
J. S. Stephenson.

On the Surgical Treatment of Hydatid Disease of the Liver, with Report of a Case,

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The Manor House,
Grimsby, England.
27th March, 1889.

Part II: Commentary. p.12 to 35.
Report of a case of Typhoid Fever of the liver.

George Julian, 34, married, Seaman residing in Garibaldi St, Grimsby, and on board North Sea Fishing Vessels, was admitted into the Grimsby District Hospital and placed under my care on the 23rd January, 1887, on which day he was examined.

He complained of pain in a swelling in the region of the liver. Of jaundice which had existed during the previous five years. His body was somewhat ill-nourished, his weight being about 126 lbs. this height 5ft 5in. On the evening of his admission his temperature was 99.4.

Personal History: He had never known his parents or any relatives, as he was a Poor House Inmate, apprenticed by the Authorities to a Seafaring life. As a sailor before the mast he had been, so to speak, all over the world in small Merchant Craft, exposed to hardships, privations of all descriptions, including shipwreck at Cape Horn and a term of nine months.
imprisonment in Hongkong. Besides having frequently visited Iceland during the latter five years, he had actually lived in that Country for several months. He confessed to a most dissolute and intemperate life, but beyond having had a severe disease of some kind (which has left behind it none of the visible proofs of syphilis) malarial fever on one occasion when in South America, he had not suffered from any noteworthy illnesses or accidents. The malarial fever however, has left him permanently jaundiced.

Two years before his admission into the Hospital under my care, he first noticed a fullness in the right hypogastrum, which, on pressure with his finger-tips, gave pain, as if something was stabbing him, as he described it. This swelling and sense of discomfort gradually increased, and in consequence, he called occasion
ally at the Out-patient Department of the Hull Royal Infirmary, when his head was running to and from that Port. In December, 1886, he was obliged to give up his occupation.

On admission into the Grimsby and District Hospital on the 22nd January, 1887, there was a distinct swelling in the right hypogastric region, about the size of a large orange, with marked tenesmus, fluctuation and redness of the skin. A small incision was made into the swelling, in the ordinary manner, about half a pint of pus was evacuated. This continued to escape for some days in a peculiarly irregular manner, on one day the dressings being completely saturated with pus, and on another scarcely more than merely stained.

On the 20th January I decided to make an exploratory incision with a view to further operations if necessary. Accordingly, I made an incision 4 inches long, midway over the seat of
the abscess, and two and a half inches external to, and parallel with, the linea alba.

About two pints of foul smelling pus were liberated, and it was now found, that owing to the pressure of large quantities of pus, exerted over so long a period of time, the pus had actually pushed its way and dissected the layers of the abdominal muscles, lying between the external and the internal oblique & the internal oblique and the transversalis, and burrowing its way down to the anterior inferior spine of the Ilium; but the transversalis muscle and fascia had not been perforated. Thus all communication with the peritoneal cavity was happily prevented. The abscess was limited internally by the internal border of the Rectus muscle. Above, a sinus extended around the upper border of the tenth Rib, and at the borders of the Quadratus lumborum it took
a downward direction; at the bottom of this sinus the exposed and rough edge of the crest of the sinus was felt. This was followed up and forcibly laid open in its whole course. The whole of the pyogenic membrane was now thoroughly removed by means of scraping with Volkemanni's spoons, and all calide saccos were in this manner efficiently cleared out. It was now thought, that if there were any deeper communications of the abscess with the liver, a further operation should be subsequently performed. Careful examination neither detected such communication nor any fluctuation in, or enlargement of, the liver. Accordingly, after a thorough douching with carbolic lotion (1 in 20) of all escaped incised surfaces, the original abscess cavity was stuffed with iodoform gauze. Free drainage was established at the most dependant points over the crest, and in front of the anterior superior spine of the ilium.
Deceased every day.
by means of drainage tubing of large calibre, and the incisions were stitched up with stout silver wire. The whole of this operation was done under a douche of perchloride of mercury solution (1 in 500). The patient was placed on a milk diet and allowed to have doses of brandy as a stimulant, according to need. Subjoined are the Temperature charts of the case which show that despite the severity of the operation the temperature was at no time alarmingly high. Still, on the other hand, considering the facts that the operation was an antiseptic one, and that large sources of mischief had been removed, it was sufficiently high to give rise to renewed doubts that there was still something deep-seated that had not as yet been detected. Two weeks after the operation slight symptoms of Carbolic poisoning showed themselves, whereupon all the doucheings and douches were at once confined solely to the perchloride of.

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Mercury Solution (1 in 1000). Without further trouble, the patient so far recovered that he was suddenly discharged from the Hospital on account of gross misconduct on the 20th April, having only a small opening, half an inch in extent, at the upper end of the incision, sealed over the original abscess, through which about two drachms of healthy pus were daily discharged.

On the 16th July, Julian was readmitted, with a small, clearly defined abscess, a little larger than a Billiard Ball, in the original spot, the right hypogastrum, from which issued, through the minute remnants of the opening last named, a small quantity of fetid, green pus.

On inserting the probe into this sinus, it went about two inches backwards and downwards, and here a rough necrosed rib was felt at the bottom. The pus was forthwith let out by means of a temporary enlargement of
the tons. This relieved the patient’s more urgent symptoms. On the morning of the 18th July, a Hydatid cyst was found, plugging up the mouth of the small wound, and after this was dislodged, several smaller cysts were liberated and discharged. This was the first absolute proof I had that my patient was really suffering from Hydatid Disease, consequently on the 19th July, I again opened into the cavity, by making an incision four inches in length, exactly corresponding with that made on the 20th January. The upper extremity of this incision being bounded by an imaginary line drawn horizontally through the apex of the Xiphoid cartilage outwards, the 7th, 8th, 9th and 10th ribs were exposed to view at and near to their costo-cartilaginous junctions. I then scraped away the piece of necrosis which had been detected by probing, and found that this was not great in extent, being a small portion of the 7th close to the cartilage. Then determi
med to expose the Hydatid sac, by reflecting some portion of rib or ribs. I found it necessary to remove an inch and a half of the 8th, 9th, and 10th at their cartilaginous joints, and I thus avoided wounding the diaphragm at its attachment near to the long ends of these ribs. My plan was most successful: the cyst wall was abundantly exposed, whereupon I deepened the lower portion of my incision through it, and at once had a view of the Hydatids in the large suppurating cavity which was situated, presumably, in the right lobe of the liver. I now carefully emptied it of its contents: the walls of the sac were adherent to the parietal walls for about an inch on each side of the incision, thus cutting off communication with the peritoneal cavity, and rendering the danger of opening into the pleural cavity much less than might otherwise have been.

The whole sac was now gently and carefully scraped out with Kochermann's spoons, till a fibrous basement mem
A few (about four in all) obliterative bleeding points were controlled by means of the actual cautery. The cavity was then thoroughly drenched with perchloride solution and finally stuffed with iodoform gauze, and the dressing was done with Salalombrotch wool. The upper and lower portions of the incision were brought together by means of silver sutures.

On this occasion likewise, I relied upon perchloride of Mercury solution (1 in 1000) for my antiseptic results.

From this day forward the patient made a rapid recovery without any symptoms of any kind, the temperature only on one occasion rising a degree above the normal, and that was five days after the operation.

On the sixth day, the Iodoform gauze was removed, and the wound dressed for the first time. Very little discharge was present. A large indiarubber drainage tube was now inserted into the sac, in place of the Iodoform gauze packing.
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**Température Centigrade Scale**

**Fahrenheit Scale**

**Remarks**
- 1: Fever
- 2: Chills
- 3: Diarrhea
- 4: Abdominal Discomfort
- 5: Rash

**Dr. Casey M.D. Desnoe**
The wound was perfectly healthy in appearance: It formed a perfect tube; the parts, Fallopean both walls and cartilaginous were used as dressings. Six days later, the case was again dressed: the discharge were so trifling that the tube was now removed, and only a small portion of the middle of the wound was left to heal: dressings were applied as on the last day, and the patient sat up.

On the 4th August the case was again dressed: there was a mere trace of discharge, and the wound was nearly closed.

On the 9th August the last dressing was applied: there was no discharge and the wound was practically healed.

On the 13th August the patient was discharged from the hospital quite well.

On the 23rd November, 1888, Julian called to see me: he stated that he had been at sea and at work during the past fifteen months, and that he "was never better in his life." He is, up to the present date (March 1889), at sea for anything I know to the contrary.
Commentary.

The history of our definite knowledge of the Hydatid parasite appears to be limited to the present century. In the year 1804, Laennec placed what he termed "Acéphaloteqti" amongst the Vericulæ worms. Then in 1828 we find Briançon, in his "Essai sur la Diagnostic et le Traitement des Acéphalo-tergites," speaking of the "tromissement hydatique." Soon after Briançon's description of this diagnostic phenomenon appeared that of Perrry. So this formitus I shall have occasion, subsequently, to allude. In 1860, Davaine published his "Traité des Entozoaires et des Maladies Vermineuses de l'Homme et des Animaux domestiques," a book which the immortal Lourmazian in his Clinical Lectures (Vol. IV, Lect. xxvii, New Ed. 1871) characterizes as "the most complete Treatise on the subject which has appeared."

Since this time numerous able workers have given the results of their researches and amongst them may be mentioned Leuckart, Heller, Hunter, Huxley. The sum
of these investigations is that the Egydatis is a larval form of the so-called Tania echinococcus, the tape worm of the dog and the wolf; and that, in order to develop the Egydatis, it is only necessary that the one of the small tape worm of the dog should be ingested by man.

In the year 1849, Schleienzev, an Iceland physician, showed in his treatise "Iceland undercroft" p. 44-46, that Egydatis disease was endemic in Iceland. This was fully confirmed by observations of the late lamented Dr. Hjaltealin in the Edinburgh Med. Journal for August, 1867. Dr. Schleienzev found amongst 327 patients under his case, that 57 of these actually had the Disease, and he goes so far as to express an opinion that ¼ of the whole population of Iceland is affected with Egydatis Disease. Dr. Hjaltealin is distinctly of opinion that this high percentage is quite in keeping with the facts. The parasite is said by all of the Iceland observers, to occur much more frequently amongst women than amongst men.
and indeed two of these—Dr. Schleicher and Freisen—have given some of the results of their practice in this direction, state that out of 574 patients suffering from Hydatid disease as few as 314.4 were females. The only other country in which Hydatid plays the part of an Indigenous Malady is Victoria, in Australia, and there, during the ten years 1867-77, 307 deaths were officially registered as being due to this disease, out of a population of about 800,000 (Hirsch's Handbook of Geographical & Historical Pathology Vol. 11 pp. 292-293). Data are wanting to show that this disease is indigenous in any other country than those named, although the disease is frequently met with in Russia, Germany, India, Egypt, Algeria and even in Britain. Dr. Vjalctei states that one fifth of all the grown sheep in Iceland have echinococcus, thus every facility for the Shepherd's dogs to become infected is afforded. Very many dogs are kept by the pastoral
populations of both Iceland and the especially Sheep-farming Country, Victoria. The shepherds in both countries practically share their homes with their dogs, and thus, through ignorance of the dangers they run through dirty and careless habits, these people readily get the ova of the dog's tapeworm introduced into their own alimentary canal, either through eating food contaminated therewith, or by the more easy channel of potable water. From the fact that this parasite is found as an endemic in two Countries, the climate and geographical situations of which, are as widely different from one another, it is clear that these conditions do not in any way exert an influence upon its distribution. And from the foregoing observations it is equally clear that Tapeworm disease is one of those Maladies very distinctly influenced by the occupation and the habits of the Individual.
Turning to the consideration of the Diagnosis of Hydatid disease of the Liver, it may be remarked that as the disease presents no symptom or train of symptoms peculiar to itself, and as exploratory methods are in most cases possible and perfectly justifiable, we must look to these for complete confirmation of our reasoning. I have already alluded to the "feminine" or "hydriodine" of Briand and Diory. Of course, if this peculiar sign were constantly present, in all cases, it would be pathognomonic of the disease, and there all difficulty of diagnosis would at once end; but unfortunately this is not the case, and, from the following remarks, it will clearly be seen, that if any reliance is to be placed on this, as a means of diagnosis, it must indeed be very small.

Perhaps where the hydatid mass attaches itself to the anterior margin of the Liver, forming an evident deformity of that organ, such as one might look for in
cancer or in syphilis, in a thin individual, who was known to have been placed under proper favourable conditions for becoming infected with the germs of the Disease, the diagnosis is rendered considerably easier than it would be if the opposite conditions of stoutness and no residence in Ireland re. ruled. In such a case, it would scarcely be difficult for some to imagine that they did actually feel a sensation of fürmityus, that to others, equally skilled in their manipulations, was only one of fluctuation.

In reference to this subject however, Trousseau says in his "Clinical Lectures" (Vol. iv. p. 264, New Ed. Society) "The firmness evidently contained liquid; deep fluctuation could be felt, and in its upper part, there was very distinct crepitation."

Here one of the most skilled diagnosticians the World has ever known, not only speaks of fluctuation, but also acknowledges something quite different from it, namely, fürmitus. Gisnerey also, in his Text Book of
Practical Medicine," Vol. ii. p. 672 (English Transl. 1873) says: "In percussion over
the hydatid itself, in some cases we notice a peculiar thrill (Pierry's Frémissement
Hydatique), similar to that obtained
by striking on tolerably stiff glue.)"
Such evidence as this will undoubtedly,
for all time, give weight to Briançon's
and Pierry's observations.
On the other hand, however, Fainois, who
had large opportunities of observation
declares that in 235 cases which he
had treated, he was never able to
"distinguish more than fluctuation."
(Guttman's Handbook of Physical Diagnosis
1879, 2nd Ed., loc. p. 327.) On the same
page, Dr. Guttman himself states, that
he has had under observation 13 cases of
"hydatid disease of the liver, amongst these
there were 3 in which the tumours had made
their way to the surface of the organ, and
1 in which an enormous mass of
Echinococcus vesicles was discharged
through the umbilicus, but in none
of them could I discover any trace of
"the peculiar phenomenon under discussion."

Having, on page 16, alluded to exploratory methods of diagnosing this disease, it remains for me briefly here to mention the fact of the microscopic appearances of hooklets, i.e. of echinococci, in the fluid obtained by means of the Incision made, or by using the Toecor or cannula, or the Aspirator, or the hypodermic needle.

And this brings me to the concluding portion of my Thesis, namely the consideration of the question of Treatment.

At the outset it will, perhaps, be well to offer some suggestions with regard to the serious matter of Prophylaxis. To those who know anything of the strange life-history of any intestinal parasite, a word of caution, regarding the drinking of unpurified River-water, the eating of raw vegetables, such as Watercress, other things likely to have been either directly or indirectly polluted by lower animals, is only needful; especially if warned that the Country in which they are, is liable to parasitic
spectre. It as happens however that this knowledge does not filter down to the pastoral and rural classes of Ireland and Victoria sufficiently rapidly to be of service to them by the ordinary means used: consequently extraordinary means should be devised. The severity of the climate of Iceland on the one hand, and the parching droughts of Victoria on the other, however, no doubt often drive both man and beast to one common food and water supply. This will of course always exert an evil influence on the better prevention of the Disease of these two countries. It would indeed be well in these countries if the Governments took up the matter, if even their efforts were limited to the issuing of Leaflets for the Adult population, and Readings for all School children, setting forth in a readable manner the risks run and how to avoid them.

Regarding the Medicinal Treatment of this disease I have little to say: unfortunately nothing in favour of any of those Remedies
which eventually can only have produced disappointment and vexation to those who, from time to time, brought them prominently to the fore. If any good result could be reasonably expected, it would certainly be to look for from the direct injection into the sac of certain substances such as Kambala, Peruvian Iodine etc., as advocated by Dr. Davy and others, at varying times during the past few years. But to expect cure to follow the administration by the mouth, of any vermicide, will only result in disappointment. A little consideration of the facts of the situation will be sufficient to prove this. The ordinary vermicides, as useful in the treatment of parasites within the intestinal canal, do not act by becoming absorbed into the system, but into the substance of the parasite itself, by endoemosis, thus killing it. In other words, these substances, to be of use, must come into direct contact with the parasite. The proximity of the portal circulation, in cases of Yozdand
disease of the liver, can in no wise affect the conclusion to be arrived at.

Hydatids, when developed in parenchymatous organs are surrounded by an adherent membrane, a cyst formed at the expense of the cellular tissue of the parenchymatous organ and the structure of which varies with that of the organ. This membrane, exclusively cellular at first, progressively assumes a fibrous, and fibro-cartilaginous consistence; and in old cysts may be seen disseminated nodules, eccentric patches apparently osseous. Their walls vary in thickness according to their age. (Trousseau: Clin. Med. Vol. 18. p. 272.) It would therefore be quite as philosophical to prescribe vermifuges or other medicines by the mouth for the cure of echinococcosis as of Hydatids! If this be granted it remains only that the Hydatid Disease be left alone or that it must be surgically interfered with.

During the past decade a field of surgery so large in its scope and so fruitful in its results for good has sprung upon us.
that nowadays, to speak of quietly leaving alone a case, without duly weighing all the possibilities of active interference, looks very like abandoning one's calling. When one considers the great strides that are daily being made in the Department of Abdominal Surgery, it behoves one to pause seriously before finally pronouncing against interference, even in exhausted and cachectic patients. This section of our Art has now grown to such an extent, that by some it is considered justifiable to open into the Abdominal Cavity for the purpose of clearing up a doubtful diagnosis. If in any case it be decided to leave alone the Tumour, on the ground that the Patient is not suffering any special inconvenience, and with the good hope that it may last for very many years in a perfectly encapsulated condition, it must at all times be carefully kept in mind that the patient is in constant risk of rupture of the sac. That this Rupture is always a source of danger to
life is evident. In my Case, now under discussion, rupture of the sac had taken place, and although the contents of pus had been poured into the layers of abdominal muscles, thus giving rise to a very serious condition, as well as to a dangerous surgical operation, yet this might almost be said to have been the most favourable one of situations for the extravasated pus to select, since the actual cyst itself was found to be in close contact with the pleura, the vena cava and other important structures, into any of which it might have opened, and as given rise, if not to sudden death, to very alarmingly dangerous complications, which would most probably have terminated fatally.

The diagnosis of the Tumour having been established, it may well be urged that non-interference, in the vast majority of cases, is a very questionable proceeding. Yet, whilst decidedly in favour of a more complete examination and evacuation of most cysts that are surgically within reach, I am not
imaware of the good results sometimes obtained by the various methods of withdrawal of some of the cyst contents by means of the Trocar, the Aspirator or the Hypodermic needle, especially as it is beyond doubt that the more or less complete abstraction of the contained fluid does sometimes cause death of the parasites left in the cyst. Although I did, eight years ago, evacuate a cyst by using the Trocar and camula, without any recurrence up to the present time, yet I think such cases run a risk of an escape of the fluid into the peritoneal cavity that in its results altogether counterbalances the slighting nature of the operation. But in the case of Julian, in spite of Rupture of the cyst, and suppuration taking place long before any operative interference, these conditions were of no avail in destroying the vitality of the hydatids left in the sac, and no traces of disintegrating echinococci were at any time found in the pus obtained. In the
"Lancet" of January 15th, 1887, appears a short note on the "Treatment of Hydatids" from Dr. A. Sennett of Hamilton, Victoria in which Dr. S. says that he has operated on about 100 cases of Hydatid Demoons by evacuating the cyst by means of the Frocan punctura or the Aspirator with a percentage of about 10 deaths. Dr. Sennett then goes on to say that "the conclusion however has been forced upon me that this treatment is not the best." He then recommends the abstraction of a small quantity of fluid from the sac and the introduction in its stead - by the hypodermic needle - of a like quantity, about two drachms, of solution of perchloride of mercury of the strength of 32 grs. to the pint.

Granting that the details of treatment, in the great majority of cases, may require special methods in almost every case, according to the organs and tissues involved and to the extent to which such are involved, I would strongly urge that with proper antiseptic precautions an Incision should be made into every
abdominal case of hydatid disease where there is an easily and distinctly localized tumour recognized. In cases where the walls of the sac are not of great thickness, it may not be found necessary to interfere with them any more than by carefully emptying as much of the sac contents as possible by means of a Silver dessert or teaspoon or some such contrivance and treating on the lines of ordinary antiseptic and general principles, always endeavouring to bring the opening into the sac into communication with that of the peritumours, establishing free drainage until the sac is sufficiently contracted to allow the withdrawal of drainage tubing. In some cases it may be found serviceable to have glass tubing instead of Indiamahles, especially where a steady flow of hydatids is to be expected. Where no adhesions are found between the sac and structures outside of the peritoneum, I see little or no objection to opening into the peritoneal cavity, exposing the sac to view and then stitching it to the edges of the
parietal wound in its length, and opening just as one does the Intestine in Colotomy, then evacuating the sac of its contents, treating as above described.

Notwithstanding the fact that this is decidedly a much greater, and at first sight, a much more serious Operation, than the mere introduction of a Broad Camula or of a Needle, yet I think that the risks run by the Patient are fewer and less than they are by any of those methods. And the result of seeing exactly the condition of affairs and in all probability of being able to clear out the sac satisfactorily, as well as of introducing a drainage tube or a packing of Soodform gauze into the sac, are all as completely in harmony with sound practice. Hitherto I have not had occasion to speak of the Operation of Hepatotomy in connexion with this subject. Should a case arise where distinct fluctuation could be felt through the exposed liver substance (where) resection of portions of Rib did not seem to offer a means of escape of wounding the liver itself, and indeed where no other
means presented of getting to the sac, I should not hesitate to follow the example of Mr. Lawson Tait as cut for the case to be immediately referred to in support of this proposal. But as I look upon the resection of rib, as performed in my case, as a less grave matter than section of the liver, I should require to be convinced that I could not reach the sac in this manner, before cutting into the liver substance. However, the operation of Hepatotomy, Dr. Greig Smith states, in his admirable work "Abdominal Surgery" (2. Ed. 1885 p. 573) "need not be attended with much risk." At a Meeting of the Roy. Med. Chirurg. Soc., held on the 14th Decbr. 1880, Mr. Lawson Tait gave the details of a case. To use Mr. Tait's own words: he said: "I opened the abdomen above it a little to the left of the umbilicus, and found the liver tissue quite healthy in appearance and not adherent to the abdominal wall at any spot. I made an incision into the liver, about three inches long, evacuated about two gallons of hydatid cysts, varying in size
from a pea to an orange. The line drawn at this spot was about half an inch thick. I then stitched the edge of the wound in the livers to the edge of the wound in the abdominal wall, and fastened in a wide glass tube 8 inches long. The relief to the patient was immediately complete. The cavity rapidly contracted, continuing to discharge cysts tinges tinged with bile for about 8 weeks. The patient rapidly gained appetite of flesh, having now, ten weeks after the operation, only a small sinus remaining. At a meeting of the same society held on the 25th Jan. 1887, Dr Howard Marsh stated that he had operated on a case of suppurating hydatid cysts of the livers, in a little child, by abdominal section, without attempting to secure adhesion between the livers and the abdominal walls. The result was satisfactory and the case was not complicated by the extravasation of the contents of the cysts into the peritoneal cavity. For my own part I should much prefer the course adopted by Dr Sait, of stitching the edge of the wound of the livers to that of the abdominal wall, thus excluding the peritoneal cavity from danger of the oozing of fluids into it.
Thus perhaps setting up peritonitis; and it is by no means impossible that septicemia might become implanted on the peritoneum and as give rise to cysts in a situation previously healthy. I think such a course of procedure should be strictly limited to those cases in which, owing to extreme thinness or friability of the cyst walls, it is found impossible to bring them to the parietal wound by means of stitches. In such cases, as much resection of the sac and clearing out of its contents as possible should be done.

On page 14 of this Thesis I have referred to the deaths from Hydatid disease in the Colony of Victoria during the ten years 1864 to 1874. And on page 26 I have given Dr. Sennett's record of 10 in a hundred cases operated on by a simple puncture evacuation of more or less of the sac contents, without the introduction of any other foreign substance than the forceps or the needle used.

I am not aware that abdominal section, for the cure of Hydatids, had ever been practised in Victoria during the years for which the
Registrar's Returns are given. But of course several of these may have been in other parts than the Abdomen. So what plan of treatment must we offer the great majority of the 304 registered deaths? While it only fair to assume that most of these cases were treated by puncture in the same manner that Dr. Lennett did. We were, and if this very reasonable supposition be granted, how will these figures appear by the side of any of the Statistics of Mortality from Abdominal Sections done in the present day?

A large experience in Hydatid Disease of the Liver in Great Britain is out of the question, the disease being comparatively rare, and on this account, statistics are deficient. But it is quite fair to place in comparison, statistics of those great operations requiring Abdominal Section, and from them, to draw inferences, making such allowance as is reasonable. In an interesting paper on this subject published in the "Lancet" on the 12th of March, 1887, Dr. A. G. Bankole gives the
Statistics of the Mortality in a hundred and consecutive cases of Abdominal Section. These include great operations, such as Ovariotomy, Hysterectomies, Removal of uterine appendages, Removal of Hydatids of the Peritoneum, as well as Exploratory operations performed by Dr. Rantock. And the deaths number only eight in all! I contend that the comparison, between the figures given, is largely in favour of Abdominal Section in Hydatid disease of the liver.

The conclusions I derive are, from the operation and the reasoning set forth in my Thesis, are as follow:

1. That no reliance whatever be placed on medicines administered by the mouth in cases of hydatid disease.
2. That such disease be referred purely to the domain of Surgery.
3. That less reliance than has hitherto been the case, be placed on methods of withdrawal of the fluid, either partial or complete.
4. That if withdrawal be at all practiced.
it should be partial, and accompanied by Injection of Solution of Perchloride of Mercury, 1 in 1000 strength.

(5) That direct operative interference by abdominal section be performed at as early a date as possible after the diagnosis of Hydatids of the Liver has been made, whether in connexion with a suppurating cyst or not, and whether or not the sac has ruptured.

(6) That in all cases an attempt be made to shut off the peritoneal cavity by stitching the edges of the incised Liver or Sac with the edges of the parietal wound.

(7) That in all cases, where the disease is situated on the superior surface of the Liver, and more especially where adhesions exist, the question of resecting a portion of Rib or cartilage or both, be carefully considered before having recourse to the operation of Hepatotomy from below.

(8) That wherever the situation allows it, the cartilage be chosen in preference.
to the bone itself, on account of the
relation of the latter to the diaphragm.

(7) That whenever purulent changes have
been placed it is right to examine carefully
whether or not the walls of the sac ought
to be scraped with the Votckmann's spoon
through the abundantly large opening
made by resection of nit, by hepatisation,
or by any special method affording suf-
ficient room for such examination,
and for governing any excessive bleeding
that might arise from the detachment
of partially adherent cyst wall to the
cavity.

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