successful result of manipulation in this case might be thought encouraging for persevering manipulation as a rule of practice in these cases before subjecting the patient to surgery; but certainly, in the second case at any rate, no good could have resulted from any amount of manipulation, and it must in any case be attended with very serious risk of perforation. An acquaintance of my own died after a few hours' illness from the duct becoming gangrenous from the pressure of a large stone, though he had suffered but little inconvenience from its presence, and was apparently in his usual health on the morning of the day of his death.

When we have to deal with a distended gall bladder and a stone impacted in the cystic duct, the operation for its removal is much more easy than those just described. The bladder is carefully surrounded with carbolised sponges, and aspirated; when empty it is incised and opened, then its stretched walls are easily held forward outside the abdominal incision, and the necessary manipulations for the removal of the stone or stones are carried on in a large cavity, and without risk of any remains of the fluid contents fouling the peritoneum.

It is very different when the walls of the gall bladder are so contracted that they only admit of a very small incision, the edges of which cannot be brought outside or even into the lips of the abdominal incision; not only is the risk of fouling the peritoneum greatly increased, but the exploring finger is tightly grasped by the contracted and thickened walls of the bladder, and there is no space to pass instruments past it for loosening or breaking up and extracting the stone, only those who have had personal experience of the difficulties to be overcome can realise the extreme care necessary to dislodge the stone without damaging or tearing the duct, and of course if there are, as in Case II, several stones one below another, the tediousness of the proceeding is greatly increased. Even in the relaxed abdomen of an emaciated woman, all one's ingenuity and perseverance is taxed, and the last stone is far beyond the reach of the longest finger, while the broad chest of a strong man, with thick and, perhaps, fat abdominal parietes, adds enormously to the difficulty both of the operative procedure of extraction and of the suture of the gall bladder into the incision. The first case I ever operated upon was that of such a man, and I have always believed that the fatal result was due to poisoning by the complete suppression of bile, this being brought about by the great and constant strain upon the gall bladder and ducts after it was at last securely sutured into the parietal wound.

I have never removed the gall bladder, but I am inclined to think that it would be less dangerous to do so in such a case, than either to leave it forcibly dragged into the wound or sutured and dropped into the peritoneum, with the risk of its becoming distended, so that its contents oozed out between the sutures. If experience should show that complete removal of the gall bladder is nearly as safe as opening it and removing the stones, there would be the great advantage of avoiding any possible future trouble from a fresh formation of stones, but in most cases it would be extremely difficult to close satisfactorily the wound made by its removal.

A case which I reported at the Brighton meeting of the British Medical Association proves moreover that when the gall bladder has disappeared by atrophy, probably due to inflammatory processes, stones may still form in enormous numbers in the smaller ducts in the liver substance.

The comparatively smooth recovery of the two cases here recorded, after such prolonged and difficult operations, are additions to the proofs which have so rapidly accumulated in the last few years as to marvellous toleration of surgical operations by organs contained in, or partly covered by, the peritoneum, provided we can escape the dangers of septic infection.

A CASE OF ECHINOCOCCUS IN THE ORBIT.

Read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association in Dublin, August, 1887.

By PROFESSOR VON ZEHENDER, OF ROSTOCK.

I NEVER met with a case of echinococcus in my ophthalmological practice till lately. Since November last year, I happened to meet with two such cases. One of these does not exactly belong to eye diseases; it was a woman aged 64 years with cataract of the right eye. The operation was performed December 6th, 1886, and succeeded perfectly well. Two nights later the patient complained of great pain in the left side, just below the short ribs, in which place one could feel a deeply situated tumour. The urine was loaded with albumen. The patient, who had previously told me she had never

before suffered from any serious illness, was transferred to the wards for internal diseases, and died there January 15th, 1887, about five weeks after the cataract operation. At the *post-mortem* examination a large hydatid cyst was discovered in the spleen with extensive inflammation in the neighbourhood, especially in the kidney.

The other case which I beg to be allowed to relate somewhat more extensively was an echinococcus in the orbit.

The patient, a man aged about 38 years, came into my consulting room November 3rd, 1886, with a well-marked protrusion of the right eyeball. He stated that he had remarked this protrusion not earlier than about six weeks before, and thought it was caused by a cold he had caught. The sight was not much impaired; he could read very small print, though with greater difficulty than with the sound eye. I saw the patient no more till January 16th, 1887. During this interval he had consulted several other medical men. In the meanwhile the protrusion had greatly increased. The patient was scarcely able to recognise the largest letters of Jaeger's test types. Ophthalmoscopically the disc appeared to be choked (what we call *Stauungspapille*). The direction of the protruded eye was inwards and downwards, and in the upper and external part of the eyeball the little finger, pushed forward between the margin of the orbit and the eyeball, could distinctly feel a soft, round, deeply-situated tumour. The nature of this tumour was quite unknown; it was impossible to find out any symptoms for a more accurate diagnosis. It was therefore decided to try to remove the tumour without injuring the eyeball.

The first operation was performed on March 24th, 1887. A large incision was made, dividing the outer commissure of the eyelids, and the entrance to the orbit was freely opened by cutting into the conjunctiva along the upper eyelid. Placing into the opening of the wound the first finger of the left hand, one could easily reach the tumour and catch hold of it and draw it forwards by means of a sharp hook introduced along the finger. The appearance of the tumour was of a bluish-grey colour, and resembled very much the cyst of an echinococcus, but it was impossible to loosen the tumour and to tear it out, because it was too firmly connected with the neighbouring tissues. By the efforts of tearing the hook made a slit in the membrane, and a great quantity of clear fluid escaped, whereupon the cyst retired quite into the depths of the orbit. The diagnosis of echinococcus seemed to be without any doubt, and, if so, needless to continue to extract the collapsed cyst. The eye was bandaged with a weak solution of chloride of mercury, and the patient was brought to bed.

The first result of this apparently not important operation was a considerable swelling of the upper eyelid and the whole right side of the face, extending even to the upper eyelid and the surroundings of the other side. After a few days the swelling began to subside, but the protrusion of the eyeball was not much lessened, and, what had not existed before, a tremendous fold of the conjunctiva projected between the eyeball and the under lid. This state of things not changing in the next following weeks, it was firmly decided to make another operation, and this was performed on May 13th, 1887. The first finger of the left hand introduced into the orbit could not find any cyst, but it found a diffuse consistent substance, which it was tried to cut out with the scissors. I succeeded in taking away a piece of this substance about one inch long and half an inch wide, and some small pieces of the cyst followed this extirpation. The rest of the collapsed cyst, which was esteemed to be about the size of a large walnut, was then found embedded in the substance to be cut away, some more of which was still removed, and then the eye was bandaged in the usual antiseptic way.

The recovery from this second operation was easier and quicker than the first time, though the operation itself was much more serious, the scissors and the fingers being introduced deeply into the orbit and almost in the neighbourhood of the optic nerve. The swelling round the eye was by far not so extensive as after the first operation, and also the general health of the patient and his sleep were better than formerly. But there was still an enormous fold in the conjunctiva, bulging forwards between the eyeball and the lower lid, not allowing it to return to its natural place. Therefore it was necessary to make a third and last operation. This was performed on January 6th, 1887, without the administration of chloroform. The projecting fold of the conjunctiva was divided by a deep incision extending the whole length of the eyelid, and then a large portion of the protruding tumour was cut away, to the effect that the lower lid could be replaced in its natural position and kept there by some suitable stitches. Hereupon the eyeball gradually retired within the orbit, and the disfigurement was entirely removed, except that the eye remained in a squinting position; it could not be moved upwards and outwards,

the respective muscles being cut away by the second operation. The sight of the diseased eye, entirely lost at the time when the patient entered the hospital, now returned so far as to enable him to read the large print No. 16 of Jaeger's test-type.

This is a brief history of the case. May I be allowed to say a few words concerning the frequency of this disease in different countries?

It is very difficult to give approximately exact figures in respect to the frequency of echinococcus disease, for there exist very few notices on it. That Iceland is the land where it most frequently occurs is a well-known fact. Therefore some forty years ago the Government of Denmark found it necessary to send some medical men into that country to study the nature and the causes of this disease, and also, if possible, to find some means of preventing it. The result of the investigation of this first explorative mission was that in that country out of six or eight people one was affected with this disease. Later experiences proved that this proportion was greatly exaggerated. Dr. Jonassen, the latest investigator of the sanitary conditions of Iceland, found one diseased among sixty-one people.

Another country well known to be very much visited by echinococcus disease is the colony of Victoria, in Australia. In the *Edinburgh Medical Journal* of 1867, p. 529, Dr. W. Lindsay Richardson gave some notes on some of the diseases prevalent in Victoria, and noticed among these the exceedingly common occurrence of "encysted hydatid tumours," which, examined with a glass of 200 or 300 diameters, were found to contain the echinococcus. This affection, as he remarked, has become so prevalent of late years that it may be called as well in Victoria as in Iceland an endemic disease. Sheep are found to suffer there from the same disease in about 4 or 5 per cent. of the flock (Hudson).

"Investigations of the Year 1879" (*Lancet*, March, p. 297) stated that within the ten years, 1868 to 1877 inclusive, there have died 307 people of the hydatid disease among a population of about 860,000; that means one death among 280 people annually. This is a small number in comparison with the frequency in Iceland, but, nevertheless, an exceedingly great number in comparison with other countries.

The occurrence of echinococcus has occasionally been noticed nearly everywhere in Europe: in Italy, France, England, and especially in Germany; but nowhere, except in Iceland and in Victoria, has any attempt been made to give statistics as to the frequency. Professor Madelung, of Rostock, suggested to the medical profession of Mecklenburg to unite in making a collective investigation of all cases which have come under their own observation. Through this collection it is stated that 196 cases of echinococcus have been seen and treated by the now living medical profession of this land, which has a population of about 700,000 inhabitants. It was also stated that, through 1,026 *post-mortem* examinations made within about twenty years in the institute for pathological anatomy of the University of Rostock, there were found 25 cases of echinococcus (2.43 per cent.). This is a very high rate, not nearly reached by any other German university, the next to it being Greifswald, in Pomerania, with 1.47 per cent.

It is very remarkable that this high percentage seems to be limited on Mecklenburg and its eastern neighbourhood; whereas in the north of it, in Denmark (Professor Krabbe) and in Norway (Rolfen), and in the west of it, in Lübeck (Hinkeldeyn) and in Hamburg (Schede) the echinococcus disease is said to be very rare. Moreover, it is remarkable that the before-mentioned 196 cases are not distributed over the whole land in an equal proportion, the northern and eastern parts of it being much more infected than the western and southern parts. These northern and eastern parts of Mecklenburg belong to the alluvial land, with fertile soil and beautiful pastures, whereas the southern and western parts are more sandy, stony, and sterile. It is of some interest to notice that in these more fertile parts of the country, with good pastures, there are kept much larger flocks of sheep than in any other part of Germany. The proportion is between 160 and 180 sheep to 100 inhabitants, whereas in the whole of Germany there is an average proportion of only 42 sheep to 100 inhabitants. These sheep, as it is well known, suffer very often from a particular disease, called in German "Drehkrankheit," a disease generally produced by echinococcus in the brain. It is quite possible that there exists a common cause which produces echinococcus both in the brain of sheep and in the human body. This connection it may be supposed is this: It is almost certain that there is no domestic animal except the dog which is apt to harbour the tapeworm of echinococcus (*taenia echinococcus*); hence the infection of the human body will not be possible except by the intervention of dogs harbouring the tapeworm of echinococcus; and those dogs harbouring the tapeworm of echinococcus will certainly be found in the largest proportion where

there is the best and easiest opportunity of becoming infected with hydatid cysts. It is impossible to state with exact figures whether the dogs of the northern and eastern parts of Mecklenburg are afflicted with *taenia echinococcus* in a larger proportion than elsewhere, but it is very likely to be so, because of the greater opportunity in finding and eating the diseased brain of sheep.

I think this is a very imperfect, to be sure, but at the same time a very interesting result of the researches of the medical profession in Mecklenburg; and I am sure that people as well as governments will henceforth be impelled to secure further researches, and to use proper measures to avoid this evil.

ON THE TREATMENT OF STENOSIS OF THE NASAL DUCT BY THE INTERMITTENT NOCTURNAL USE OF REMOVABLE STYLES.

By ARTHUR H. BENSON, M.A., F.R.C.S.I.,

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STENOSIS of the nasal duct, occurring as it does from so many and various causes, cannot be rationally or successfully treated by any single method. Each case must be separately considered, and that method adopted which, for that particular case, seems most suitable.

I have no intention of entering at large on a consideration of the various causes of stenosis, nor yet of considering all the methods of treatment that from time to time have been practised or recommended, but shall confine myself to a method which has, in my hands, proved of great service in a certain number of cases, and which is, I think, capable of considerable extension.

All who have much experience of lachrymal obstruction must have now and then come across cases where the ordinary methods of treatment failed to procure a permanent passage through the nasal duct. As long as the patient was under treatment, and could have the probe passed once a week or even once a fortnight, all went well; but when he went home to the country (for it is in the case of those living at a distance from town that the greatest difficulties arise) the old trouble returned, and, three or four months later, the patient whom you marked off as cured reappears with the tears still flowing over his cheek, with the same trouble present in every particular, for which he sought relief at your hands only a few months before. You have then to cut and probe as before, and commence again the tedious and painful treatment, your patient having less confidence, and you less assurance of success.

After some weeks or months of this treatment your patient again goes home, soon to experience afresh the old trouble, for the treatment of which he will probably then seek relief elsewhere. Few patients will return a third time to undergo a painful course of treatment which has failed to give adequate relief.

In a certain number of cases passing probes (after division of the canaliculus) for a few days or weeks gives permanent relief, and nothing further is necessary; but, in a large majority of cases, especially where there is old standing fibrous thickening of the lining of the duct, or where there is bone disease (caries) in the immediate region of the sac and duct, the treatment has to be continued for months, or even years, before a really permanent channel has been provided for the tears. It is in such cases that disappointment and discontent affect equally the surgeon and his patient, and it is for these cases that I have sought a remedy in what I have called "removable styles"—removable, I mean, by the patient himself.

At the Brighton meeting of this Association last year I ventured to suggest the plan of teaching the patient to introduce and remove his style himself; I had then only tried it in a very few cases. The Section greeted my suggestion with but slight favour, and thought it a dangerous innovation to allow a patient to have anything to do with the treatment of his own case.

Since last year I have taught a considerable number of patients, both private and hospital, to manipulate their styles with ease, and have had the great pleasure of seeing some most obstinate and, I may say, almost incurable cases under the old method continue ever since free from trouble, the patient wearing the style at night and removing it again each morning.

The method which I adopt is to slit the canaliculus, either upper or lower, with Weber's knife, and pass probes in the ordinary way for some days or weeks or months as required. If the case is one of extensive narrowing, or if there is much bone disease, I often leave in a