THE RISKS AFTER OPERATION FOR TONSILS AND ADENOIDS IN OUTDOOR CLINICS.*

BY

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THE removal of tonsils and adenoids in children is, if we exclude dental extractions, the commonest surgical operation done under general anaesthesia; its benefits in thousands of cases each year are considerable and lasting, and its risks, if a very few ordinary precautions are observed, are inconsiderable. With the present congestion of hospital beds, many children who require this treatment would be denied it were not the practice of operating in the out-patient department maintained. The precautions taken at the Bristol Royal Infirmary, from which clinic I have obtained my figures, are as follows: The cases are carefully selected. No sickly child, no child from an "epidemic" district, no child living outside Bristol itself, is dealt with in the out-patient department. The parents are given printed instructions for use before and after operation. The essential preparation is that the child's stomach be empty; it is therefore ordered a fluid breakfast three hours before the operation. It is brought to the Infirmary in the middle of the morning, and the operation is performed by the assistant surgeon or under his immediate supervision. Gas or ethyl chloride is used; all instruments are sterilized by boiling. The child is inspected at 2 p.m. to make certain it is fit to be taken home. The parents are instructed that it must be well wrapped up, that it must not walk a step, and that it must be kept indoors for four days. Formalin lozenges are given, and the child is seen again on the fifth and twelfth days.

Everything, therefore, lies with the parents, who, in practically every case, are anxious to do all they can for the welfare of their offspring. The preparation for operation is simple, and almost always carried out, but in the after-treatment they are often really handicapped; and it is the after-treatment that tells. For the first forty-eight hours raw gaping wounds in the child's fauces invite the attack of bacteria. After that a barrier of granulation tissue exists which will repel all ordinary infection. Mr. Tilley,¹ who likes to keep patients at home for a week after operation, gives as the chief risk of the operation septic infection, which, he says, "is difficult to avoid in hospital practice, where patients often return to their homes within a few hours of the operation"; he records two cases of acute septic poisoning, one fatal, where the home conditions were insanitary.

With the permission of Dr. P. Watson-Williams I have analysed the results of all the cases dealt with at the Bristol Royal Infirmary out-patient clinic during 1919. For the purposes of comparison I have analysed also the last 100 consecutive cases dealt with as in-patients. In both cases only children between the ages of 3 and 15 are included. The in-patients comprise all those admitted because they did not appear robust, and a few cases in which submucous septal resection was done as well. Those cases in which, for example, an antral empyema was opened at the time of the operation have been omitted as being outside the class of minor operations. Otherwise the conditions are similar. The same surgeons operated, and many of the operations on in-patients were actually performed in the out-patient theatre. The only

differences were in the in-patient series: (1) the anaesthetic was usually given by the honorary anaesthetist; (2) ether was sometimes given; (3) the children were kept in hospital for two or three days afterwards.

Such occurrences as severe haemorrhage or collapse have not been included, as possibly they would be more emphasized in the notes of out-patients than those of in-patients. A few histories are appended to indicate the standards used:

Case 3,799 (in-patient).—Following the operation this child had acute suppurative otitis media; the left ear perforated, but healed subsequently; in-patient fifteen days. (Definite morbidity.)

Case 50,144 (out-patient).—This child had double acute otitis media, starting a few days after the operation. The left ear subsided but the right perforated and had not healed when last seen several months later. (Definite morbidity.)

Case 50,782 (out-patient).—The operation was performed on May 30th, 1919. On June 7th the child was admitted with acute mastoid infection; an immediate operation was performed, but meningitis was already marked, and death occurred on June 16th. (Our first fatality directly traced.)

Case 51,298 (out-patient).—The operation was performed on October 10th, 1919; acute mastoid infection occurred shortly afterwards, and Schwartz's operation was done on October 17th. The child was an in-patient four weeks and attended the out-patient department for other ten weeks. The hearing is permanently impaired. (Serious morbidity.)

Case 51,301 (out-patient).—The operation was performed on November 7th, 1919. On November 11th acute suppurative otitis media occurred; myringotomy was performed; broncho-pneumonia followed, and pleural empyema required operation a fortnight later. The child went to the convalescent home three months after the first operation. (Serious morbidity.)

The figures in these tables speak for themselves; though the number of cases is small, nevertheless they afford an important index. The morbidity among children operated on in the out-patient department is over four times as great as among the in-patients. Although the point has been recognized for years, I should like to ask whether sufficient weight is given to it, and what, if any, variation in present practice is desirable.

REFERENCE.

¹ Tilley: *Diseases of Nose and Throat*, 1919, p. 323.

THE DIAGNOSIS OF HYDATID DISEASE OF THE LUNG.

BY

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ALTHOUGH hydatid disease is, apparently, not so common in English clinical practice as it is in Australia, the following brief notes of my experiences of its manifestations in the lung may be of use to English readers.

Between 4 and 70 years is the age limit of my records. There is a noticeable reduction in the number over 50 years of age. Men suffer more than women, and those who dwell in the country more than those who dwell in towns. Australia, New Zealand, the Argentine, and the north-western shores of Europe are the countries most extensively infected. The date of infection has an important bearing on the diagnosis, but those who have once lived in an infected locality may, in doubtful lung affections, be suspect, as the disease may exist for years without symptoms. Constitutional disturbance is unusual, but when it occurs it is not characteristic. Urticaria and maculate rashes are complications, and they may recur year after year.

Blood changes are those common to other parasitic diseases, and consist of an eosinophilia and basophilia. Such changes, however, are not constant, and variations occur from hour to hour. The only well-established fact is that if eosinophilia exists before, it rapidly disappears after operation, and may reappear later to a still greater degree. As a matter of fact, I have rarely found the presence of eosinophilia of material assistance in the diagnosis of obscure cases, notwithstanding statements to the contrary. This problem is complicated because in New Zealand eosinophilia is a very common phenomenon.

There is a conflict of opinion in the literature available as to the value of the precipitin and complement fixation tests. Observations in Sydney, New South Wales, suggest that the results are unreliable, while those in New Zealand confirm this view, but observers in Buenos Aires claim

Table showing Number of Cases and Morbidity.

	100 In-patients, March, 1918, to June, 1920.	239 Out-patients, 1919.	
Definite morbidity — ...	1	7	2.9 %
Serious morbidity	0	3	1.3 %
Mortality	0	1	0.4 %
Total morbidity	1	11	4.6 %

* A paper read before the Bristol Division of the British Medical Association.

them to be useful helps in diagnosis. Here in Christchurch, New Zealand, no records on the point exist.

As for local changes, in its early stages a "healthy" cyst in the lung causes no irritation or pressure symptoms; indeed, it may quietly attain a large size without any warning to the patient or causing any displacement of the viscera. Symptoms due to mass effects are exceptional, but occur at times. Changes in and around the cyst generally cause the first symptoms, and may indicate (1) rupture into a bronchus, (2) haemorrhage into the lung, (3) pleurisy, (4) pneumonia, or (5) pneumothorax. Rupture into a bronchus may occur without any warning, or follow one or more attacks of haemorrhage or pneumonia.

The patient's story is characteristic. There is a sudden rush of salt-tasting watery fluid with a sense of intense suffocation. The fluid expectorated may be blood-stained or fragments of cyst wall or daughter cysts may be present in the excessive quantity of the fluid material discharged, or debris may suffocate the patient by the plugging of the glottis or other part of the respiratory tract.

The appearance of the fluid is characteristic; it does not coagulate on standing, while microscopically fragments of laminated cyst-wall or hooklets may be found, but in sterile cysts with macerated cyst-wall characteristic elements may be absent. Pus cells are usually absent at first. The first rush may be a pint or more in quantity, while cyst debris and fluid may be expectorated for weeks.

Lendon expresses the opinion that debris in the sputum may persist for long periods, even years, but I cannot agree with this, as I have found that though hooklets appear to resist maceration for a considerable time, the rapidity with which the cyst wall loses its characteristic appearance does not make this likely. I would suggest that the debris, if persisting long, is derived from a more recently ruptured cyst. The history after rupture appears to depend entirely on the degree of completeness of the drainage and on the presence or absence of infection of the resulting cavity.

Many cases recover without complications, others develop all the symptoms of a septic cavity. I believe it is impossible for a ruptured cyst to re-form. Cysts in the neighbourhood appear to grow more quickly after the rupture of an adjacent cyst, possibly as the result of relief of pressure, and there is always the possibility of the existence of other fully-developed cysts.

Haemorrhages may occur without other premonitory signs or symptoms and may be either profuse or scanty. Unless physical signs which contra-indicate tuberculous disease are present, there is nothing to distinguish such haemorrhage from that caused by the latter disease. A cyst situated at the apex may exactly simulate phthisis. The extent of the lesion, the history of perfect health prior to the bleeding, and the small degree of disturbance caused by a large area of disease often give a clue to the cause of the trouble. Extensive tuberculous disease is more often than not bilateral. Pneumonia is at times a complication. I find notes of this complication recorded in the histories of quite half the reported cases in the literature. It takes the form of recurrent attacks during quite a long period of years. Haemorrhages and pleurisy often occur also. It is evident from the records that the attacks so closely simulate acute pneumonia that they may be mistaken for this latter disease. I have examined a large number of temperature charts of such cases, and they all present the same typical characteristics. There is no crisis, the duration is variable, and there is a tendency for irregular rises after the initial fall of temperature. The early attacks most closely simulate pneumonia, while later attacks are less characteristic and the temperature is less irregular.

Though apparently the patient may have recovered and be able to work, the signs in the chest, as revealed by the radioscope, do not clear up or give the impression of a gradual advance to a climax till the whole of the lung has become dense and quite impermeable to the x rays.

Pleurisy with effusion, often purulent, may accompany the pneumonia. This is due to inflammation, and not to the mechanical effect of the cyst, while the displacement of the heart may be greater than can be accounted for by the amount of the fluid. This displacement is probably due to the fluid pressing on solid uncollapsed lung. The fluid is of inflammatory type. I can trace no relationship between the size of the cyst and the resulting consolidation. What may be called the final stage, reached by some

cases when the cyst does not rupture, presents a clinical picture which is, I think, quite characteristic. This picture consists of a practically solid lung, with possibly a little effusion, an irregular pyrexia of varying intensity, sometimes extremely slight, and a healthy lung on the opposite side. If pleural pain and cough occur and harmonize with the diagnosis of a cyst in an otherwise healthy lung, the case is simplified. The patient is not, as a rule, ill, although he has a pain and cough.

If examined soon after the appearance of the symptoms there is usually a rub to be heard, possibly of unusual extent. There is a sharply defined area of dullness, tailing off into and surrounded by healthy lung. As the cyst is globular in form, it may extend to the anterior and posterior walls of the chest. The breath sounds are diminished in intensity over the area of dullness, but there are no signs of fluid unless the cyst is of great size, in which case, especially if situated at the base of the lung, it is frequently mistaken for a pleural effusion. If, however, the absence of heart displacement is noted, this mistake is not likely to occur. The surrounding lung is seldom healthy, and adventitious sounds may be heard on auscultation.

The radioscope demonstrates these cysts at a glance, while the chest wall is usually bulging and often tender to the touch. Pleural effusion rarely accompanies this condition, but is common in cases complicated by pneumonia.

I have never heard of a definite case of pneumothorax occurring as a complication of hydatid cyst, but I have seen a few cases which were not caused by obvious tuberculous disease, and which may possibly have been due to this cause. Cough may exist long before there is any suspicion of hydatid disease, and may be attributed to nasal, pharyngeal, or laryngeal catarrh, as the chest appears to be quite healthy. Expectoration prior to rupture is the exception, but occasionally a considerable amount of mucopurulent sputum is present. It is remarkable how scanty is the expectoration in pneumonic cases, but some emphysema due to cough may result.

Even a small cyst, $\frac{1}{2}$ in. to $\frac{3}{4}$ in. in diameter, is impervious to x rays, and has a curious mottled appearance. In otherwise healthy lungs definite cysts are easily seen, but they always appear to be of considerable size, two or more inches in diameter, even though they are actually of very small size. If the lung is consolidated or otherwise diseased the cyst may, when large, be entirely obscured. A lenticular outline is, however, very characteristic; in fact, x ray reports are always very helpful, either as a means of leading to a positive diagnosis, or of enabling the observer to exclude the condition.

In attempting a diagnosis, puncture is, as a rule, too dangerous a procedure to be warranted as a routine method. If, however, it is possible by x rays or other means to make reasonably sure of the presence of a cyst, or to be satisfied that a pneumonic area cannot contain a large one (that is to say, of sufficient size to contain a dangerous quantity of fluid), then I think puncture is justified. If a case is left untreated, the cyst invariably enlarges, the pneumonia spreads, and the site of the required puncture becomes more and more obscure. I can find no relationship between the size of the cyst and the extent of the consolidation, and it is quite conceivable that a small cyst may cause disproportionate damage.

There are two sources of fallacy in the diagnosis:

1. A degenerate cyst with contents too viscid to enter a needle.
2. A cyst so packed with daughter cysts as to yield only a few drops of fluid. But even these few drops may contain enough material to identify the disease.

CASES.

The following clinical records may be useful:

1. J. H. W., aged 48, farmer, admitted January 24th, 1919. Four years ago operated upon for appendicitis. Otherwise health good except for violent cough at times. Since an attack of influenza in 1912 had not been well. Chief complaint bad cough and vomiting during paroxysms; no sputum. Much loss of flesh, and was too weak to do his work. Sweated very much at nights; urine contained a slight trace of albumin and a very few pus cells. Many teeth carious. Physical examination revealed much loss of subcutaneous fat; muscles show clearly beneath the skin. Heart sounds normal, apex not extending to the nipple line. On the right side some slight dullness in the interlobular line lower than is usual in tuberculous disease. A few distant crepitations heard. Complaints of pain when right side is percussed in the line of axilla over seventh and eighth

ribs the liver dullness seems to extend upwards into the axilla and the resistance to the fingers is increased. No definite change in the breath sounds beyond some lessening over the dull area. X-ray evidence showed a large cyst, about 4 to 5 inches in diameter, present in the axillary line, just above the diaphragm on the right side. A beautifully clear outline was shown and there was no possible doubt as to the nature of the disease. No blood cell changes. There was a shadow at the root of the lung of small size. The radiologist reported that this was due to inflammatory thickening around a bronchus. Operation revealed a degenerated cyst full of odourless pus and cyst debris. The patient has since developed phthisis.

2. F. F., aged 38, sailor, admitted May, 1914, with pleural effusion. He had a history of left-sided pneumonia and pleurisy for the last eighteen months. Complained of cough and increasing weakness. After aspiration there remained some dullness below third rib in front. The pleural fluid contained polynuclear cells. He was discharged at the end of three weeks relieved. Readmitted May, 1915. He had lost flesh, and had an irritating cough, relieved by lying on the left side. Movement on left side restricted. The heart was displaced to the right, 3 in. from mid-sternal line. There was fluid in the left pleura. There was evidence of consolidation of the lung in front, from the clavicle to the nipple line. Crepitations could be heard at the base of the left lung. The right lung was clear. The radiologist reported that the right lung was healthy throughout. The heart was displaced to right; the left lung was dense all over, lessening a little at apex and base and most dense in lower lobe. Later he reported a rounded deeper shadow, the maximum depth being in the position of the left nipple. June 2nd, lung still clear. Later in June it was found that the fluid in the pleura was purulent. A rib was resected and the pleura opened and a large quantity of hydatid material was discovered. When first admitted his temperature fluctuated between 101.8° and normal; later it remained normal till just before the operation, but was never so high as on admission. From time to time the sputum was blood-stained during a period of eighteen months or more. He had a positive Wassermann reaction, and the general opinion of the staff was that the lung was syphilitic. No eosinophilia was found in repeated examinations, and in spite of a normal temperature the physical signs did not improve. At the time he first came under my care I made a diagnosis of cyst, but I was unable to induce a surgeon to make a thorough exploration of his chest. It was only the subsequent occurrence of an empyema that led to an operation.

3. J. L., labourer, aged 42, admitted October 22nd, 1918, complaining of pain in lower right anterior chest, worse on taking a deep breath; he sought advice on this account. Temperature normal, lungs slightly emphysematous, heart normal as to position and sounds; general health always good—he was at work up to the day of admission. Cough very little. On examination no pleuritic rub was found. There was a circumscribed area of dullness in the lower right chest, with a slightly more resonant area between the lung and liver dullness in the anterior axillary line margin and extending upwards about four inches. The transition from dullness to resonance was sharp. Breath sounds over dull area weak, no adventitious sounds heard, and no bronchial breathing. X rays showed a clearly defined cyst occupying a large part of the lung, the radiologist estimating this as half the lung. No eosinophilia. Refused operation, as he did not consider it necessary; he is not inconvenienced at all.

Conclusions.

It will be apparent that hydatid cyst may simulate many lung diseases, and to discuss differential diagnosis in detail would be to discuss the character of almost every known disease of the thorax. Moreover, it is clear that a cyst so rarely gives rise to pressure symptoms that the diagnosis must depend on the history and x-ray evidence.

VOLVULUS OF THE SMALL INTESTINE FOLLOWING ILEO-COLOSTOMY.

BY

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THE following case seems worthy of record, owing to the comparative rarity of the condition, and the successful result of operation.

Mrs. G., aged 62, had for three years suffered from progressive loss of weight, increasing constipation, and frequent attacks of severe indigestion and abdominal pain. When first seen, in the autumn of 1919, she was leading a semi-invalid life, and looked very thin and ill. There were no definite signs of abdominal disease, but operation was advised in view of the possibility of cancer.

First Operation: Ileo-colostomy.

Laparotomy on December 7th, 1919, revealed no growth, but there was marked visceroptosis, and the colon was thin and atrophic. Ileo-colostomy was performed by lateral anastomosis of the closed and divided lower end of the ileum to the pelvic

colon. The patient made a good recovery from the operation; the bowels acted freely, pain and indigestion were relieved, and in the spring of this year she was walking up to eight miles a day. A post-operative hernia was controlled efficiently by a Salt's corset-belt.

Second Operation (for Volvulus).

She remained in improved health till June 26th, 1920; on this day she was seized with sudden acute abdominal pain, which gradually became worse. When seen next day, the abdomen was slightly distended and tender, but not rigid; the tongue dry and furred, and the pulse feeble and irregular. She had passed some flatus, but no faeces. She was evidently suffering from obstruction, but her general condition was so bad that palliative measures were tried first. No result followed a large turpentine enema, and on the third day from the onset vomiting set in. Operation was then undertaken as a last resort, though her condition was desperate. Under open ether anaesthesia (given by my partner Dr. W. E. Moore Ede), preceded by morphine and atropine, two pints of saline were given intravenously, and the abdomen opened by a median incision below the umbilicus. A twisted mass of intestine, black and gangrenous, the size of a fetal head, was found in the pelvis. The peritoneal cavity contained a quantity of turbid fluid with a strong faecal odour.

The mass proved to be a volvulus of the lower end of the ileum caused by a short cord-like adhesion between two folds of mesentery. As the gut involved was already gangrenous, the intestine above and below was divided between clamps, and a wedge of mesentery resected, the whole specimen being thus removed without attempting to untwist the volvulus. Even so the gangrenous portion burst in the necessary handling and distributed its contents in the wound. The length of gut removed was two feet, and the volvulus had two complete revolutions on its axis. The cut ends of intestine were united by an end-to-end anastomosis, two layers of catgut sutures being used; the peritoneum was cleaned by dry swabbing, and the wound closed by through-and-through silkworm sutures.

Recovery.

The patient made an excellent recovery, shock being combated by the intravenous saline given before the operation, and by frequent rectal saline injections during the twenty-four hours after. In the second week some troublesome diarrhoea, with undigested food in the faeces, was arrested by the use of a mixture containing hydrochloric acid and malt extract. The wound suppurated slightly, but not so much as might have been expected after the gross soiling of the wound at the operation. There was never any sign of peritoneal infection.

The patient was up in a month, and able to walk two miles in six weeks from the date of operation. Since then her progress has been steady; she looks and feels well, is gaining weight, and the bowels act regularly without pain.

Strangulation of a coil of intestine, which, following an ileo-colostomy, has slipped through the gap between the mesentery of the ileum and that of the pelvic colon, is a well recognized accident; and all authorities therefore recommend that the gap be closed by a suture to prevent the occurrence of this form of internal hernia. This had been done at the first operation in the case now recorded, but when the acute obstruction occurred, it was thought that the suture had possibly given way.

Operation, however, showed that the gap remained closed, and that the condition was due to a volvulus. The adhesion giving rise to the volvulus was no doubt a sequel of the first operation—ileo-colostomy.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TRANSPPOSITION OF VISCERA IN TWO MEMBERS OF ONE FAMILY.

TRANSPPOSITION of viscera is a condition not often met with, and two cases of transposed viscera occurring in members of one family must be so rare that I think the following notes are worthy of publication.

When I was carrying out a medical inspection at a school in Somerset in November, 1919, a girl, aged 12, was presented for routine examination. Upon inspection of her chest, the cardiac impulse was visible just inside the right nipple line; percussion and auscultation showed that the heart was transposed. The abdomen was then examined, and it was found that the stomach, liver, and spleen were transposed also. The mother of the girl, who was present at the examination, then informed me that the girl's brother, aged 10, "had his heart on the wrong side." I examined this boy the next day, and found that in his case, too, the heart, stomach, liver, and spleen were transposed. Both children appeared to be quite healthy.