PERICOLITIS.

BY

T. CARWARDINE, M.S., M.B.LOND., F.R.C.S.,
HONORARY SURGEON TO THE BRISTOL ROYAL INFIRMARY.

PERICOLITIS has its simplest manifestation in the local peritonitis which accompanies the firm impaction of a faecal mass in the colon. The bowel is congested and granular, and peritoneal exudate surrounds the area.

In lesions of the mucous membrane of the colon causing infection through the lymphatics the adjoining mesentery becomes thickened and shortened from chronic inflammation, a feature met with opposite the diseased area in chronic appendicitis, which causes kinking of the appendix at its middle or proximal part.

Fig. 1.—Effect of chronic inflammation of the mesentery of the appendix—mesoappendicitis.

It cannot be doubted that infection is a factor of the local exudate around the faecal mass in the one case and of the contracting scar in the mesoappendix in the other case. They are but simple instances of pericolicitis, which, in some of its more complicated forms, I propose to consider in relation to the kidney, appendix, and gall bladder.

The correct interpretation of vague pains and tenderness in the right lumbar and iliac regions may be very difficult, especially in the female; and my own experience of the important part played by pericolic adhesions is in accord with that of some recent observers. In nephroptosis we have an opposite extreme to the simple illustrations already given, yet pericolic inflammation and adhesions may result from wandering kidney and demand treatment.

PERICOLITIS FROM WANDERING KIDNEY.

Wandering kidney sometimes causes colitis. This is primarily mechanical, from local irritation, from displacement and distension of the ascending colon, and from the strain on the colic vessels acting more readily upon the veins than on the arteries, and so inducing passive congestion. In addition, the colitis causes infective inflammation of the pericolic tissues. Thus a vicious circle is induced, mechanical on the one hand, infective on the other; the caecum and ascending colon being in lymphatic connexion with the right kidney, so that bacteria and toxins can pass from the colon to the kidney.¹ Whether as a result of mechanically-induced nephritis, or by infection from the colon, the fact remains that wandering kidneys requiring operation always show distinct adhesions on the true capsule with whitish areas of fibrosis at their attachments. It is the surrounding capsule which is really loose, even permitting the kidney to pass with it across the middle line of the abdomen.^{2,3} Such patients are usually thin, but as the fatty capsule of the kidney is often well marked, the view that emaciation is caused by toxins from the bowel acting upon the fat would seem to be untenable.

In more advanced cases the intraperitoneal pericolicitis may be so distinct as to prove a dominating factor in the causation of symptoms, as in the following cases:

CASE I.—Attacks Resembling Appendicitis.

Mrs. C. had suffered from "bilious attacks" for years, beginning with severe headaches and accompanied by distension,

nausea, anorexia, and occasional vomiting. They lasted for two days, and she applied hot-water bottles to the abdomen to obtain ease, which was associated with a sensation of something moving before she was relieved. A month before I saw her with Dr. Lees she had a severe attack of pain and tenderness in the right iliac fossa, with fullness and indefinite swelling, and she had a recurrence with slight fever subsequently. In the earlier attacks the pain was epigastric; in the later ones in the region of the appendix and like colic.

The right kidney was freely mobile, with tenderness, gurgling, and indefinite resistance in the caecal region. In March, 1911, a long ilio-lumbar incision was made and the muscles separated. The middle of the ascending colon was adherent to the parietal peritoneum, and beset with numerous bands which required division with scissors, with intervening cystic spaces containing clear fluid. The caecum was dependent in the pelvis, dilated and hypertrophied. The appendix was small and apparently normal, and the other organs were healthy. The kidney was fixed by the writer's method,⁴ and the patient has been cured of her attacks (Fig. 2).

Fig. 2.—Pericolicitis from wandering kidney with cystic spaces containing clear fluid.

CASE II.

A woman, under the care of Dr. Powell, first noticed severe pain in the right side fourteen months before, with a history of previous indigestion. The pain passed to the right shoulder-blade and was followed by tenderness in the right side. Urination had been frequent for a year, and sometimes the patient detected a swelling.

The right kidney was fixed after excising some fatty capsule. Strong pericolic adhesions required division, also some between the ascending and transverse colon; the caecum was low down in the pelvis. With the patient on her side the whole of the fatty capsule with its fascia dropped away from the parietes, together with the kidney, leaving an exceptionally large retroperitoneal space reaching to the middle line mesially and down to the false pelvis below (Fig. 3).

CASE III.—Wandering Kidney fixed with only Temporary Relief. Subsequent Exploration and Treatment of Pericolicitis.

I was asked to see a lady with Dr. Roberts in July last with wandering kidney dating from confinement many years previously. She complained of a dragging feeling in the loin aggravated by two recent falls, with abdominal tenderness; and on one occasion, when in London, she experienced a sensation of "something turning over inside." Belts had not given relief.

In September her kidney was fixed, but soon after her return home the abdominal pain, tenderness, and attacks of faintness described as "qualms" returned. Consequently I explored the right loin in November through a long sphincter incision. The kidney was absolutely fixed, but there was very obvious pericolicitis, the ascending and transverse colon being bound together; a special tongue of mesentery of the ascending colon was adherent to the peritoneum of the loin, and beneath this the ascending colon towards its upper part was deeply angulated and constricted by strong pericolic bands with intervening empty spaces. It required time and patience to restore the colon to natural conditions, and the adherent portion of the mesentery of the ascending colon had to be cut away except a piece above which was stitched to the under surface of the liver to support the hepatic flexure.

Very soon after the operation she began to lose the "qualms," abdominal pain, and tenderness, the bowels acted more freely than before, and she is at the present time restored to health.

A case of nephritis with granular casts which appeared due to chronic appendicitis is recorded by Pilcher, pericolic

adhesions and recent perinephritis being present; also the case of a constipated patient who had passed blood and been advised to have her kidney removed, but whose renal symptoms cleared up after the removal of a chronically inflamed appendix, and the release of the caecum and ascending colon from pericolic bands.

MEMBRANOUS PERICOLITIS, WITH SYMPTOMS OF APPENDICITIS.

The association of membranous pericolicitis, with symptoms of chronic appendicitis has been graphically described by Lewis S. Pilcher.¹¹ The bands may be thin and veil-like, membranous, or as firm sheets of fibrous tissue binding down the caecum and appendix. They tend to restrict peristalsis and to angulate the colon and appendix (Figs. 9, 10, 11, 12, 13). They must have been observed repeatedly, although Jackson (1908) has given us a clear description.⁵ In most of the cases of pericolicitis described by Pilcher the appendix had been removed previously, either during an acute attack or for supposed chronic appendicitis. The persistence of symptoms in the right iliac region and loin led to further operation, and after dealing with the pericolic adhesions the patients were either cured or greatly relieved.

Parker Syme⁶ described a case diagnosed as appendicitis which presented little sign of it at operation, yet the ascending colon was enveloped in a typical Jackson's membrane, spreading from the parietes over the colon, which moved freely beneath it.

Lane has described similar adhesions between the outer wall of the colon and the parietes in connexion with chronic constipation, and regards them as hypertrophy of the membranous anchors of the bowel, compensating for the strain of prolonged ptosis but also interfering with peristalsis.⁷ As regards intestinal stasis, he submits the argument that inflammation of the appendix is not necessarily the primary condition; that bands of adhesions may form about the ascending colon and hepatic flexure as a result of constipation and the erect posture.⁸ Charles Mayo suggests that in some cases these bands and films may be due to late rotation of the bowel and descent of the caecum from its hepatic position after the formation of the parietal portion of the peritoneal cavity in the fetus.⁹ The reduplication of the ascending colon, which one occasionally meets with surgically, supports this view in certain instances. Generally speaking, the opinion of Gerster¹⁰ and Pilcher,¹¹ that they are the result of off-repeated or long-continued mild infections of the peritoneal covering of the caecum and appendix, is no doubt correct. Moreover, it should be noted that although the initial appendical attack may subside completely, the accompanying pericolicitis may persist in the form of fibrous bands.

Symptoms and Diagnosis.

The symptoms of pericolic membranes have a great similarity, and resemble closely those of chronic appendicitis. Discomfort and pain are complained of in the right iliac region, with tenderness on deep pressure. These vary with diet and exercise, and colicky cramps occur which may be felt and even seen. Caecal constipation is caused by the defective peristalsis and mechanical impediment, and pain is caused by muscular spasm. This faecal stasis, where absorption is normally active, causes symptoms of autointoxication. The pain is often referred to the stomach, and secondary digestive disturbances are common.

The diagnostic value of x rays may be great in determining the position and size of the caecum and any angulation of the colon. Twelve hours after a bismuth meal, given after a thorough clearance of the bowels, supplemented if necessary by an enema of bismuth emulsion shortly before the examination, the colon and caecum may be examined, the disposition of the appendix may be seen, and by repetition at intervals one can determine approximately the relative stasis in the caecum. But operation will alone determine the conditions with precision.

Operation.

The incision will necessarily be such as to expose the parts more freely than has been customary. It may be a vertical incision towards the outer part of the right rectus, as advised by Pilcher, or the long ileo-lumbar gridiron incision, with separation of the musculature,

which I have employed. The bands are then divided with scalpel or scissors until the bowel is set free, and the bare parts are covered over with peritoneum. Generally the bands are divided near the bowel, and are then utilized to cover the bare parietal areas by anchoring them behind the bowel with a few stitches, any free visceral ends of the adhesions being sutured to the bowel in front, close to their attachment. The incision should be long enough to expose the terminal ileum, caecum, and the whole of the ascending colon; and the history of a previous removal of the appendix should not preclude such an exploration.

In an examination of the after-histories of 100 cases operated on for chronic appendicitis, E. MacD. Stanton¹² found that 36 were not cured, either from erroneous diagnosis, such as the non-recognition of gall bladder or renal conditions, or from some factor not appreciated at first. Of these he states that mobile caecum accounted for the greatest number, 16 per cent., and in them the relief by appendicectomy was only temporary. The symptomatic importance of mobile caecum, and the value of operations for its relief, are variously estimated; and inasmuch as uncomplicated mobility of the caecum is not the cause of pericolic adhesions, except on the constipation theory, the consideration of mobile caecum as a primary condition may be omitted from a consideration of membranous pericolicitis.

PERICOLITIS DUE TO APPENDICITIS.

CASE I.

A little girl, aged 11, under the care of Dr. Thompson, had an attack of pain of gradual onset three years before, with sickness and slight pyrexia. Five weeks previously she had a sudden attack of pain, was not sick, and remained in bed a few days but without feeling quite well afterwards. There was no history of indigestion or biliousness. The appendix was found to the outer side of the colon, pointing upwards, and there were adhesions between it and the outer side of the colon, also pericolic adhesions joining the ascending and transverse colon (Fig. 4).

CASE II.

In this case there had been pain settling in the appendix region, with tenderness, rigidity, and initial sickness. The appendix was firmly bound down behind the caecum, and firm bands united the head of the caecum to the ileum a few inches away from the ileo-caecal junction, so that a free loop of ileum was suspended thereby (Fig. 5).

CASE III.—Appendicectomy without Relief; Pericolicitis Discovered at Subsequent Operation.

A girl of 15 was seen in July last with Dr. Harvey with symptoms of appendicitis. Pain of three months' duration, was very severe at times though sometimes absent; referred to the right loin, thigh, and iliac region, where there was tenderness; the pulse was quick with slight pyrexia. The appendix was removed without drainage. On returning home the pain recurred in the right loin and towards the back. It was very severe at times, and worse when up and about. I saw her again in October. Nothing could be felt in the abdomen, and I suspected pericolicitis. X-ray photographs after bismuth meals revealed very distinct stasis in the caecum, bismuth remaining therein unaltered from twelve to seventeen hours, and still present after forty hours. A long ileo-lumbar sphincter incision was therefore made through the former scar. The caecum was dilated, and, together with the ascending and transverse colon, was bound down by pericolic films, including omental bands which were attached to the outer part of the colon, the head of the caecum, and the scar (appearances, Fig. 6; skiagrams, Figs. 7 and 8).

CASE IV.—Pericolicitis from an Abnormally Placed Appendix, causing Attacks of Biliary Colic with Jaundice.

A lad of 20 was seen with Dr. Lucas in 1908 with a history of sudden pain at the navel two years previously, followed by attacks resembling gall-stone colic, with jaundice, marked flatulence and vomiting, and so severe that he used to double himself up over the back of a chair. The gall bladder and cystic duct were buried in firm adhesions, separable with difficulty. No stone could be found, the gall bladder was drained, and he passed several mucous stools for the first five days after operation. Seven months after he had an attack of general peritonitis, when its cause and that of the previous pericolicitis was found in a gangrenous appendix that passed almost vertically upwards behind the caecum and ascending colon, the tip being apposed to the lower border of the duodenum close to the common bile duct (Fig. 14).

CASE V.—Pericolicitis from Abnormally Placed Appendix (? Developmental) and Symptoms of Gastric Ulcer.

A woman was referred to me by my colleague, Dr. Nixon, with a view to gastro-enterostomy if the indications were obvious. The history was that of pain after food ever since she was a girl, with much flatulence and occasional vomiting and haematemesis. There was localized tenderness in the epigastrium to the left of the middle line. Exploration revealed

a tortuous ascending colon, with adhesions between the bends and firm ones uniting the ascending and transverse colon together. The appendix, which was very long, passed up under a filamentous covering in the ascending mesocolon to the hepatic flexure, where it turned to the left, its extremity lying for some distance in the gastro-colic omentum, and the gall bladder was adherent at this site. Gastro-enterostomy was not indicated, the stomach was normal, and the long appendix was removed after dividing the filamentous pericolic covering (Fig. 15).

CASE VI.—*Tuberculous Pericolitis.*

A little boy was seen recently who gave a history of a few

previous attacks of appendicitis. The appendix was accordingly removed, and on examination of the region a hard mass of tuberculous glands could be felt behind and to the outer side of the caecum and in the lower part of the mesocolon, whence they were excised. Professor Walker Hall reported the appendix to be the seat of early tuberculosis (Fig. 16).

Actinomycosis.

In the later stages of actinomycosis of the appendix, which is not at all uncommon, the pericolic tissues become infiltrated and sinuses form in the loin, prior to

Fig. 3.—Pericolic films from loose kidney.
Fig. 4.—Pericolic films from appendicitis.
Fig. 5.—Ileum fixed by pericolic adhesions.
Fig. 6.—Pericolic films causing persistent symptoms after appendectomy.
Fig. 7.—Skiagram of previous case seventeen hours after bismuth meal, similar to that taken twelve hours after bismuth.
Fig. 8.—Skiagram showing bismuth still in caecum seventy hours after bismuth meal.
Fig. 9.—Appendicular adhesions. (Pilscher.)
Fig. 10.—Pericolic films. (Pilscher.)

Fig. 11.—Perityphlitic films. (Pilscher.)
Fig. 12.—Pericolic films binding ascending and transverse colon together. (Pilscher.)
Fig. 13.—Jackson's membrane and double-barrel gun arrangement. (Pilscher.)
Fig. 14.—Pericolic films and jaundice from abnormally placed appendix.
Fig. 15.—Pericolic films from abnormally placed appendix, with symptoms of gastric ulcer.
Fig. 16.—Tuberculous pericolitis.
Fig. 17.—Pericolic actinomycosis.
Fig. 18.—Pericolic films from cholecystitis of pregnancy.

the involvement of the hepatic region and subsequent death of the patient (Fig. 17).

Pins in the appendix have been noted by many surgeons, and may cause pericolicitis. In a collection of 63 published cases R. H. Fowler refers to a case of W. W. Keen, in which the tip of the appendix was solidly incorporated in the bladder. At the age of 7 the patient had dysuria, and a pin, which he believed he had swallowed, was removed from the urethra.¹³

Pericolic adhesions may cause intestinal obstruction, as in a case recently operated upon at midnight, in which a coil of small intestine had passed under a band of such origin.

CHOLECYSTITIS WITH PERICOLITIS.

Inflammation of the gall bladder, leading to localized peritonitis in its neighbourhood, is a common cause of pericolicitis in the hepatic region, and is invariable in severe or long-standing cases. The following will serve as an example of pericolicitis following cholecystitis of pregnancy:

The last child was 7 years old, and the pain, of five months' duration, was first noticed in the epigastrium and passed round to the back. It was of a severe shooting character, worse at night and on walking, doubling her up, and relieved by the vomiting which always occurred. She had had indigestion for two years. There was tenderness in the epigastrium, not over the gall bladder, which could not be felt. At the operation the gall bladder was thickened and mottled, but no stone was present in it or in the ducts. Marked pericolicitis was present, the ascending colon being adherent to the anterior abdominal wall and the liver adherent to the gastro-hepatic omentum. In particular there was a strong band of omentum adherent to the lumbar peritoneum (Fig. 18).

It will be seen, therefore, that pericolicitis is a frequent accompaniment of inflammatory affections of the appendix and gall bladder. Its persistence as bands and adhesions may give rise to symptoms after the successful treatment of the original focus, particularly in appendicitis. In wandering kidney it is now demonstrated that pericolicitis may coexist with encysted intraperitoneal collections of fluid. In the surgery of the right loin more attention will doubtless be paid to this associated condition by more complete examination of the region at the time of operation; and, by extended observation, the pathology of vague pains and after-pains will be more fully understood.

REFERENCES.

- ¹ Francke: Coli-infektion der Harnwege. *Mitteilungen aus den Grenzgebieten der Med. und Chir.*, xxii, No. 4, 511-674.
- ² Glantenay et Gosset: Le Fascia Péri-rénal. *Annales des maladies des organes génito-urinaires*, 1898, p. 118 et seq.
- ³ Morris, H.: *Surgical Diseases of Kidney and Ureter*, 1901, i, pp. 103, 104.
- ⁴ Carwardine: *Bristol Medico-Chirurgical Journal*, 1905, xxiii, p. 24.
- ⁵ Jackson, Jabez: Membranous Pericolicitis. *Transactions of the Western Surgical and Gynecological Association*, 1908; also *Surgery, Gynaecology, and Obstetrics*, 1909, ix, 278.
- ⁶ Syms, Parker: *Transactions of the New York Surgical Society*, February, 1912.
- ⁷ Lane: *Surgery, Gynaecology, and Obstetrics*, 1908, vi, 116.
- ⁸ Lane: *BRITISH MEDICAL JOURNAL*, 1911, ii, 914.
- ⁹ Mayo, C. H.: *Collected Papers*, vol. ii, 1911, p. 221.
- ¹⁰ Gerster: *Annals of Surgery*, 1911, ii, p. 325.
- ¹¹ Pilcher: *Ibid.*, 1912, i, p. 3.
- ¹² Stanton: *Ibid.*, 1911, i, p. 813.
- ¹³ Fowler, R. H.: *Ibid.*, 1912, ii, p. 433.

THE bequests made by Miss Alphonsine Sarah Jarry, of Settle, Yorkshire, included one of £600 to Halifax Infirmary.

WOLBACH and TODD, in the Third Report of the Expedition of the Liverpool School of Tropical Medicine to the Gambia in 1911, state that they have established the presence throughout the Gambia of that form of ulceration occurring in the tropics which is associated with the presence of spirochaetes and fusiform bacilli. In 17 cases the pathological history of the ulcers was studied; although they varied greatly in their gross appearances, their histological features had so much in common that they could be regarded as having a common etiology. The conditions observed excluded as etiological factors, syphilis, varices, acid-fast bacteria, blastomycetes, Leishmania, actinomycetes, and the streptothrices. The presence of spirochaetes in nine of their cases lends support to the view that they are the cause of the process. These spirochaetes corresponded accurately to the parasites described by v. Prowazek, Keysseltz and Mayer, Balfour, and other authors, and named by v. Prowazek *Spirochaeta schaudinni*. Subcutaneous inoculations made by the authors into white rats gave negative results.

A Lecture

ON

SOME POINTS ABOUT DRAINAGE OF THE ABDOMEN UNDER VARIOUS CONDITIONS OF INFLAMMATION.

BY ARTHUR E. BARKER, F.R.C.S.,

SURGEON TO UNIVERSITY COLLEGE HOSPITAL, AND CONSULTING SURGEON TO THE QUEEN ALEXANDRA MILITARY HOSPITAL, MILLBANK.

THE subject chosen is one pre-eminently difficult to handle. Anyone dealing with it even in the most detached way is very liable to be misunderstood. I hope I shall be able to avoid this in the present instance.

I want to speculate from evidence before us as to whether the current views on drainage of the abdomen in inflammatory conditions may not in some cases be modified with advantage to-day, as they have required to be in the past.

I need hardly remind a senior audience that not so long ago stirring debates took place in our societies as to the employment of drainage of the abdomen in such simple non-inflammatory conditions as early and uncomplicated ovariectomies. Yet now such a measure is rarely if ever adopted; the wound is at once sewn up. The reason is obvious. Any effusion which follows such an operation nowadays is either absolutely aseptic or the few organisms which may have gained access to it from without are easily disposed of by the germicidal properties of the fresh exudation with its phagocytes, and are absorbed by the extensive lymph sac which the peritoneal sac may be described to be. The effect of discarding drainage in such simple aseptic cases was, of course, to reduce the number of weak scars and consequent ventral herniae, and to diminish the liability to subsequent dangerous adhesions about the track of the drain. A painful after-treatment was also avoided, as was also a great loss of fresh healthy serum which otherwise would be returned by the lymphatics to the system with benefit.

Appendicitis.

Let me now ask you to recall the earlier medical experiences of appendicitis before the operative treatment of the affection became established. From these it soon became clear that many acute cases could recover without opening the abdomen, and without any escape of pus or other effusion either externally or into the intestines. It was a fair deduction from such experiences that the peritoneal cavity could dispose of a large amount of septic inflammatory matter. Otherwise none of these cases could have recovered.

Later on it was recognized that in many cases the amount of septic matter was too great to be left entirely to the resources of nature, and abscesses were encouraged to burst under fomentations, or operations were undertaken to evacuate them. But even here much was left behind which was not carried off by drainage, and could only be destroyed on the spot. From our experience of these operations we now know that ventral herniae and kinks of the intestine were not uncommon sequelae. But the operations on these very ventral herniae themselves following upon extensive suppuration within the abdomen have taught us, perhaps, more than anything else of the marvellous powers the peritoneum possesses of arresting and repairing the damage done. We have undertaken a radical cure, perhaps, a year or so after we had actually seen all the coils of bowel in the right flank matted together by foul lymph, and have found in many cases no traces of adhesions and all the peritoneal surfaces polished and as healthy looking as if they had never been involved in so dangerous a septic inflammation. Another point must have struck many surgeons after making long incisions to evacuate appendiceal abscesses. The ends of the incisions have been stitched up, leaving a drain in the centre, and we have seen the ends heal practically by first intention, in spite of being bathed in pus under a fomentation for days in many cases.

* Delivered at the Medical Graduates' College.