted a hypodermic syringe between 10th and 11th ribs and withdrew a few drops of pus.

On Jan 27th, he was again under the same condition. I made an incision deepening in the 10th intercostal space, down to the intercostal muscles. I then inserted a large syringe and withdrew the pus along with a few daughter cysts.
As the cyst wall was incised the 9th surface shrunk and the cavity grew with a probe pointed hook to enlarge the track made by the needle to the same size as the 1st incision when an incision was of daughter cysts and clear down membranes, with little fluid gushed out. There was pretty free bleeding at first which ceased stopped. A large drainage tube was inserted in the wound dressed in the usual way. After this the patient was entirely free from pain and the next day the temperature was normal none rose again.

During the first week in February, the patient had 4 drainage tubes all discharging at the same time but his appetite at this time was unsatisfactory, he was putting flesh very rapidly. I expected meanwhile that after the cyst in the pleurisnm was opened the tubes became quite regular and were open naturally every day—the wound in the intercostal space
continued to druggage this broken down pieces of membrane for many days, and it was not until August that it was entirely healed. I last examined this patient in December 1885 when I found that the four openings were perfectly healed, the liver was of normal size, the breathing was natural and easy. Nothing abnormal could be detected in the abdomen. The right kidney was slightly smaller than the left. He had no pain or weakness, had got quite short and now that he never felt better in his life. He was then engaged as a wheat buyer and the day before I saw him he had ridden twenty-five miles on horseback.

It is impossible now to determine the cause of the hydatid cyst whose membranes and daughter cysts were passed per urethra. I don't think that it was in the bladder itself, as when first saw him there were no symptoms of cystitis, and he said he never had any pain in the region.
of the bladder. So far the cyst said to have been passed per uremum, it is quite possible that the patient made a mistake in this instance. But if he were correct, there may have been a slight communication between bladder and bowel. The bowel which had rapidly closed again.

Case II

Ellen P., aged 53, residing about two miles from Chare, first consulted me on March 21, 1888, complaining of a cutting pain below ribs on right side.

Two years ago, she consulted a Medical man, who aspirated the liver and withdrew about half a pint of yellow fluid. This relieved her very materially for about six months but since then she has suffered more or less pain below in the right side and has frequently suffered from indigestion, and shortness of breath. She had always lived in the
country; after her marriage the drinking water used by her was obtained from the open surface; but laterally she has used rain water from the roof collected in covered in tanks. Her husband is a well-to-do farmer, and she has had six children.

Present condition

Patient was fairly nourished, but received any care about herself, as one of her sisters had suffered from it before her; and one brother had died from hemophysis, due to bursting of a vein within the cyst of the lung.

Think that it is quite possible that they might all have been infected when they were living together, above, when young, that the disease had lain dormant for many years.

It seems very unlikely that three persons (whose residences were widely apart) out of one family, should all have suffered from this disease, presumably from different sources, unless certain families (as well as individuals) have a predisposition to act as hosts for the
Development of the Jaundice-Bilirubin.-The temperature was normal as was also the pulse. There was no jaundice, but she suffered very much from indigestion and flatulence. There was no itching.

The urine was acid and contained no albumen. The appetite was fairly good. She complained of an uneasy feeling in the right hypochondriac region, which was much increased by walking or driving over rough woods.

On inspection, there was distinct tenderness in the right hypochondriac and epigastric region. On the middle line, the liver dulness extends as far as the umbilicus. In the right mamillary line it extends to about the level of the umbilicus. Below the edge of the liver, and firmly attached to it, a small hard tumor about the size of a walnut could be felt; this is probably a thrombus.

The patient states that about this point she was first tapped. The tumor is fixed and elastic and gave an obscure feeling of fluctuation with distinct the dabadie facilities.
On March 26th I went to reside and on seeing the patient withdrew about 10 oz of clear hydatid fluid. After this the tumor was amply drained in size. The patient was much more comfortable.

During the month of April she continued fairly well. Then I saw her again at the end of May. I found the tumor again increased in size with very great hardness over it. The patient was much thinner & she had occasionally a slight rise in temperature in the evenings. I proposed then that she should come into Clare where the radical operation was performed. She stayed very well & came into Clare on June 19th.

On the following day assisted by Dr Bain, the incision was performed abdominal section. Ether being administered by Dr Bain, invaded an incision about 2' inches over the most prominent part of the tumor. On opening the peritoneum I could see...
At the liver, with no sign of a cyst. Then passed a largeTe,erine syringe into
the liver, and was very glad to find
some clear fluid in the syringe on with-
drawing it. The cyst wall seemed to be
from the outer surface of the liver, although
the palpation fluctuation could be
detected previous to the operation.

After consultation with my colleagues,
not daring to make an incision
through an inch and a half of solid
liver, splashed a large syringe and
cannula into the liver and tapped
the cyst. Dr. Brunnhitt made careful
pressure with both hands against
lower part of liver to prevent the entry
of any fluid, or blood into the stomach
caulery, and on withdrawing the
upward curved cysts, and a large amount
of fluid came away through the
cannula. Fum Throche, catheter was
now passed into the cyst, through the
caulery, which was then withdrawn.

With the catheter as a guide a pair of
draining gauze was passed into the cyst.
The toracs were then opened & with drawn in this condition, tearing open a tracts in the liers sufficient to admiit a medium sized drainage tube, which was stitched to the abdominal wound. Carefully stitched up the abdominal wound, including the Peritoneum, except where the drainage tube was. The wound was dressed with tars, a thick wool wool pad & was applied; which was firmly fitted with gauze bandages around the body. No spray was used. The patient bore the prolonged operation very well, but remained rather weak. She remained well during the afternoon, although she was allowed nothing but ice to suck and a teaspoonful of thick sugar hour. In the evening the temperature was normal but the pulse still continued very weak. She slept fairly well and complained of little pain during the night.

June 21st: The dressing was changed, but the tube was left in situ. The wound dressed well and was nearly healed. There was then a perfect coagulate of clear
Fluid, and a few small cysts were found on the dressing - the temperature was normal.

June 23rd. The abdominal incision was finally healed. Therefore removed the stitches & also the drainage tube which I cleaned, replaced and tied in with tapes around the body.

From this date I washed out the cavity every day with 1-50 Carbolic Solution. By reversing the syringe I was able to withdraw a few of small cysts, and also portions of the mother cyst, which was very thick & of leathery consistence. Had the drainage tube been larger the procedure would not have been necessary. The tumour suddenly decreased in size. The patient seemed to be doing very well, until the 3rd week in July when the temperature began to rise, slight rigors were experienced. The tumour also began to increase in size. Below the opening although the membranes & discharge were going away freely through the drainage tube.

As the patient during the next week had very severe pains, and the temperature...
rose every evening to about 105° Fahrenheit that an abscess was forming.

On July 20th I inserted a large aspirating needle into the river about 3 inches below the former opening, if first nothing came through aspirator but as soon great suction about 8 oz. of bloody broken down river tissue was obtained. By examining this with the microscope I could find neither live cells or leucocytes, for about seven after this the patient was very much weaker, but the temperature still kept slightly above normal. Ten days after this taking the former symptoms came one again my rise of temperature, rigors & great pain. The patient was very weak and exhausted but was still able to take liquid nourishment.

Unless something more was done I saw that my patient could not last much longer, so determined to again aspirate, and if former pus to make another opening. By using ether the patient was again put under the influence of ether, and inserted an aspirating needle into the lower part of the
Tumor at the point where she complained of the greatest tenderness; result, nil.

Then inserted it about an inch below former opening and an inch to the right of it, when I pressed it, withdrew the needle plunging it into the tumor at this point; when an immense quantity of bloody purulent matter with broken down cysts escaped.

The tumor was only just large enough to reach the cyst as I left it in for six days when removed it, and kept in a clean and quiet I found sufficient to dilate the opening so I was enabled to get in a medicine sized drainage tube.

After this recent operation, there were no more reports and the pain ceased entirely she was able to sleep well, and her appetite gradually returned. The tumor began slowly to decrease in size.

I worked out the end cavity in the same way at the 1st one with 1-5% carbolic solution; by using the same means I was able to remove numerous daughter cysts.
opinions of the cyst wall which was not nearly as thick as that of the 2nd.

She was able to get up for a short time and sit in a chair during the last week in August, about which time removed the 1st drainage tube and in a few days the opening was quite healed.

She was very anxious to return home which she did on Sept 1st. It was some time on the way of the journey. After this, I only saw her once a week as her daughter was able to spruce up the cantharidines and dress the wound.

This second cantharidines was away long time of healing and it was unable to remove the tube until the middle of January 1859. When the fibrous track quickly healed.

I saw her in February when she looked quite well, lively. She had a remarkably good appetite, the bowels were regular, and she had no tenderness, or fulness. She had no pain on walking or was able to take long walks without feeling any fatigue. Her liver was still slightly
enlarged and there no doubt will continue so thru life — but there was no tenderness over the liver and no sign of any tumor.

This case caused me a great deal of anxiety, and had I not operated the second time I felt certain that the patient would have died.

Case III

Harriet J — Sclerotic Sclerotic 65.
She was born near the River Murray and lived about there for some years. For the last fifteen years has been living near Clare in South Australia. Up to the last two years has always been in good health, and been able to do her work. Since then she has had a very dry cough, with shortness of breath.

When I first saw her on Sept. 18th 1885 she complained of pain on right side of chest, with shortness of breath, and slight cough. She also felt very languid, disinclined for work, and the temperature was normal.
Wine used. No albumin.

On examination, there was very little movement of the right side of the chest at lower part. The right side of chest measured about an inch more than the left. The great heat of the heart could be felt to left side of middle. The lower edge of the liver dulness was about an inch below its normal limit.

There was great dulness over the base of right lung, more especially in axillary and infra-scapular lines. Over this region vocal precocities and resonance were almost entirely lost; as were also the respiratory murmurs. There was thin bulging of lower intercostal spaces. I could not make out any ribbited percussions. Above the 5th intercostal space the respiratory murmurs and vocal resonance were normal, as was also the percussive resonance.

Nothing abnormal could be detected in left lung. She had never spat blood. On Sept 27th inserted an aspirating needle into the 7th intercostal space slightly
Behind the auditory tube, and turned about a pint of clear hydriatic fluid showing no outlines on microscopic examination. After this, the patient expressed herself as feeling much better. There was no cough, but she still had a slight feeling of fulness in right side. She said she was now as if she had been feeling very unwell with very great pain in right side. I found her temperature about 102°F. She had a good deal of cough, with great dyspnea but very little restorations.

The illness seemed as great, if not greater than before the taking. She continued to get worse for the next few days. The temperature kept up and the pain being very severe. Therefore thought it best to make a free opening into the cyst.

On 9th the other being administered by Dr. Bain, I made an incision in 5th intercostal space, at the point where I had aspirated. The external incision was about 2 inches in length.
and drew to the intercostal muscles.

I then inserted a large treac and cannula into the cyst, and removed a large quantity of pus with a few small cysts. Then with the cannula I passed a strong pair of wretched streaks into the cyst; they were then opened to a considerable extent, and with a small in this direction so that a sufficient opening was made to enable me to insert a fair-sized drainage tube. This was retained in place by passing around the chest the dressing with an "i." On this occasion I found the wadding so well, which I found absorbed the discharge very readily. Then I saw her in the evening; she was very much cooler, complained of no pain, and the temperature was normal. The dressings were changed every day; but towards the end of the second week, I experienced great difficulty in reinsinching the drainage tube.

On the 21st I was sent for early in the morning as she had passed away the night. She was very hot and feverish.
and complained of great pain in the region of the wound. On removing the dressing I found that the tube was completely out of the wound, and there had been very little discharge.

I was unable to reintroduce the drainage tube; so I passed a director into the opening where, I found the point impinging against a firm, elastic body. On using a little force I overcame the obstruction; this was immediately followed by a gush of clear, yellow, clotted fluid, amounting to about half a pint. I think that this must have been a separate cyst which had increased very rapidly owing to the decrease of pressure, after the evacuation of the other cyst. I hardly think that it could have been a daughter cyst as it could not increase in size after the death, and exsiccation of the mother cyst. I had now no difficulty in introducing the drainage tube which now afterwards gave a ready exit for the pus, broken down pieces of.
On 22nd March pain and fever had entirely left & there was a free diuresis.

This case was rather alarming & I was unable to remove the drain at first until the end of March 1856. After its removal a granulation was left from which there was a slight discharge. The sinuses were entirely closed on May 4th. When I saw her there was still slight reaction & difficulty of respiration, at right base, the respirations were rather harsh. She was in perfect health was able to eat & sleep well; had no cough or pain, & was able to walk about without any inconvenience. She returned to service in the beginning of June and has been able to perform her duties satisfactorily ever since.

I saw this patient in January 1859 when I examined her chest very carefully & there was still slight dulness in the immediate neighbourhood of the trachea with slightly reduced respiration at right base, but hey and this nothing
Abnormal could be detected
her breathing was natural. She had
no cough, or weakness in the cheek, and
she had got very chalky.

Case IV

William J. - Linesmith, 57 yrs.
was born in the colony, had always lived
in the country, had a cough derived
from a creek running close to the house.
Up to twelve months had always enjoyed
good health; since then, he has been
troubled with a hard, deep cough, and
has frequently spat blood in small
quantities. Complains of his breath being
short, and also of slight pain in the
chest of the upper part of the
lung. No headache is fairly
good, but says he is losing flesh.
The temperature was normal, and there
were no night sweats.

On examination I found well marked
dullness in the upper lobe of right lung.
the centre of this dullness was about the 5th
intercostal space and about an inch from
the sternum the lung was not the about the size, shape of a large cricket ball. Over the area there was no vocal resonance, inspirations and there was also absence of the respiratory murmur there was a distinct bulging forward of the 2nd rib & the superficial veins were distended over the learner.

The left lung was normal.

As the symptoms were not at all urgent I determined to wait a little before operating.

In July of the same year he had an attack of bronchitis for which better he had. Seas sick for scarcely one day (after he had been 5 days ill) as he had coughed up about a breakfast cupful of clear fluid. Upon an arrival that the cyst had ruptured, luckily with very little loss of blood on examination all the signs of a cavity in the lung were now present. He quickly recovered from the bronchitis.

For six months after the rupture he had pretty severe cough, with purulent expectoration.
which frequently contained small purulent
of the left.

eleven months after the rupture he was
imperfect health. There was no cough, expecto-
re or shortness of breath. He was employed
as a laborer and was able to do a hard
day's work. Where the tumor met the
there was still slight dulness. The breathing
was rather harsh. Pecurile.
This now (1884) in perfect health.

Case V  John R 56 Miller
This case early saw in consultation
with Dr. Kinnear of Karingaga, who was
his usual medical attendant.

He had always enjoyed very good health
but has complained for many years of his
breath being very short which he himself
thought was due to asthma. He had
also had a slight cough for some time.
When I saw him he was suffering
from an acute attack of Right Internal
Pericardium. The temperature was
about 102°F. At only one spot, a little
below the angle of Scapula, could invite
out distinct address, and this was of very limited extent —

After some time his chest ceased gradually to clear up, and he was able to get out of bed. The attack — Dr. Kenneth informed me that, about a month after his consultation, he had an attack of Hemoptysis. The haemorrhage was very profuse through Fatal in shape. —

Dr. B. was at first to understand the cause of the Hemoptysis until he examined the blood. He found echinococces flecks, showing that it had been due to the rupture of a hydatid cyst, situated most likely actually in the right lung. Catarhal Pneumonia co existed with no presence of this age and there was doubt now that it was set up by the presence of the hydatid cyst.

Unfortunately no post mortem examination was allowed.