attendant risk of infection, why not wait until the abscess has come forward and become adherent or "safe?" The answer is, We do not know in which direction any abscess may be progressing; it may be forwards to the surface, but, on the contrary, it may be in one of several other directions, producing destruction of tissue, with the attendant risk of secondary involvement of other parts, as the pleura or the portal veins, or perhaps eventually rupturing into the general cavity. Risks such as these should not be run when early operation affords so safe a method of escape.

If, when the abdomen is open, instead of a localized abscess we find a *diffuse condition*—sero-purulent fluid or thick pus lying amongst the intestines and omentum—it must not be inferred that there is necessarily a general peritonitis present. In a considerable number of cases the pus, though not bounded by such adhesions as would justify one in speaking of it as an abscess, is yet far from being distributed all over the abdomen; it may be limited to the pelvis, to the pelvis and right iliac fossa, or to the right iliac and umbilical regions. Inspection and careful exploration with the fingers will generally determine if this is so. If the inflammatory process appears to be limited, every care should be taken not to infect adjacent areas. The fingers should move gently amongst the intestines in search for pockets of pus—this especially in the pelvis—but with the intention, if possible, of sparing any circumscribing adhesions, however imperfect. In this way and by gentle sponging the parts involved are cleaned. The vermiform appendix is next sought and removed, if this can be done without great disturbance of parts or undue prolongation of the anaesthetic, for many patients bear this badly. As will be seen from Table II of cases presented, I have removed the appendix more freely in this group than in those of abscesses; indeed, I may put the matter in this way: the more diffuse the lesion the more often the appendix has been removed—partly because it was more easily found and partly because there was practically no added risk of spreading infection.

In this condition, as in the case of widespread peritonitis, a second incision in the middle line of the abdomen may be needed for purposes of cleansing and draining. If it is called for, the bladder should always first be emptied with the catheter, and even then careful watch made against damaging the walls of the organ, which often is fixed unusually high up.

If, instead of a peritonitis limited to the pelvis or quite the lower part of the abdomen, we have to deal with one which is *widely diffused*, we should act much as in the last group considered, though we may, instead of cleansing by sponges, use hot saline irrigation freely, but evisceration to aid in this purpose is rarely to be recommended, the shock it induces in these patients is more than they can bear. If the appendix can be removed without prolonged search, this should be done, but if it is left recurrence is quite exceptional, for it has only happened in 1 case out of 7, as the table shows. In the diffuse cases, whether a moderate or an extensive area is involved, drainage is always necessary, either by means of Mikulicz gauze packing or by drainage tubes inserted perhaps in two or three directions.

In a few cases drainage may be either by rectum or vagina, either in addition to that provided through the abdominal incision, or as a primary means of treatment. If the latter the evidence of pus presenting into one of the cavities should be clear, either there should be definite fluctuation or a soft yielding boggy patch in the middle of an area of oedema and infiltration in the wall of either rectum or vagina.

TABLE II.

Class I. Diffuse peritonitis.—29 cases—vermiform appendix not removed in 12, 7 survivals, 1 recurrence.
Class II. Pelvic peritonitis and suppuration.—34 cases—vermiform appendix not removed in 22, 15 survivals, 2 recurrences.
Class III. Localized non-adherent abscess.—49 cases—vermiform appendix not removed in 26, 25 survivals, 1 recurrence.
Class IV. Safe or adherent abscess.—31 cases—vermiform appendix not removed in 27, 25 survivals, 1 recurrence.
A total of 5 recurrences in 72 patients who survived. Two hospital cases cannot be traced.

My observations have already so encroached upon your time that I hardly dare trespass upon your patience further, but I should like to emphasize one point in the general treatment of these cases. On the use of opium in appendicitis there has been during the last few years a concurrence of opinion which it is difficult to disregard. It has to be given to relieve the severe pain often present at the onset and no one will gainsay the necessity. It is the repeated and persistent use of it which is so strongly to be deprecated. If the patient continues in severe pain which the first reasonable dose of opium

or morphine does not relieve the medical adviser should give a second with hesitation, and any more with still greater doubt as to the wisdom of his course. He may soothe his patient and comfort the friends, but he will run the risk of seriously misreading his case and of leaving a dangerous condition to progress beyond the reach of surgical measures. Severe and persistent pain should not be the occasion for repeated doses of sedative but for early operative interference.

REMARKS ON A SECOND SERIES OF FIFTY CASES OF RECURRENT APPENDICITIS TREATED BY OPERATION.*

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THE following remarks are based upon a consideration of a second series of 50 cases of recurrent appendicitis treated by operation which have recently been completed. Details of the first series of 50 cases were published in the BRITISH MEDICAL JOURNAL, December 22nd, 1900, p. 1763.

Sex.

Of the 50 patients, 39 were males and 11 were females, it being a well-established fact that the former sex are the most liable to this affection.

Age.

Twenty-three of the cases, or not quite one half, occurred in persons between 20 and 30 years of age, the third decade of life being the period during which recurrent appendicitis is most common. In 14 cases the patients were between 10 and 20 years of age. In two instances the patients were 10 years old, this being the youngest age at which the affection was met with. Though acute suppurative appendicitis is common in younger subjects, it would appear that when an attack of appendicitis in a child subsides without suppuration, there is less probability of the attack recurring in children if they are under 10 years than if they are over that age. Ten cases occurred in persons between 30 and 40, 2 cases between 40 and 50, and only 1 case in a subject over 50 years, the patient in this instance being 53 years of age. In 115 cases of recurrent appendicitis operated upon up to the present time, in no instance has the patient been under 10 years of age; in only one case (namely, that just mentioned) has the age of the patient exceeded 50 years, the liability to this affection decreasing as age advances. Several instances of acute suppurative appendicitis in much older subjects have, however, come under my notice, for in 3 cases the patients were respectively aged 61, 65, 76 years.

Number of Attacks.

In 5 cases there had been only one distinct attack, but the patients had subsequently suffered from what might be termed "reminders" of its occurrence, namely, frequent pain, or a sense ofaching after any exertion, sometimes attended by a local tenderness in the region of the appendix; in all these cases marked changes were found in the appendix, a concretion being present in one instance, so that there would certainly have been a recurrence of the attacks if it had not been removed. In 10 cases there had been two well-marked attacks, and in the remaining 35 cases three or more attacks. In several instances the attacks had been so numerous that the patients had lost count of the number.

Condition of Appendix.

In almost every case the lumen of the appendix was either partially or completely occluded at some point in its course, sometimes close to its origin from the caecum, sometimes at its middle or distal third. Though in most cases the walls were thickened, in a few, where the appendix was distended with fluid, they were extremely thinned. In one case, where the distension was extreme and the fluid contents were clear and watery, the appendix was quite translucent. It was frequently kinked or bent on itself at a sharp angle, and fixed in this position by adhesions which were present in the majority of cases, often firmer and more extensive after a few than after numerous attacks.

Contents of Appendix.

In 3 cases collections of pus were found shut off in the distal portion of the appendix, which was dilated into a

* A communication to the Manchester Pathological Society.

small cyst. In 6 cases faecal concretions were present in its interior. In the remaining cases the contents consisted of a mucoid or muco-purulent fluid, sometimes mixed with faecal matter. In no instance was any foreign body found.

Suppuration round Appendix.

In 11 cases a localized suppuration had taken place outside the appendix, generally associated with a perforation of its wall. In four instances, where the amount of pus was small, there had been no indication of its presence previous to operation. These cases illustrate the fact that in a large proportion of cases of recurrent appendicitis suppuration sooner or later takes place.

Recurrence after a Previous Attack attended by Suppuration.

In 2 cases the patients had previously been operated on for appendicular abscess. In one, where the operation had been performed by the late Professor Tom Jones, the wound healed soundly, and the patient afterwards enjoyed good health for between three and four years. At the end of this period another abscess formed in the same situation, and on opening it a large quantity of very foul pus was evacuated, together with a hard concretion the size of a marble. As the appendix was not readily found, it was again left. The wound quickly closed, and up to the present time, eighteen months since the second operation, the patient has kept free from any further trouble, enjoying perfect health.

In the other case, the patient, who was a soldier, had been operated upon while on active service in South Africa during a second attack, which had ended in suppuration, a large abscess having been opened and drained. The wound healed, but during the next nine months he suffered from three recurrent attacks, which all subsided without suppuration. He was invalided home, and admitted into the Manchester Royal Infirmary. An exploratory incision was made over the region of the appendix during a quiescent period, and, contrary to expectation, it was readily found. It was completely stenosed near the caecum, and its walls were thickened. It was, however, remarkably free from adhesions, except at one spot near its middle, where there were signs of an old perforation; and there was no evidence to lead one to suppose that there had previously been an extensive formation of pus around it.

Quite recently I removed the appendix from another recurrent case, where a year previously I had opened and drained a large abscess, the appendix not being found. The wound healed and the patient enjoyed good health for nearly twelve months, when another abscess formed. An operation was subsequently performed for the removal of the appendix, which was readily exposed; it was much thickened, occluded at its origin, dilated beyond, and full of very offensive pus. As in the last case, there were few adhesions present, except at one point, evidently the site of a former perforation.

It is, therefore, evident that an attack of suppurative appendicitis is not necessarily followed by destruction of the appendix and immunity from future attacks, as used to be believed. No doubt in the majority of cases this occurs, the appendix afterwards shrivelling up and becoming obliterated. This result is especially likely to happen in children, where I have on several occasions found a gangrenous appendix, which had completely separated, come away with the discharge when the abscess was opened and drained. More frequently a localized perforation is found in the wall of the appendix, and if this closes—often by the formation of adhesions between it and adjacent structures—the appendix in recurrent cases is left in much the same condition as before, and consequently with the same liability to further attacks.

These cases illustrate the advisability of removing the appendix in all instances of suppuration—in recurrent as well as in first attacks—if this can be effected without risk of breaking down the protective barrier of adhesions which shut off the collection of pus from the general peritoneal cavity.

Absence of Local Symptoms during Quiescent Periods.

It is interesting to note that in many instances where marked lesions were found in the appendix there had been an absence of any local signs or symptoms during the quiescent periods between the attacks—for example, there was no tenderness on pressure and no induration or thickening to be felt. This was explained by the position of the appendix, which in these cases was found lying behind the caecum, with its tip directed backwards towards the posterior wall of the pelvis, where it was often fixed by adhesions, its long axis being vertical when the patient was recumbent. Consequently, when its distal end was thickened and indurated or otherwise deformed it was impossible to recognize these conditions on palpation through the abdominal walls, owing to the depth from the surface at which the affected portion of the appendix lay (see Fig.).

In conclusion, it may be mentioned that in every case the patients made a successful recovery from the operation.

CONSTRICTION OF THE SMALL INTESTINE BY A GANGRENOUS APPENDIX.

BY

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THOUGH it is now fully recognized that the appendix vermiformis is capable of almost any vagary, the following case, whose clinical aspects were interesting and unusual, illustrates a pathological combination in which the appendix was at its very worst in ingenious mischief-making. The actual condition must be nearly unique; we can find no record of an exactly similar case.

The patient, a boy aged 11, was seen by Dr. Gulland in consultation with Dr. Allan, of Laswade, on a Monday afternoon. He had been a healthy boy, and was quite well until the previous Tuesday, when his father saw him eating green apples. This indiscretion resulted in an attack of diarrhoea, which lasted most of the Tuesday night. Towards morning he complained of pain in the right iliac fossa, which only lasted for a short time, and was followed by vomiting. This was treated lightly at first, as the apples were thought to be sufficient to account for it, but as it continued steadily after all food, Dr. Allan was sent for. The bowels did not act after the diarrhoea on the Tuesday, though several enemata were given. The vomiting was constant, and on the Monday morning had become faecal in character. The abdomen distended gradually, and there was a good deal of gastric pain in the later days. The temperature was never raised more than a few points, and the pulse had varied between 90 and 100.

When Dr. Gulland saw him the boy looked well, and of a good colour, but had lost a good deal of flesh. He was restless, and had not slept well. Pulse 108, poor; temperature (at 4 p.m.) 98.6°. He had just vomited some coffee-ground material with a good deal of mucus, no faecal odour. The heart was dilated, the first sound weak. Lungs and other organs were normal. The tongue showed red papillae at the tip, was furred at the back, but was moist, and had been so all along. The boy could lie at full length, but was more comfortable when the knees were bent. The abdomen was much distended, especially in its upper and anterior regions, the distended stomach was visible, with a well-marked "ladder pattern" of small intestine below. There was distinct resistance to palpation in the right iliac fossa, no special tenderness there or in any other part of the abdomen.

The percussion note over stomach and intestine was tympanic, while that in the right iliac fossa was dull over an area of about 3 in. square. There was also very slight dullness in the flanks, altering to resonance on change of position; hepatic and splenic dullness were normal. A diagnosis was made of gangrenous appendicitis, perhaps causing obstruction by adhesions, some peritonitis, with a small amount of fluid in the abdomen, probably serous. Operation was advised, and the boy was removed to the Royal Infirmary. Dr. Gulland and Mr. Wallace saw him there at 9.30 p.m., when