ON
THE ETIOLOGY AND TREATMENT
OF
PERITONITIS.

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THE knowledge of the causes of disease is in many instances the best guide to treatment; and the value of pathological records is especially shown in affording safe indications for therapeutical measures; for if we can discover and remove disturbing forces, the functions of life will gradually re-assume their wonted state. Eminent writers on medical science have dwelt upon the importance of regarding local disease as arising from a general or constitutional change in the system; and whilst all acknowledge that fact, and many bear it continually in view, still, some diseases are considered as idiopathic, which further investigation proves to have a constitutional origin.

This remark applies with great force to *peritonitis*, for although spoken of and treated as an idiopathic disease, we do not find that it has a local character, unless excited by injury to the serous membrane, or by the direct propagation of disease; and in this aspect, the facts deduced from the records of a large number of examinations after death have much interest. In 3752 inspections recorded at Guy's Hospital during a period of twenty-five years, 500 instances of peritonitis occur; but we cannot find a single case, thoroughly

detailed, where the disease could be correctly regarded as existing solely in the peritoneal serous membrane.

In relation to the causes of peritonitis, the cases just referred to may be divided into three classes.

1. Peritonitis produced by the extension of disease from adjoining viscera, or excited by direct injury, including cases of perforation of viscera, extravasation, violence, &c.

2. Peritonitis connected with blood-changes, as where inflammation of the serous membrane occurs in the course of albuminuria, pyæmia, puerperal fever, erysipelas, &c.

3. Peritonitis caused by general nutritive changes of the system, which have been followed by acute or chronic disease of the peritoneum, such as struma, cancer, &c.; and comprising also those cases in which the circulation of the peritoneum has been so altered by continued hyperæmia (modifying its state of growth), that very slight exciting causes suffice to induce acute mischief, as occurs in peritonitis with cirrhosis, disease of the heart, &c.

It will be evident that the first class might be regarded as disease of a local, and the second and third as of a general character. The *first* division, by far the largest, includes 261 instances of peritonitis, which was produced in 102 by hernia, internal and external, intussusception, bands of adhesion, and cancerous obstruction. In 19 cases the obstruction was of an internal kind, and in not a few of these death followed from rupture of the intestinal coats. In internal obstruction the intestine above the stricture becomes enormously distended, the mucous membrane is stretched, and presents evidence of great congestion and acute inflammation; the mucous surface is often covered with a diphtheritic layer, numerous small patches of ulceration are found arranged in a linear manner in the direction of greatest tension, and, after a short time, the several coats of the intestine give way, and extravasation takes place.

In the treatment of these cases of internal disease, very different measures have been used, and one almost as unsuccessfully as the other; gastrotomy has been performed, warmth or cold applied, manipulation and changed posi-

tions of the patient tried, injections of all kinds administered, and the most powerful depressing agents used; but all now acknowledge that purgatives are exceedingly injurious, and that the most efficacious means of prolonging life is the frequent administration of opium. For by allaying violent peristaltic action, and the spasmodic contraction of the involuntary muscular fibre of the canal, vomiting is often checked, and the perfect rest thus obtained has been followed, as in some cases of cancerous obstruction, by relief to the more urgent symptoms, and by a considerable postponement of the fatal result. Many persons, however, combine calomel with the opium, from the idea that it checks inflammatory action; but if we bear in mind the condition of the mucous membrane above the injury, enormously stretched, acutely inflamed, often ulcerating, and closely resembling a leg of which the skin is stretched to the utmost by anasarcaous effusion, followed by a series of minute ulcerative patches, we can scarcely regard mercury as otherwise than injurious; and if perforation take place, as is too often the case, this remedy is not likely to localize the extravasation.

Under the first division we also enumerate 35 cases caused by injuries or operations directly affecting the serous membrane. In some instances of severe abdominal injury, death had resulted before any sign of inflammation had taken place; while in others, the injury had been of such a character, that no treatment could be more than palliative in the most trifling degree, as when the jejunum was completely divided by a vehicle passing over the body: but the museum of Guy's Hospital contains a specimen, where severe injury to the abdomen took place, and death ensued in about three months, and where a small laceration of the liver had evidently become united.

Among the operations referred to, one was for the removal of an ovarian cyst; one a case of gastrotomy; fourteen were cases of paracentesis abdominis, which was performed in five to relieve ascites accompanying cirrhosis, in two that with heart-disease, and in seven to empty large ovarian cysts.

In instances of ascites from heart-disease, chronic bronchitis, and cirrhosis, the whole of the peritoneal capillaries are in a state of continued hyperæmia; the serous membrane becomes opaque and thickened; and a very slight, fresh exciting cause is sufficient to produce acute disease. It is probable, that if a larger number of instances of paracentesis abdominis had been taken, it would have been found, that in ovarian disease, paracentesis is much less frequently followed by severe and fatal result, than in ascites following cirrhosis.

It was not certain that any direct injury had been received in two cases under this class; but great probability favoured such a conclusion. One of these was a young man, Robert P—, æt. 26, who experienced in the night sudden pain in the right side; this continued with varying degrees of severity, and with the ordinary symptoms of peritonitis; death took place in three months, and a collection of pus was found between the liver, diaphragm, and spleen, with general peritonitis. In the second instance referred to, a small abscess was found in a patient, aged sixty-one, at the lower part of the peritoneal cavity, localized, and associated with pneumonia; the disease was possibly pyæmic in its character.

In all these cases of acute peritonitis arising from injuries or operations, absolute rest, in order to promote the localization of the mischief, is one of the great objects to be sought for; and opium serves to effect this purpose as far as any agent we can use; but we may add, that in our experience the union of calomel with the opium appears to *diminish* rather than increase its beneficial influence.

As to the treatment of peritonitis arising from perforation as the result of disease, the same remark applies very forcibly, the adoption of the plan originally proposed by Dr. Stokes and Dr. Graves has been followed by the prolongation of life, and even by recovery.

Of 56 cases of perforation of intestine opening into the peritoneal sac, nine were instances of perforation of the stomach, of which one was caused by cancerous ulceration,

one by poisoning with sulphuric acid, and seven were simple ulceration: of these latter, it is interesting to notice the ages of the patients; five were young women, æt. 20, 20, 17, 16, and 21; and two were men, æt. 29 and 37.

Fifteen instances of perforation occurred in the course of continued fever. The fatal lesion took place at the lower part of the ileum, generally about the twenty-first or twenty-second day of the fever, and several perforations were, no doubt, produced, or at least accelerated, by removal to the hospital; in one it was said to be on the tenth day of fever, but some doubt may be attached to this statement, from the difficulty of obtaining an exact history.

In connection with fever as a cause of peritonitis, we may here mention five other cases, in two of which the perforation was not complete, the peritoneum being left; but probably transudation had taken place in a sufficient degree to produce acute mischief; in a third case, the intestine had given way, but local abscess was the result, rather than general acute peritonitis, and life was consequently prolonged; in a fourth chronic adhesions had formed; and in the fifth, described as a case of fever, we find that there were vomitæ in the lungs, and only very slight ulceration in the ileum.

Four cases of perforation of the ileum occurred in connection with strumous disease, leading to sudden and acute peritonitis; one was a child aged five years, with tubercular disease; the second, a female aged thirty-five, a strumous subject, with extensive ulceration of the ileum; the third, a patient with phthisis, aged forty-three; and the fourth, a case of much interest, in which the peritonitis commenced in the pelvic viscera, and the perforation took place, as we find in several cases of fæcal abscess, from the peritoneal to the mucous surface,—it was the case of Ruth S—, æt. 25, in whom, after exposure to cold and wet, menstruation was suddenly checked, and strumous disease of the Fallopian tubes followed, with tubercular deposit in the lungs and peritoneum; local suppuration took place, the intestine was perforated, and fatal peritonitis occurred.

In eleven instances perforation occurred at the cæcum or appendix, nine arising from concretion or ulceration in the latter part.

Five cases of perforation were produced by cancerous disease of other parts, one of the uterus and vagina, and four of the colon; in one of the latter it was also associated with abscess of the liver.

In two cases ovarian disease had led to union with the intestine, perforation, and then extravasation; in one of these the transverse colon was the part perforated.

In ten others, to which we have before referred, hernial obstruction, or intussusception, was followed by rupture of the coats of the bowel.

Of the cases of perforation, then, we find—

- 10 from hernia,
- 9 from disease of the stomach,
- 15 from fever-ulceration of the ileum,
- 4 from strumous disease,
- 11 from disease of the cæcum and appendix,
- 1 from cancer of the vagina,
- 4 from cancer of the colon,
- 2 from ovarian adhesions.

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Under the division of peritonitis from local causes, we next refer to 19 cases where extravasation was so circumscribed as to lead to *fecal* abscess, and many of these were cases of much interest: thus, Elizabeth H—, æt. 20, was a patient with extra-uterine fœtation, in whom an abscess formed at the lower part of the abdomen, having a large opening into the sigmoid flexure of the colon.

Three arose from ovarian tumours; three from pelvic suppuration—one after labour, a second from a fall, and a third, in a patient aged thirty, in whom, after miscarriage, pelvic inflammation and suppuration took place, and an opening formed into the colon and small intestine. Three were from ulcerated colon in one of which, dysentery, with sloughing, also existed. Five were cases of strumous disease, with

tubercular lung or peritoneum; and one of these was a child aged six, in whom the fæcal abscess extended to the umbilicus, from which discharge took place. In one of the cases of fæcal abscess, cancer of the colon existed; in another, disease of the appendix cæci; in a third, the cæcum itself was affected; and in a fourth, a fall produced local disease, ulceration, and extravasation: two of the latter are elsewhere enumerated.

In 42 cases the peritonitis was caused by extension of disease from the bladder, uterus, pelvic viscera, &c., in the following proportion :

- 6 from ovarian disease,
- 1 from ulcerated vagina and uterus,
- 1 from strumous disease of the testicle and castration,
- 1 from diseased prostate,
- 1 from strumous pyelitis,
- 1 from fistula in ano,
- 1 from cancerous disease of the bladder,
- 1 from polypus in the bladder,
- 14 from cystitis, calculus in the bladder, stricture, &c.,
- 1 from extravasation of urine,
- 2 from sloughing perinæum,
- 1 from sloughing of the nates,
- 10 from lithotomy,
- 1 from diseased hip and pelvis.

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With the exception of the first, namely, ovarian disease, few persons would treat these cases of peritonitis from pelvic mischief actively; the removal of the primary source of irritation by every available means, rest, and the mitigation of pain and nervous prostration by narcotics, anodynes, &c., constitute the principal objects of treatment. In the ovarian form of inflammation we find cæcal disease sometimes closely simulated; but even then, local depletion, rest, warmth, opiates, and salines, will, as far as we have observed, effect all that treatment can accomplish beneficially; to give mercurials would, we think, be here uncalled for, and

in all the other cases just mentioned it would be absolutely injurious.

In 11 instances, the peritonitis followed disease of the liver and gall-bladder, by simple extension of the disease; in six, abscess of the liver existed; one of these was a child aged two years, the abscess arising after scarlet fever, and local peritonitis was the result. The cause of the suppuration in the liver, in one of the cases, was not at all manifest; it occurred in a dressmaker, aged twenty-eight, without other described disease. A case of more chronic peritonitis arose from hydatids in the liver. In one instance there was rupture of the gall-duct, from impacted calculus; in another, disease set up in the gall-bladder, led to enormous distension; and in a third there was suppuration of the cellular tissue, in connection with biliary calculus.

In the following instance, it is probable that the peritonitis was secondary to disease of the liver, but there is much doubt as to its precise character; we believe it was one of the acute forms of cirrhosis, quickly passing on to suppurative changes, and followed by peritonitis, consequent on the direct extension of disease to the serous membrane.

Acute and chronic peritonitis. Suppuration in the course of the portal veins.

Samuel A—, æt. 35, was admitted into Guy's Hospital February 11th, 1857, and died on the 14th. Nine days before Christmas he had been seized with rigor, pain in the chest, and vomiting, followed by tenderness of the abdomen. He was obliged to give up work; the pain continued in the abdomen, and after a time vomiting of greenish fluid came on. During the whole of the illness he had repeated rigors. He was a spare man, but not emaciated, and slightly jaundiced; the abdomen was full and tender; there was constant vomiting of bilious fluid, and the bowels were confined. The precise character of the disease was obscure till death.

With the exception of pleuritic adhesions, the thoracic

viscera were healthy. The peritoneal cavity contained three or four pints of serum, and there was much lymph floating in it; the intestines were matted together, and separated from each other with difficulty. At the upper part of the abdomen, the disease was older, and the adhesions more firm; the colon, stomach, and liver were firmly adherent, and pus was confined in spaces between the viscera; a large quantity of pus was also found between the spleen and the diaphragm. Upon cutting through the lesser omentum, and separating the liver from the duodenum, thus dividing the portal vessels, a large quantity of pus escaped from Glisson's capsule, and from the portal vein. Behind the pancreas was a circumscribed abscess, holding about half a pint of pus. The pancreas was healthy, as was also the duct; so also the splenic and mesenteric veins. In the liver, there was extensive suppuration in connection with the veins; the portal veins were quite distended with pus, their walls softened, and in some parts detached from the tissue around them. In the large veins, distinct flakes of lymph adhered; and in some the lymph was found as a firm stratum lining the cavity of the vessel. The mucous membrane of the intestines was healthy.

Peritonitis is sometimes the result of acute disease of the mucous membrane of the intestine, extending to the deeper coats, and to the peritoneum itself, leading to inflammation, or to perforation and fecal abscess. Ulceration of the colon was the cause of fecal abscess in three of the instances we have previously mentioned, and one case of simple perforation, also previously referred to, was from this cause. In three other instances, acute dysentery, with sloughing of the coats of the intestine, also produced peritonitis.

James V—, æt. 30, employed at lead-works, was admitted, with constipation of five days' duration. Powerful medicines were given, and diarrhœa of a dysenteric character came on. The mucous membrane of the colon was found in a sloughing state, and the peritoneum acutely inflamed. Two others were also cases of acute dysentery; the coats of

the intestine were most extensively destroyed; in one extravasation was only prevented by adhesions, and in the other the submucous and subperitoneal coats of the intestine contained isolated collections of pus in the form of abscesses, and the mucous membrane of the colon was converted into black, ragged sloughs.

Disease of the cæcum and appendix is another direct cause of peritonitis. Twelve were from this source; nine of these have already been referred to in connection with perforation into the peritoneal cavity; of the three others, the affection of the peritoneum was less severe, and not the immediate cause of death. One was a young person, aged twenty-two, in whom an ovarian cyst burst into the cæcum; no general fæcal extravasation took place, and the fæcal disease might be regarded as secondary.

Another case was that of a boy, aged fourteen, admitted in 1834, with symptoms attributed to fever and bronchitis; a tumour existed in the right hypochondriac region, which was ascribed to disease of the liver. After death, it was found that a local peritoneal abscess existed between the right lobe of the liver and diaphragm; the abscess extended downwards by the side of the ascending colon, and in it the appendix cæci was found perforated. A second opening had also formed into the ascending colon.

The third case was that of Michael R—, aged thirty-four, admitted with diarrhœa, and a painful swelling in the region of the cæcum. The swelling became more prominent in the right iliac fossa, and was opened externally; pus was discharged. The patient gradually sank, and was found to be affected with phthisis, and with fistula in ano. The cæcum was bound down to Poupart's ligament, and the abscess communicated by a sinuous canal with the cæcum close to the valve.

We have thus enumerated the largest division of instances of peritonitis, and we believe in each case it was not due to disease commencing in the peritoneum itself, but that in

all the serous membrane became directly affected by the extension of disease to it.

From hernia, of which 19 were internal obstruction .	102
„ injuries or operations	35
„ perforations of the stomach, ileum, cæcum and appendix, colon, &c. (other 13 mentioned with hernia or with cæcal disease)	43
and leading to fæcal abscess (2 cases otherwise mentioned)	17
„ typhoid ulceration without perforation	5
„ disease or operations on the bladder and pelvis, viscera, &c.	42
„ disease of liver and gall-bladder, &c.	11
„ acute disease of the colon (3 others enumerated with perforations)	3
„ diseases of cæcum or appendix (9 others previously mentioned)	3

In each of these instances, as far as medicinal treatment can be of service, we believe the plan suggested by Dr. Stokes and Dr. Graves, in instances of perforation of the stomach, to be of the greatest value, in promoting the rest of the intestines and the localization of the mischief, the mitigation of suffering, and the alleviation of nervous prostration and collapse, and the facilitation of remedial processes. In many instances, this opiate plan may be combined with local depletion, the external application of anodyne remedies or counter-irritants; but we think that mercury in the form of gray powder or calomel is injurious rather than otherwise, tending to prevent adhesions, by exciting action of the bowels, by increasing the ulceration, and the depression consequent on the disease (which depression is often the *immediate* cause of death), and lastly, by rendering the intestinal contents more fluid, thereby increasing extravasation. We are well aware that many instances of acute peritonitis from diseased cæcum, enteritis, or ovarian disease, recover after mercury has been given; but as far as the cases we have mentioned can be any guide, we are at a loss to know how they would be benefited by mercurial action.

Effervescent medicines generally increase the painful distension of the abdomen; but diaphoretics and salines are sometimes of value, when combined with opium. We do not enter into the subsequent treatment, further than to state, that if the bowels remain inactive, it is far better, in most cases, to use gentle enemata, than to administer aperients by the mouth. The inculcation of rest, and the proper regulation of the diet, are to be borne in mind, as of the greatest moment. When perforation has taken place, scarcely anything should be taken by the mouth; a few teaspoonfuls of fluid, to relieve thirst, will suffice; if large quantities of fluid be swallowed, they will probably pass into the peritoneum, and take away the chance of recovery. Castor-oil has thus been seen, having floated into the serous cavity. In other instances, the most bland forms of nutriment only should be given, and stimulants with great caution, when prostration absolutely calls for them. The return to solid food is often followed by the renewal of acute symptoms, and requires great care.

We now turn to the *second* division, namely, peritonitis connected with a changed condition of blood, such as exists in albuminuria, in pyæmia, in puerperal peritonitis, and in erysipelas, &c. Ninety-four instances of this kind occur out of the total number under consideration.

Sixty-three were cases of *albuminuria*; where the renal disease was of an acute kind, the lymph effused, and the previous symptoms were often well marked; but in some cases, in which there was small granular kidney, with contracted liver, the peritoneum was thickened, and more chronic disease had also existed. Albuminuria is a frequent cause of serous inflammation affecting the pleura, the pericardium, the arachnoid, sometimes the joints, and, as these cases show, the peritoneum also. It rarely, however, happens that the peritoneum alone is affected, although such is sometimes the case. The symptoms also are often masked by the distress arising from the general anasarca, and the dyspnoea from œdematous lungs, &c. The best treatment

for these local affections is that adopted for the general disease—diaphoretics, sometimes counter-irritation, or cupping on the loins, free evacuation from the bowels, &c.; but mercurial preparations very readily affect the system, producing severe salivation, without corresponding benefit. One of these cases was connected with purpura, and in another the peritonitis was very severe, accompanied by epilepsy.

Ten of the ninety-four were cases of puerperal peritonitis, and in nearly all suppuration was found, either in the uterine veins, or in the pelvic cellular tissue, or in the broad ligaments. Almost of a similar kind are instances of peritonitis connected with *pyæmia*, following operations or local suppuration. Of these we find thirteen, and five others with erysipelas.

There are sometimes, however, instances in which the peritonitis evidently arises from a general cause, and may, perhaps, be considered pyæmic, or even of a *rheumatic* character, or connected, as we have before said, with renal disease. Three were of this description: one with pericarditis and pleurisy; a second with pneumonia and dysentery; and a third with pericarditis, pleuro-pneumonia, and renal disease discovered after death, there being no albumen in the urine. We subjoin the details of the first and third of these cases.

Hypertrophy of the heart, adherent pericardium, acute pericarditis, pleurisy, and peritonitis.

James M—, æt. 9, was admitted into Guy's, December 12th, 1855. He was a delicate boy, who had suffered from cough, but there was no history of rheumatism; he had been in the hospital for disease of the bones of the foot, and left nearly well; in one week he returned very ill, and was found to be suffering from pericarditis; there was slight pain in the shoulder, but no swelling of the joints generally. He died in three days.

There was a cicatrix on the foot, showing the part from which the fourth metatarsal bone had been removed; but

there was no suppuration. There was general pleurisy on both sides, recent lymph in small quantities being found; the lungs were congested, and the bronchi full of tenacious mucus. There were acute and chronic pericarditis, as shown by adhesions of recent lymph, and in some parts by very firm fibrinous bands. Minute vegetations were found on the valves. In the abdomen, although the serous membrane had not lost its transparency, there were some flakes of recent lymph and a small quantity of serum.

Was this general disease of the character of rheumatism? We must regard it as arising from some general cause, and in that respect very different from idiopathic peritonitis.

Acute peritonitis, pericarditis, pleuro-pneumonia. Small, granular kidneys.

William B—, æt. 42, was admitted into Guy's Hospital, June 13th, 1855; he had been a labourer, and had resided in the Borough. A year previously he had had jaundice; and three days before admission had had rigors, but on the following day, although feeling ill, he went to his employment, but the next day he gave up work. On admission he was very ill, presenting the signs of pneumonia of the right lung; the dulness rapidly increased, with bronchophony; much blood was expectorated, and he became delirious, but whilst sensible did not complain of pain. The urine was *not* albuminous. He died on the 20th. There was recent consolidation of the whole of the right lung; the pericardium was covered with a layer of fresh lymph; there was also acute peritonitis, the intestines being adherent by recent lymph. There was a hydatid cyst in the liver, surrounded by a dense white envelope, one eighth of an inch in thickness, and containing disintegrated membrane with opaque fluid; the gland itself was fatty.

The kidneys were granular and coarse, the tunic adherent, the secreting tubes filled with inflammatory products.

In this case, renal disease was followed by acute mischief of serous membranes and pneumonia.

In the treatment of pyæmia, or erysipelas, few persons consider the mere local affection so much as the relief of the general condition, or attempt to cure the peritonitis of pyæmia by depletion and mercurial preparations. The cases of puerperal peritonitis were nearly all of that class in which pus could be detected in the uterine veins, in the broad ligaments, or in the pelvic cellular tissue. In instances where other serous membranes are acutely affected, the symptoms are often of such a typhoid character as to preclude the use of the remedies just referred to; and those remedies best calculated to relieve the local affection are the best adapted to promote the removal or subsidence of the general disease.

The *third* and last class comprises peritonitis of a general character, arising from *struma* and *cancer*, in which the peritoneal disease is often very insidious. We include in this division those cases in which, after a prolonged state of hyperæmia, the serous membrane becomes thickened, and a very slight cause suffices to produce acute disease.

The forms of inflammatory disease of the peritoneum in *struma* vary both in degree and in extent. Sometimes tubercles exist partially distributed, as on the peritoneal aspect of ulcers of the intestine; or they are found more generally upon the serous membrane; but we have not enumerated these, unless associated with other indications considered as proofs of inflammatory change.

These tubercles were, in twenty-two cases, combined with the effusion of lymph, and the ordinary signs of acute disease. In forty-eight the changes were more chronic, and the obliteration of the serous membrane occasionally resulted from the organization of the product poured out between the coils of intestine. Acute mischief had sometimes supervened on the old disease, and lymph or pus became effused amongst the united intestines; and in several the pus had gradually found an outlet by the perforation of the intestine. In one

of these the whole calibre of the bowel was divided, so that several truncated loops entered into one faecal abscess. Firm peritoneal adhesions do not always form, and then the perforation of a strumous ulcer of the bowel leads to sudden and fatal peritonitis. Eight cases of this kind have been previously enumerated. A few tubercles were sometimes associated with considerable serous effusion, constituting a very intractable form of dropsy, especially when occurring in the young; in others, the intestines were distended with flatus to a great extent, without the pain of ordinary peritonitis.

These cases of strumous disease of the peritoneum were occasionally found with perfectly healthy mesenteric glands, although this was not generally the case: in young subjects they were often associated with tubercles in the pia mater; and in many others with phthisis. The ages were very diverse, and although many occurred early in life, an equal number was found in persons from thirty to forty years of age.

We believe the same rules ought to be borne in mind in the treatment of acute peritonitis in *struma* as in acute pleuro-pneumonia. Opium is of value, not only in relieving the pain and the great nervous prostration so constant in disease of the abdomen, but it also facilitates the recovery of the injured structure. Warmth, anodyne applications, the use of local depletion, may be added; purgatives should be avoided; and we think that mercurial preparations given so as to affect the mouth are as injurious in this form of *struma* as in any other; while it appears scarcely necessary to resort to this remedy for the purpose of preventing opiates from checking secretion, or to act as aperients.

In the more chronic forms of the disease, we believe the means best calculated to remove that which is local are those suited for the removal of the general state; such as nourishment as far as it can be borne, cod-liver oil, steel, as the iodide, steel wine, the iodide of potassium, alkalies, &c., occasional counter-irritants, &c.

Cancerous disease is frequently the cause of peritoneal

effusions, both of lymph and of serum. To twelve of these cases we have already referred, in connection with some of the forms of perforation of the intestine; but forty others are found amongst our number, nine in males, and thirty-one in females. With very few exceptions, many other structures or glands were affected; thus, in men, the liver, stomach, pancreas, or kidney; in women, the ovaries or uterus were in the majority also implicated; and in earlier life, among the latter, and where the cancerous disease was of a medullary character, the peritonitis was generally marked by the effusion of lymph to a considerable extent. But in women, when the functional activity of the ovaries has ceased, and in men, when there is general diminution of functional power, a more chronic form of disease is set up, consisting of an immense number of small tubercles, about the size of split peas, and of different degrees of vascularity, covering the whole of the peritoneal surface, with intervening lymph in greater or less degree, and generally with dropsical effusion. This kind of disease is much more common in women than in men. Nineteen occurred in women, and only one man was affected in the forty cases we have referred to. In women the average age of the nineteen cases was fifty-two; the man was aged seventy. The other instances of cancerous tubercles upon the peritoneum in men were associated with more important glandular disease. In some, the evidence of a cancerous character in the elements of the tubercles was well marked by the structure of the cells; in others, however, there would be much difficulty in drawing a precise line of demarcation between these tubercles and simple fibrinous cellular deposit.

This kind of disease is, however, always associated with enfeebled power, and diminished functional activity. Our remedies, as diuretics, have very little effect, and any measure which still further diminishes strength appears to increase dropsical effusion. To sustain the powers of life by every available means is the best preventive against this result. If paracentesis be performed, temporary relief may be obtained; but more frequently the patient very rapidly

declines, and we then find that the whole of the diseased peritoneal surface has increased in vascularity, some of the tubercles are reddened by congested capillaries, or recent lymph is poured out amongst them.

The only remaining cases are those in connection with chronic disease of the liver and thoracic viscera, producing prolonged hyperæmia of the peritoneal vessels, and ascites, and readily terminating in acute peritonitis; hence the danger of tapping in these instances; but acute peritonitis often occurs in cirrhosis from other very slight exciting causes.

In *cirrhosis* the peritoneal covering of the liver is very generally thickened. We do not, however, refer to this merely partial affection, but to those in which the serous membrane is generally affected.

Thirty-two were cases of peritonitis connected with chronic hepatic disease. Of these, in fourteen the peritonitis was chronic, in six acute and chronic, and in twelve acute disease only was found. Five of the thirty-two were rendered acute by tapping, and have been enumerated amongst operations; but in several of the remaining cases it was probable that other causes produced acute aggravation; thus three were associated with pneumonia.

Many of these instances were found in persons of intemperate habits; the arteries were often diseased, the kidneys granular or atrophied; and these facts should be borne in mind in directing the treatment. At an early stage, where the diet can be regulated, and the excretory functions of the liver, the kidneys, and the skin stimulated to increased action, the symptoms may in a great degree be alleviated; and where acute peritonitis is set up with cirrhosis at an early stage, we know of no class more benefited by the judicious use of the ordinary remedies for peritonitis, namely, local depletion, and mercurials with opium, on account of the stimulant effect mercurials have on the excretory glands; but we think that all the good effect of mercury may be attained without that remedy being used so as to produce salivation. If the peritonitis be of a chronic form, and

associated with advanced cirrhosis, our measures will at best be only palliative. Some have recommended mild mercurial salivation before tapping, to prevent the supervention of acute symptoms; but we have no experience of such an application of this medicine, and believe that if tapping be really necessary, mercurial salivation would be detrimental, and increase the exhaustion which often follows the operation, or that the mercurial cachexia would lead to the speedy reaccumulation of the fluid. Mercurial frictions are less objectionable when used with moderation; and minute doses of blue pill, with tonics, as quinine, or with aperients, are, in many instances of chronic peritonitis from hepatic disease, of great service. Many other remedies are occasionally of much value in this form of disease, whether accompanied with dropsical effusion or without it, as iodide of potassium, alkalies, &c.; but to enter into all the remedial means available in the complications of cirrhosis is foreign to our purpose.

Nearly the same remarks apply to the peritonitis coming on in the course of chronic disease of the heart and of the lungs; of which nine cases were found amongst the numbers recorded.

In the second and third divisions of cases, the causes were as follows :

From Bright's disease	63
„ pyæmia, 13; erysipelas, 5; puerperal fever, 10; with pneumonia, 3	31
„ strumous disease	70
„ cancerous disease	40
„ hepatic disease	27
„ heart-disease	9
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In the foregoing analysis, we have sought to establish the following conclusions—

I. That peritonitis is never idiopathic in its origin, and that we do not find any such instance as acute disease of

the peritoneum coming on from mere exposure to cold. In such supposed cases the cold merely tends to render acute an already-existing morbid state.

II. That the consideration of the origin of the disease, either in a local or general source, is the best guide to treatment, whether it arise—1st, from extension of disease from adjoining viscera, or from perforation and injuries; 2d, from blood-changes, such as occur in albuminuria, pyæmia, and erysipelas, &c.; 3d, from almost imperceptible changes or deficiencies in general nutrition modifying the state of the general health, as in struma, cancer, and climacteric changes, or where the hyperæmia of the peritoneum, consequent on cirrhosis and chronic disease of the heart and lungs, is followed, under very slight exciting causes, by acute mischief.

III. That in the first form perfect rest, the avoidance of food as far as possible, and the opiate mode of treatment recommended by Dr. Stokes in producing rest to the intestinal canal and to peristaltic action, and diminishing the collapse and prostration consequent on the disease, is the best mode of treatment, using, as far as need be, other means, as anodyne applications, warmth, local depletion, &c.

IV. That where peritonitis is a symptom of blood-change, as in albuminuria and pyæmia, it may be best relieved by the treatment of the primary disease, but that here opium is sometimes of great value, and more effective without than with mercurial combination.

V. That in the treatment of the third class the consideration of the cause is also our best guide; that strumous and cancerous disease should be regarded in their general relations; and in those connected with hepatic disease, where mercurials are sometimes of great service, the remembrance of the condition prior to the supervention of the peritonitis should prevent us from the use of means calculated to increase the primary mischief, namely, the cirrhosis, and the arterial disease so frequently associated with it; and that any benefit due to mercurial action may be attained *without salivation*.

VI. That in general the benefit ascribed to mercury in the treatment of peritonitis is not established, and may, perhaps, be correctly attributed to the opium with which it is combined.

We submit to the Society this analysis of cases, imperfect as it is, but drawn up with much care. The facts must remain, however the opinions deduced from them may be controverted.