cerebral hæmorrhage free from any suspicion of recurrence three and a half years after operation. The other nine cases are alive and well, and between 4 and 5½ years have elapsed since the operation, when their ages varied from 47½ to 75. To-day the youngest is 53, four of them are over 72, and one is 80 years of age. These 10 cases, taken *en suite*, show, after 3½ to 5 years, a freedom from recurrence in 100 per cent.

CLASSIFICATION AND PROGNOSIS.

In a recent number of the *Annales des Maladies de l'Oreille* (February, 1922) I suggested that the usual classification of cases of cancer of the larynx into extrinsic and intrinsic should be extended by dividing the intrinsic group into (a) chordal, and (b) subglottic cases. A consideration of the latter I must reserve for a future communication, but I would now point out that of my 51 cases, 14 were primarily or principally in the subglottic area. Of these 14, not less than five are dead from local recurrence, and one (still alive) had a recurrence in the glands. All these five had fixation or impaired mobility of the cord—a much more frequent proportion than when

FIG. 4.

The epithelioma on the right vocal cord, with surrounding tissues, removed by laryngo-fissure. The illustration shows that anteriorly the fissure passed a little to the left of the middle line. Posteriorly the excision includes a good portion of the arytenoid, and the cartilage is well seen. Above, the excision goes well up on the ventricular band, and below it extends well down to the subglottic area. (Case 52.)

may hear his voice and see his condition, free from any suspicion of disease 5½ years after the operation for laryngo-fissure (No. 31). He had been husky for 1½ years when we met on a Havre steamer in 1917, during the war. He had an immobile cord. A growth invaded the cord, the subglottic region, and the thyroid cartilage—as shown in the drawings of the tissues removed. Yet, after 5½ years, he enjoys excellent health and can talk to you in very good French!

CONCLUSION.

This 21 years' experience with the operation of laryngo-fissure confirms me in the conclusion I have formed from earlier and less extensive opportunities.² If cancer is limited to a vocal cord and is operated on with every care, we have, in laryngo-fissure, a procedure which is safe in execution and certain in its results. The operative death-rate should be nil, a serviceable voice can be promised, and there is every prospect of permanent freedom from recurrence. We may be gratified at helping to establish an operation which secures more striking and lasting results than can be hoped for with cancer in any other internal region of the body. To secure more such results the only other necessity is early diagnosis.

[The technique of laryngo-fissure was illustrated by a lantern demonstration.]

² Intrinsic Cancer of the Larynx; Operation by Laryngo-fissure; lasting cure in 80 per cent. of cases, *Brit. Med. Jour.*, Feb. 17th, 1912, p. 355. Intrinsic Cancer of the Larynx; Operation by Laryngo-fissure and its Results, *Trans. Med. Soc. Lond.*, 1919, vol. xlii, p. 105.

THE CHRONIC APPENDIX AND RECURRENT ABDOMINAL PAIN.

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IN all painful conditions of the abdomen for which relief is sought it is advisable to think of the appendix as a possible cause, for the large proportion of them are dependent upon disease of that part of the intestinal canal. The acute appendix has forced itself so insistently on the attention of the profession during recent years that its manifestations have received special recognition, and experts have made attempts, not without success, to differentiate from the symptoms and local signs the pathological state of the appendix in each case when it is first seen. It is not possible to come to a correct conclusion in every instance, nor can one name the exact cause of the symptoms in all acute abdominal catastrophes. It is therefore advisable to bear in mind the other diseases which produce the acute abdomen, especially when the attack is a primary one. Later if the illness recurs, it is not so difficult to form a correct opinion when the details of the previous history are given by a skilled observer. During all attacks it is of essential importance to come to a conclusion early as to the necessity (or not) for operation; fatal cases of postponed operation due to a mistake as to the nature of the case or the power of individual resistance are still only too frequently reported.

Although the primary attacks which are given in the history of patients in which operation was probably not performed must be considered to some extent, the object of this communication, which is made to comply with a request of some standing, is to give consideration to the more chronic manifestations of the painful affections of the abdomen dependent so frequently on changes in the appendix.

Types of Painful Abdominal Attacks.

Painful abdominal attacks may be divided as follows with the view of assisting the diagnosis:—

(A) 1. Recurring attacks of pain accompanied by pyrexia, but without the formation of any swelling which can be felt by ordinary examination.

2. Recurring attacks of pain which are accompanied by pyrexia and the formation of a swelling, either on the right side of the abdomen or in the pelvis.

3. Those cases in which there is a history of recurring pains, often severe, usually of short duration, but in which no rise of temperature, formation of swelling, or other localising sign has been observed.

4. Attacks of pain accompanying the formation of some tumour in the iliac fossa, but in which there is no history of pyrexia.

5. Cases of left-sided abdominal pain.

(B) Cases of latent disease of the appendix in which some illness due to this is not attributed to its correct source.

It is not necessary to recapitulate the symptoms of an attack of appendicitis; the usual onset is acute pain in the iliac region from the first or passing across to that part after commencing in the epigastrium. With this pain there is vomiting and pyrexia. Locally resistance to pressure with rigidity most marked over the appendix region, with some abdominal distension before the case has progressed far, and swelling. The average attack does not show a high temperature, and the patient recovers in a few days.

Where a mistake is occasionally made in diagnosis is in failing to recognise that the local signs will vary from the iliac type, according to the position of the appendix. The pain may begin in the back, commence and continue in the subhepatic region, or commence in the umbilical region, and only move lower down towards the pelvis when the appendix is situated in the pelvis.

It may be difficult some weeks after an attack to obtain an account which is dependable as to the

local signs which were present. The patient may remember there was tenderness when he was examined, but cannot say if any swelling was found; he did not notice it, and the medical man did not say anything. Careful examination should usually find it, but it is not present on the first day excepting where the attack is a recurrent one and permanent changes are already there. It is unusual to get a history of swelling when the appendix is pelvic in position.

It is often advisable to question young people without the presence of their parents. They are afraid of confessing that they have had attacks of pain before the illness which has caused alarm; often such have been regarded as stomach-aches, and no information of them escaped from the nursery, or the illnesses have occurred at school, and been treated by the matron of the house without reference to the medical officer. Recovery followed the administration of castor oil, so they could not have been serious! Besides they often had them and they were not very bad! Sometimes the child is contradicted by the parent when admitting the fact that he has had abdominal pains.

It will be sufficient for our purpose if a simple enumeration of the principal acute abdominal illnesses which have been mistaken for appendicitis, if only for a short time, is made. The history given in many chronic conditions has to be critically analysed.

In a previous contribution¹ to this subject those diseases which resemble appendicitis closely in their early stages were grouped as follows:—

(a) Thoracic.—Those having their origin above the diaphragm. Acute inflammation of the lower part of the pleura and of the lungs. During the early stage of an attack of pneumonia abdominal symptoms sometimes simulate those of acute peritonitis very closely. If there is an epidemic it may be advisable to delay giving an opinion for a short time on the chance of the development of some local sign in the lung. In children a diagnosis may be impossible because of their want of control and expressions of pain under any kind of examination when ill. In adults it is easier to come to a conclusion; the temperature may be unusually high for an attack of appendicitis. The usual careful examination for rigidity, local tenderness, swelling, and the presence of free fluid in the peritoneum, followed by pelvic examination per rectum or per vaginam should be made. Direct thoracic signs² are often almost entirely lacking for 24 hours or more.

(b) Abdominal.—Constipation,³ acute indigestion,³ intestinal obstructions, intussusception,³ obstruction by band,³ volvulus. Enteritis, gastro-enteritis, mucous colitis. Perforations of gastric, duodenal (the fact that fluid escaping from this position flows down to the right iliac fossa has frequently caused a mistake in the diagnosis), tuberculous, stercoral, and other ulcers of unknown origin (Dr. C. W. Hutt has observed them in both large and small gut of children). Perforations produced by foreign bodies. Inflammations of various diverticula, peritonitis⁴ of hæmatogenous origin (most commonly the pneumococcus, in which a localised swelling to the right of Douglas's pouch has been found early in the case). Rupture of intra-peritoneal abscess originating in the pelvis. Salpingitis, pyosalpinx, extra-uterine gestation; rupture of ovarian cyst, or torsion of its pedicle.

Torsion of pedicle of subperitoneal fibroid; acute necrosis of uterine fibroid. Biliary colic, acute cholecystitis, and perforation of gall-bladder. Acute pancreatitis. Calculous affections of kidney and ureter, movable kidney producing Dietl's crises. Cross transference of pain from the left kidney. Acute coli infection of kidney.

General diseases, hysteria; angeioneurotic oedema; Henoch's purpura; malaria; abdominal influenza;

lead colic; the crises of tabes dorsalis; typhoid fever⁵; ptomaine poisoning.

Rupture of rectus abdominis⁶ by coughing during lung inflammation in a child. Rupture of tænia muscularis of cæcum from over-distension secondary to obstruction, either from adhesions or growth.

Disease of the hip-joint.

Ascarides in the appendix produce a typical appendix attack with high fever and local signs. The effect of round worms is less evident, but in one instance where a normal appendix was removed during an acute attack a round worm was passed per rectum a few hours later.

The diagnosis becomes easier the later the case comes for examination, and great help is given by the description of an attack given by a careful observer.

(A) *Various Forms of Recurrent Pain.*—1. When the patient is seen after one or more attacks of abdominal pain accompanied by pyrexia, but without the formation of any swelling which could be felt. These may be spoken of variously as "bilious attacks," "gastric catarrh," "gout in the stomach," "chill on the stomach," "gripes," "gastric fever," "dilated stomach." Here the question of abdominal influenza arises, and one has seen instances where the correctness of the diagnosis has only been questioned after repeated attacks of pelvic appendicitis.

Tuberculosis of the intestine and peritoneum is not always a painful condition, but if there be stricturing of the small gut, especially if the strictures are multiple, much suffering may be experienced, whilst the local signs may be few, if any. The history of a previous or accompanying lesion of tuberculous nature, with loss of flesh, night-sweats, and some pyrexia may give the clue to the nature of the colic. Appendicitis may be the main disease and tuberculosis latent.

Renal Affections.—Early hydronephrosis with dropped kidney, tubercle of the kidney, ureteritis and calculus of the ureter. The presence of blood⁷ in the urine has been noted in a limited number of cases of appendicitis. This was caused by direct extension of inflammation to the ureter.

Bacillus Coli Infection of the Right Kidney.—This will cause pains of considerable severity in the iliac region and towards the pelvis with fever. An examination of the urine should always be made, but occasionally a muddy complexion, dry and dirty tongue, with foul breath, will indicate that there is more than an ordinary chronic appendicitis affecting the patient. A history of more than one rigor should be regarded as important. A case of calculus of the left kidney producing symptoms of recurring right-sided appendicitis is described elsewhere.⁸ Various affections of the intestines produce recurring pains in the cæcal region. Dr. S. René Bonnet⁹ drew attention to the value in such cases of the presence of mucous casts as an aid in the diagnosis of muco-membranous enterocolitis. The iliac pains of colitis, typhilitis, and perityphilitis (independent of appendix disease). Colicky pains occur in dysentery and during the course of typhoid fever. In children pyelitis of the right kidney and the vomiting of acidosis are specially mentioned by Dr. Fraser¹⁰ as liable to be mistaken for appendicitis.

An inflammation of Meckel's diverticulum may recur, or symptoms associated with a sigmoiditis on the right side when the bowel is displaced. In this group not only is it necessary to enable one to come to a correct diagnosis to inquire regarding frequency of the attacks, but information should be obtained as to the exact spot where the pain commenced, its severity and duration, and whether it remained constant in position. A careful examination should be made with the abdominal wall relaxed, in some cases vaginal or rectal examination, and when possible in all the X rays employed.

⁵ Broca described two typical cases in children: THE LANCET, 1906, vol. i., p. 1586. ⁶ Carson: Clin. Journ. 1913.

⁷ Carless: THE LANCET, vol. ii., 1909, p. 1540. Frisch: Brit. Med. Jour., vol. i., 1912, Epitome, p. 58.

⁸ Battle: The Acute Abdomen, p. 115, second edition.

⁹ THE LANCET, 1907, vol. i., p. 1427.

¹⁰ Brit. Med. Jour., 1922, vol. i., p. 175.

¹ Battle: The Acute Abdomen, second edition, p. 110.

² Barnard: THE LANCET, vol. ii., 1902. See also Russell: Reports of the West London Medico-Chirurgical Society.

³ These may be accompanied by rise of temperature in children.

⁴ Battle: The Acute Abdomen, second edition, p. 90.

2. Recurring attacks of abdominal pain which are accompanied (or followed) by pyrexia and the formation of a swelling either on the right side of the abdomen or in the pelvis. The swellings, which may be found in the iliac fossa in cases of this group vary considerably. A chronic thickened appendix may be defined, rolls away under pressure, and the patient tells you that it is tender. More frequently the outer edge of the rectus is mistaken for it. A mucocoele may attain a large size and have a definite outline, but cannot always be distinguished from a local abscess or enlarged and tuberculous gland at the ileo-cæcal angle, unless there is a history to show how long it has been forming. The question of dullness on percussion does not need discussion in chronic cases, but in early stages of an acute attack there may be diminished resonance in the iliac fossa, and within a few hours signs of free fluid in the peritoneum. New growth of the appendix usually gives no other symptom than those usual in obstructive appendicitis. Actinomycosis develops a mass, mostly mistaken for chronic abscess, and is not recognised until the appearance of the discharge (following incision) suggests the nature of the case and it is submitted to microscopical examination.

In cases of chronic obstruction of the large bowel the appendix may become dilated to the size of a big toe, but this gives no signs by which it can be recognised, and it does not rupture. This dilatation may be preceded by complaints of pain over the ascending colon and cæcum.

*Torsion of the Great Omentum.*¹¹—This rare condition, which in some produces recurring attacks of pain in the right iliac fossa, may closely resemble appendicitis. The first attack may have been a severe one, or no attack may have compelled the patient to go to bed. The symptoms are caused by a twist of the omentum varying much in extent, but nearly always associated with irreducible inguinal hernia. When there is no hernia present the diagnosis becomes more difficult, there being local pain, tenderness with muscular rigidity, a rise of temperature, and a swelling in the iliac fossa. This swelling is produced by the congested or inflamed omentum. Exudation of fluid may increase the resemblance to appendix abscess. In the more severe cases localised gangrene has been associated with suppuration. It has been met with in umbilical and ventral hernia.

Hyperplastic tuberculosis of the cæcum is mostly discovered during an operation for symptoms caused by involvement of the appendix. Although tubercle of the peritoneum and bowel is often seen in abdominal explorations, it is seldom that the appendix is primarily affected. The swelling in hyperplastic tubercle is not commonly felt, or, if felt, ascribed to its exact cause before the abdomen is opened, although it occupies the iliac fossa. It sometimes causes pain by obstructing the valve, frequently it is the only evidence of tubercle.

Renal affections may cause painful attacks, with fever and a tumour on the right side, especially if the kidney has dropped to a marked degree. Hydro-nephrosis, pyelitis, and bacillary infection will occur to most, and should not cause difficulty.

Inflammations of the Pelvic Organs.—The symptoms resemble mostly those of an appendix which is pelvic in position. In a series of cases published by Sir F. Treves,¹² nine patients gave evidence of continued trouble after appendicectomy for chronic disease due to mischief in the right ovary, which had probably been overlooked at the operation. In some it was inflamed, prolapsed, and adherent, secondarily to the inflammation of the appendix. It is a rule from which there should be no departure that the condition of the pelvic organs be ascertained in all instances of removal of the appendix. The day of the keyhole incision has long passed away, but I am not sure that the large incisions which are employed by some do not err in the opposite direction when made without

reference to the structure of the abdominal wall. If the ovary gives signs of disease, is prolapsed and adherent, then it should be removed. Early cystic change is not uncommon, but unless these cysts are inflamed, bound down by adhesions, are suppurating, or have their circulation obstructed by a twisted pedicle, it is unlikely that they are the cause of any pain which the patient may have experienced. Still it is necessary to deal with them, and in the early stage a partial removal of ovary may be sufficient. Suppuration in these cysts is probably due to infection from the appendix. Pyosalpinx (infective) is not uncommon, the tuberculous form is rare, but on one occasion in a girl sent under the care of a colleague as typhoid fever, removal of such a tube effected a cure. There had been continued fever, with sweatings and emaciation. No tubercle could be found in other parts, and recovery was lasting.

Hepatic colic, with blocking of a duct by a gall-stone, will cause vomiting and pain in the upper abdomen. A distended gall-bladder may usually be felt below the ribs in the nipple line, moving with respiration. In the high appendix any tumour which forms will usually be lower down, less definite in outline, and fixed. In a fat patient the swelling would be difficult to define in either case, but the tenderness is higher up in distended gall-bladder and nearer the surface. A chronic appendix may coexist with gall-stones, and it should be noted that jaundice may accompany painful attacks due to a subhepatic appendicitis, still even when both coexist the symptoms may be quite clear. When shoulder pain and pain in the back are experienced there is little doubt about an affection of the biliary apparatus. Occasionally the presence of hyperalgesia may have been noted in the right hypochondriac region.

The importance of coming to a conclusion as to the nature of any abdominal attack is evident, for a very slight one may be followed by a fulminating one. Even if that be the fate of an unhappy individual, and he escapes with his life after intraperitoneal suppuration and its complications, he may be left with such an amount of intraperitoneal adhesions that his life is a misery. Perhaps there may be a protrusion through some incision where it was necessary to insert a drain. An appendix which has once given rise to an attack will probably cause others, but no one can foretell what will be the nature of the illness nor when it will develop. In only three instances have appendices been found amongst my cases which were apparently normal after definite attacks, and in one of these there were proofs of former inflammation in the shape of a contracted meso-appendix and peritoneal adhesion. It is extraordinary to find some patients submitting year after year or month after month to typical attacks, with indifferent health in between. One man gave a history spread over a period of 20 years. He stated that during the first attack an incision was made in the iliac region for supposed suppuration. No pus was found and the appendix was not removed. This illness was followed by repeated attacks, sometimes severe, every few months. Ultimately he was admitted to St. Thomas's Hospital for an iliac abscess, the pus of which was evacuated. Later a strictured and very adherent appendix was excised, and he had no more trouble. It would be possible to publish many somewhat similar cases. On the other hand, I have seen a man die from acute suppurative peritonitis because his medical man would not sanction "interval" operation when he had recovered from his first attack. He was told it was unnecessary.

Bilious Attacks.—It is the experience of most surgeons that the condition of the appendix in an operation for acute disease frequently gives proof of some change which must have commenced long before the attack which has necessitated urgent intervention; yet there may be no history of previous abdominal illness obtainable. In other instances it may be admitted that a child did have bouts of sickness, with pain and fever, but they were only "bilious attacks"—a term much used by parents whilst children are in the nursery,

¹¹ Corner and Pinches: St. Thomas's Hospital Reports, 1904, p. 436. ¹² Brit. Med. Jour., 1905, vol. i., p. 457.

and even later in life. These attacks may be those of unrecognised appendicitis and often prove to be such, although the name is gladly accepted as indicating a childish ailment of little importance and a peculiarity of the individual. Unfortunately, the parents are not able to gauge the relative danger of a particular illness, and the child who is ill cannot appreciate the increased severity of an attack. It not infrequently happens that surgical aid is sought when it is too late. Amongst the cases which were under my care there has been a preponderance of females, and history was given of many years' suffering before some particular sign, such as tenderness over the appendix, rigidity of muscle, or localised swelling was noted. Four patients said they had suffered for many years. Others were more definite, naming 1, 5, 7, 10, 13, and even 20 years of suffering. One patient became better after an abdominal abscess, whilst in others one or more attacks of definite appendicitis which were recognised gave ultimately the key to the cause of the repeated illness. It is a painful experience to be sent for too late in an acute attack with generalised peritonitis when the parents of a child think there is only a severe bilious attack, and the medical man has only just been called in.

One often sees *enlarged mesenteric glands* during an abdominal operation in children. Those in the ileocaecal angle show a special liability to disease but, as a rule, even if evidently tuberculous, they should not be excised. They are difficult to turn out of their bed, being adherent to overlying peritoneum and to important vessels which readily tear. Occasionally these patients present a definite group of symptoms which have been described by Mr. H. W. Carson.¹³

"The patient is rather undeveloped for his years, giving the impression that he is not gaining weight and strength normally. The parents say that he has never been strong, and that since the symptoms began he has decidedly gone back. He is anæmic, rather thin, and often listless in manner. He does not play with other boys and often complains of feeling unwell. . . . Constipation is not the rule. The appetite is poor and the tongue furred. Flatulence has been complained of in many instances. One patient had frequency of micturition. There have been only a few cases of small rises of temperature, 99°-100° F., and the pulse is only quick when the child is in pain. . . . But the main symptom is pain and its character is absolutely typical. . . . It is a sudden centralised abdominal pain, severe enough to make the child cry, lasting for about 15 minutes or less, relieved by pressure and hot applications, recurring perhaps two or three times a day and stopping as suddenly as it begins, so that in the intervals the patient is quite free. In some cases the pains occur every day, in others only at intervals of a month or so, the attack lasting two or three days. Vomiting occurred at the time of the pain in 13 of the 39 typical cases. . . . It is of colicky nature and relieved by pressure and heat."

It is not often necessary to remove the glands, but it has been done with advantage.

Caseating and calcareous glands will be shown by the X rays. They may form a large mass in the ileocaecal angle and occasionally suppurate. A sharp appendix inflammation may bring the case to the doctor for the first time.

3. Cases in which there was a complaint of recurring pains in the abdomen, often severe, usually of short duration, but accompanying which there is no record of elevation of temperature, or of the formation of tumour.

his group may be divided into others, but it is not advisable to elaborate too much. In the diagnosis we must consider the referred pains of disease of bones and joints, especially the referred pain of caries and new growths (chiefly secondary) of the spine. The occasional nipping of an imperfectly descended testis in the internal ring of children. In the adult the involvement of intestine in an inguinal sac on the right side—this will cause a sudden attack of pain with or without vomiting. If a portion of gut is held in the ring the medical attendant will feel it. Should the ring be empty on examination it will be tender.

The abdominal pains of locomotor ataxy and lead colic¹⁴ must be remembered. In the gastric crises of locomotor ataxy the pain is considerable and the vomiting incessant. The Argyll-Robertson pupils and loss of knee-jerks will give the needful warning.

The pain in lead colic may be severe, is often paroxysmal, frequently unilateral, and the patient very restless. Contrary to the condition of patients in acute abdominal diseases, he may be found walking about. Vomiting may be severe. The usual evidence of lead poisoning will be present.

Simple Hypertrophy of the Appendix.—In a case already published,¹⁵ that of a boy of 15, attacks of pain had been a source of distress to him every few weeks, after the age of 4 years. An appendix measuring 8 inches in length without signs of inflammatory change was removed.

The behaviour of a foreign body in the appendix varies very much according to its nature. When hard and pointed, the attacks induced may be very acute, whilst in others a recurring pain, especially after exertion, may be the chief complaint, without any accompanying fever. If a patient has a large concretion in the appendix, a ride on a motor-cycle or car over a shaky road may easily induce an acute gangrenous appendicitis.

*Adhesions*¹⁶ about the cæcum and appendix as a result of appendicitis are common and are found in more than 60 per cent. at operation. They may also form after an interval operation, but this is unusual if no irritating antiseptic is used by the operator. The pain may be very severe, necessitating the use of morphia, or comparatively slight and only on exertion, such as that involved in playing tennis, dancing, &c. A sudden and unexpected jar may cure by breaking a slight band. In adhesion of omentum to the appendix site, or its involvement in the wound during closure, the pains may be more those of gastric disturbance.

Lane's kink (ileal) produces symptoms of obstruction and intestinal stasis. Pain is almost always present and referred to the right side of the abdomen. It may be acute with or without vomiting, but is never referred to the epigastrium, or diffused over the abdomen as in appendicitis. Tenderness is commonly found in the iliac fossa and in many there is a feeling of distension. There is no rise of temperature. It is comparatively rare.

Impacted calculus in the ureter will be shown if the routine examination by the X rays is made. A chronic appendix may coexist with this.

Amongst the members of this group there were many who applied for relief, and in none were there other symptoms or local signs to prove the origin of the pain; no fever, no swelling in the region of the appendix which could be felt, no local tenderness, not even a temporary local rigidity of muscle during an attack. The pain was referred to the right lower abdomen in most, some were more definite in localising it to the site of the appendix. The character of the pain varied, some said it was like "toothache," "aching," like "hand grasping," severe "shaking," "colicky," "burning," &c., rarely had there been vomiting during the attacks. The free intervals varied, in some pain was worse before the periods, in others on exertion such as dancing. In some there had been attacks during a term of years which they could not state, whilst others named from 1 year to 11. The average appeared to be somewhat over three years—but some spoke vaguely of months. The majority found it necessary to rest for a few minutes, when the pain would pass off, in others it lasted for a few hours and they had to go to bed. Seldom until the attack had recurred many times did they consult a medical man; occasionally much medicine had been taken without relief. One had recently been to a well-known spa for some weeks, but the pain returned when she reached home. Another had been put to bed for five weeks but was not benefited. In one the

¹⁴ A. E. Russell: Trans. W. Lond. Med.-Chir. Soc.

¹⁵ Battle and Corner: The Surgery of the Appendix Vermiformis and its Complications, second edition.

¹⁶ THE LANCET, 1921, i., p. 313.

¹³ Trans. Med. Soc. Lond., vol. xli.

uterus had been removed, she stated, without relief. Some of these patients had suffered from other illnesses, one always had an erythematous eruption following the attack, one an attack of herpes, one had recently had pleurisy, another two attacks of pneumonia. In ten there was an intrinsic stricture, six were adherent—of these two were dilated beyond the stricture, whilst in other two a mucocoele had developed. One presented the scar of an old perforation. In the larger number there was evidence of a previous chronic catarrhal inflammation with thickening⁶ and adhesions.¹⁴

In a section of this group, the ultimate supervention of an attack accompanied by one or more symptoms indicative of inflammation of the appendix, enabled the correct diagnosis to be made. If the attack was a slight one there was possibly a difficulty in inducing the patient to permit removal, and occasionally operation was put off until an undoubted attack of appendicitis showed the uselessness of waiting. It can be understood how very disheartening medical treatment may prove when it is mentioned that the first definite attack only supervened after 4, 5, 6, 7, 11, and even 14 years of ill-health in some of them.

In ten instances in which there had been an early recognised appendicitis, operation was either not suggested or was declined. In this group painful attacks followed until the individual was tired of them. The duration of the history in these varied from 4 months to 3, 5, 7, 8, and 10 years. In one the patient had been assured that he would "grow out of it," another spent four months lying in bed under medical supervision, without evident benefit. One female patient agreed to operation at the end of eight years, but only after three definite attacks in somewhat rapid succession.

The appendix in these patients was pathologically affected in the same manner as in the more numerous group in which only recurring pains had been noticed without definite appendicitis.

In all cases examination by the X rays proves of value. At one time it did not appear possible to obtain a view of the condition of the appendix which could be relied upon as accurate. Quite recently in an appendix there was a large concretion situated beyond a stricture which had not been demonstrated in the plate which was brought by the patient. Dr. E. I. Spriggs¹⁷ and Mr. O. A. Marxer have shown an increasing success in a number of these cases. In the eighth series of 100 they were able to define the appendix 86 times, and found it possible to prove the presence or absence of adhesions around it. It cannot always be demonstrated when pelvic in position. This examination should not be limited to the appendix region, for in some it is especially important to search for the evidence of congenital bands in the duodenal and pyloric area.

Mr. G. E. Waugh¹⁸ has drawn our attention to the frequency of symptoms which are due to a mobile ascending colon. By dragging on structures in the upper abdomen, the gall-bladder, stomach, duodenum, &c., symptoms are produced which simulate disease of these parts. We are now chiefly concerned with what is called the "iliac fossa type" of illness, and quote his paper:—

"In these cases chronic pain in the right iliac fossa is the salient feature added to the usual dyspeptic symptoms. . . . The condition is generally regarded either as chronic appendicitis or merely as dyspepsia in children. Pain, not very severe, which often lasts for several days, is complained of in the region of the right iliac fossa. It is intermittent in character, and examination of the abdomen seldom reveals any obvious explanation of its presence. . . . Vomiting seldom occurs, but nausea and lack of appetite are invariably present. There is often high fever with a quickened pulse-rate, and an abundance of acetone in the urine. The patient is clearly very ill, and the absence of guiding signs in the region where the symptoms are experienced is a source of anxiety which may lead to the removal of a healthy appendix. In the absence of tenderness, rigidity, and mass formation no anxiety need be felt on this score; whilst the palpation of the outline of the over-

distended ascending colon is sufficient for a diagnosis to be made."

The operation of fixing the mobile hepatic flexure has proved extremely satisfactory in the large majority of his cases, and those operated on early responded most satisfactorily.

It is more than probable that many cases of this nature were operated upon before his paper appeared without satisfaction to the patient. His contribution is one of the most important during recent years.

4. *Attacks of Pain which Accompany an Iliac Swelling but in which there may be no History of Pyrexia.*—Fæcal accumulation, typhlitis, and perityphlitis; iliac abscess, secondary to spinal disease; carcinoma of the cæcum and ascending colon; dilatation and possibly ulceration of cæcum, secondary to a growth in the large bowel beyond; prolapse of distended gall-bladder containing gall-stones; dropped kidney, possibly hydronephrotic or cystic; ovarian tumour with long pedicle or with twisted pedicle; wandering spleen; sarcoma of the iliac bone.

5. *Left-sided Abdominal Pain.*—When symptoms such as those described are met with on the left side they are not often caused by disease of the appendix, unless there is a transposition of the viscera, or the appendix is held up by some adhesion to the left of the pelvis. Nearly all the instances of left-sided pain without tumour or history of fever under observation have been due to chronic constipation in the female. Probably renal calculus and calculus of the ureter are as common on the left as on the right side—but dropped kidney is uncommon. In one young adult under care for recurring attacks of severe pain on the left of the umbilicus of some years' duration nothing was revealed by repeated X ray examination, but abdominal exploration showed a *horse-shoe kidney*, the left half of which had dropped. Operation relieved his pains for a time, but has not prevented their occasional recurrence to a lesser extent.

Sigmoiditis is responsible for nearly all of the inflammatory attacks which are encountered to the left of the middle line, some of them being followed by abscess; and it is possible in many to find a swelling. The possibility of suppuration about a carcinomatous growth must not be forgotten, the symptoms being similar. In both obstruction may occur. Most cases of pneumaturia with fæcal matter and pus in the urine follow ulceration secondary to sigmoiditis, and rectal examination will show a mass in the pelvis.

Inguinal hernia in its early development may give rise to attacks of left-sided pain in the same way as it does on the right side.

The pains accompanying spinal disease, and that which precedes an attack of herpes, must be again mentioned. Obstruction from carcinoma of the colon and sigmoid will cause local swelling and peristalsis in addition to pain. In one instance of carcinoma of the transverse colon, in which obstruction was commencing, operation was considered, but declined. "An old friend of the family" administered a white powder; within a few hours acute suppurative peritonitis suddenly commenced which proved rapidly fatal. Many years ago a woman, for whom left inguinal colotomy for inoperable carcinoma was being performed in two stages, ruptured the descending colon a day or two after the first stage had been completed. Since that time I have always performed this operation at one sitting, a tube being put in at once and tension relieved.

(B) *Those Cases in which Disease of the Appendix is Latent, and the Illness for which Relief is Sought is not Attributed to its Correct Source.*—This is also an important section of our subject, about which during recent years we have accumulated more information. It is also one which is still regarded by some with a certain amount of scepticism. There are many facts on which we can rely to prove its existence. The cases are divisible into two classes: those in which the appendix has given evidence of disease in the past, and those in which no history of this can be obtained.

¹⁷ THE LANCET, 1919, vol. i., p. 91.

¹⁸ Brit. Jour. of Surgery, 1920, p. 343.

Much has been written about "appendix" dyspepsia, "appendix" gastralgia, &c., and it is common to see a patient who has confessed after the removal of his appendix that he has lost his "indigestion." This term may include almost, if not all, the symptoms of dyspepsia, even to those which were once regarded as pathognomonic of ulceration of the stomach, such as hæmatemesis. In some of these cases, when there has been no pain over the appendix region and no history of disease of the appendix, but where the pains have been epigastric, Dr. Blair Bell¹⁹ wrote:—

"If the patient complains of pain in the neighbourhood of the umbilicus, hypogastrium, or elsewhere, and that pain can be reproduced by pressure over the appendix, which may not be tender to pressure itself, then it will be found that the appendix is diseased."

During an operation for such a condition, exposure of the stomach will show that there is no evidence of disease in any part of it, "but its pyloric half is seen to be in vigorous and excited action." "The stomach becomes thick, contracted, and pale."²⁰

In the preceding section we have shown the "quiet" appendix responsible for varying forms of dyspepsia, and there can be little doubt that it is the cause of other morbid states. Cases of vomiting coming on at times without relation to food and without other symptoms such as pain, sometimes when the patient has gone to bed, sometimes at irregular intervals during the day may be cited.

Mr. W. H. B. Brook²¹ has described a case in which the removal of a chronic appendix cured a patient suffering from ovarian pain and menorrhagia. Sir Clifford Allbutt²² published the account of a case which was regarded as "neurasthenia," "a weary, aching, repining woman, a trouble to herself and all about her." Appendicectomy led to a permanent cure. An old history of peritonitis during adolescence was recalled afterwards. The possibility of a similar cause must be remembered in cases of this kind, for removal has been successful in other instances in which rest, &c., had been only temporarily useful.

To these may be added cases of vague ill-health in which the patient looks toxic. Lambret,²³ reported two cases, (1) ophthalmic migraine, which came on two years after an acute appendicitis; (2) epileptiform attacks which were of long standing and associated with much derangement of the digestive functions. Here there was a kind of aura originating in the cæcal region. No. 1 was cured; No. 2 much improved by removal of the appendix. Martley²⁴ operated upon a man who had 12 attacks of Ménière's disease before an acute appendicitis with operation. Four years afterwards he had been free from further attacks. In another case an aural attack occurred at 37 and a second at 43. Operation at 49 for acute appendicitis—no further aural attack for 20 months.

Dr. Euzière considers that it is mostly in old-standing affections of the appendix, or at least of the digestive tract, that the transference of the pain in cases of early pneumonia is made to the abdomen.²⁵

In a recent annotation in THE LANCET²⁶ attention is drawn to a paper by Dr. O. Usland, which shows that in five cases of urinary symptoms due to bacilli treatment was not satisfactory until after removal of the appendix. In each case similar germs were found in the appendix, whence they had made their way to the right kidney. The end of the paragraph may be quoted, "The doctrine of focal infection has now reached a stage when it is liable to be parodied by indiscriminating enthusiasts and to fall into disrepute. But papers such as Dr. Usland's make it transparently clear that this doctrine contains more than a modicum of truth, and that it leads to therapeutic measures which would probably have been neglected without it."

RETENTION OF URINE IN ELDERLY MEN.*

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As senile enlargement of the prostate is the most common cause of retention of urine in men over 60 years of age, I shall only deal with the immediate treatment of prostatic obstruction.

Symptoms of Prostatic Obstruction.

As the prostate becomes enlarged, the first evidence of retention is the presence of residual urine. This means that the patient never empties his bladder completely, but always leaves a certain residue behind. In the earlier stages of the disease the patient is quite unaware of this condition, and expresses great surprise when it is demonstrated to him. The amount of residual urine may vary from a few drachms up to a couple of pints, but from a clinical point of view it is better to divide these patients into two classes, according as the amount of residual urine is small or large. I have selected 10 ounces as an arbitrary limit, and will speak of patients with less than 10 ounces residual as cases with a small amount of residual urine, and patients who retain more than half a pint as cases with a large amount of residual urine.

A patient with a *small amount of residual urine* has increased frequency of micturition, especially at night. He must rise from two to four or five times during the night to pass urine. During the day the frequency is not so marked, and he can retain urine comfortably for two or three hours. The stream is diminished in volume, and the force of the jet is poor. There is often some slight delay in commencing the act of micturition. Beyond this he has little or no inconvenience, as no pain is felt unless infection or a stone is present. These patients are seldom liable to complete retention, and if it does occur it is only transitory, and spontaneous micturition is re-established after two or three days. Retention is usually caused by errors in eating or drinking, especially by over-indulgence in alcohol, by a chill or wetting, by constipation, or if the patient has been forced to hold his urine for a considerable time after the desire to micturate has been experienced. If, however, his bladder is infected the frequency is more marked, and is diurnal as well as nocturnal, and pain or scalding along the urethra is felt during the act. Infection always renders the patient more liable to retention.

A patient with a *large amount of residual urine* has marked frequency of micturition. He is compelled to pass urine from five to ten times at night, and about every hour or oftener during the day. The stream is little more than a dribble, and there is no force in the jet. There is a long latent period, and he often has to wait for several minutes before the urine commences to flow. There is also a considerable amount of difficulty, and involuntary straining, which is sufficient to bring on an "attack of piles." However, the patient soon realises that straining does not help him to empty his bladder. There is always polyuria, the amount excreted in the 24 hours being increased to 80 or 100 ounces, or even more. I have recently seen a patient in this condition who had been passing 12 pints of urine a day for several weeks. The urine is pale, has a very low specific gravity—1005 to 1010—and usually contains a trace of albumin. The percentage of urea and of other urinary solids is notably diminished. There is little or no pain, except a slight suprapubic ache, which is due to distension of the bladder, and sometimes a dull pain in the loins due to back-pressure on the kidneys. In addition to these local signs, the patient generally shows definite evidence of renal failure. The clinical

¹⁹ Brit. Med. Jour., 1904, vol. ii., p. 1146.

²⁰ Moynihan: Brit. Med. Jour., 1910, vol. i., p. 241.

²¹ Brit. Med. Jour., 1907, vol. ii., p. 70.

²² Ibid., vol. i., p. 413.

²³ Arch. Prov. de Chir., October, 1911.

²⁴ Brit. Med. Jour., 1914, vol. i., p. 1352.

²⁵ Rev. Franc. de Médec. et de Chir., 1909.

²⁶ THE LANCET, 1922, i., p. 807.

*A post-graduate lecture delivered at the Wandsworth Municipal Hospital.