appearance. There is no constitutional disturbance. The contents of the vesicles are not acid, so that they are not simply full of retained sweat. Moreover, it differs from hydroadenitis, inasmuch as it is a much more superficial disease. These vesicular rashes were chiefly observed in the earlier cases, not when the disease had become a regular epidemic.

The third variety occurs in persons who have not suffered from prickly heat, or at any rate not to any great extent; the spots are vesicular or pustular, and, when coming out, are accompanied by a sharp stinging pain, like in herpes zoster, another point of similarity to this disease being that they remain strictly local and are arranged in small groups. There is little or no itching in this variety. In one case, which occurred on the right thigh, the vesicles were arranged in groups just where the middle and external cutaneous nerves and the cutaneous branch of the obturator pierce the deep fascia to become superficial.

Manson's axillary form of the disorder also appears to me to belong to the same class, its localisation possibly being explained partly by the excessive perspiration in this region and partly by the distribution of branches of the intercosto-humeral nerve. In all other characteristics this form was identical with one or other of the first two varieties.

There is no doubt in my mind that the disease depends primarily upon excessive sweating. This over-action of the functions of the skin gives rise to inflammation, and whereas in lichen tropicus we get a papular form of eruption, in these cases we see a further advance to the vesicular and pustular varieties.

Contagion and auto-inoculation are not marked features, and pemphigus is a bad name, inasmuch as the characteristic lesion is a flat-topped, flaccid vesicle or pustule, instead of being raised, hemispherical, and tense. Moreover, whereas nothing definite is known as to the etiology of pemphigus here, it seems to me we have a very definite sequence of events. The term sudoral dermatitis (dermatitis sudoralis) would be better, as naming the disease from its cause; its varieties could be further described as pustular, vesicular, and herpetiform respectively.

I had no staining reagents on board, and so was unable to make any conclusive microscopical examination of the contents of the pustules. All I could make out were pus cells and a few scattered epithelial cells.

The most important part of the treatment is to keep the patient quiet, so that he sweats as little as possible. Warm baths are cleansing and soothing, after which a powder of zinc oxide and starch may be applied, or sublimed sulphur in the pustular form, to check the ingress of micro-organisms. In other cases applications of vaseline or lead lotion give great relief.

It is seldom necessary to diet the patient, or to give other internal remedies than an occasional mild purgative.

NOTE.

¹ Four experimental cases—two of inoculation in other persons and two of auto-inoculation—failed.

PERFORATED GASTRIC ULCER.*

By WALTER BROADBENT, M.D., M.R.C.P.

PERFORATION of a gastric ulcer is a subject on which much has been written, especially in the last few years, since the operations undertaken have been more successful; but the difficulties that may attend the diagnosis of perforation, and the different conditions resulting, if the diagnosis is not at once made, have led me to investigate the subject since the time when, as a resident at St. Mary's Hospital, I had under my care two cases of subphrenic abscess due to this cause, one under the left wing and the other under the right wing of the diaphragm. For this purpose I have made an analysis of the notes of 50 cases, as well as seeing several necropsies and operations.

As regards the proportion of gastric ulcers which perforate, I find that in St. Mary's Hospital during the last five years, there were 18 cases of perforation, while 308 patients were

admitted suffering from gastric ulcer as indicated by pain, vomiting, and hæmatemesis, omitting in this number many with pain and vomiting not sufficient to make the diagnosis probable. This gives 6 per cent., and Willig¹ having searched specially for ulcers in 3,440 *post-mortem* examinations, finds scars or ulcers 221 times, but perforation only 6 times, a proportion of only 3 per cent. Another fact which comes out in the St. Mary's statistics is that two-thirds of the cases are admitted to the wards in the six months October to March, and 11 of the 18 cases of perforation occurred in these six months. This is probably due to the greater prevalence of anæmia during the winter.

SEX.

The percentage of perforations is greater in females affected with ulcer than in males; in these 50 cases of perforation there are 43 females to 7 males. Crisp² found 39 females to 12 males, but Brinton collected 74 males to 164 females.

SITUATION.

The position of the perforated ulcer was in 31 cases the anterior surface, in 15 the lesser curvature, and in 3 the posterior surface, which corresponds roughly to Brinton's 70 per cent. on the anterior surface, 21 per cent. on the lesser curvature, and 9 per cent. on the posterior surface. But in my cases, 5 of those on the anterior surface were within 1 inch of the lesser curvature, and 7 more within 2 inches, so that the ulcer was most frequently near the lesser curvature. Three cases had ulcers on the posterior surface as well with their bases formed by the pancreas, 2 others had an ulcer on the posterior wall only through the mucous membrane, and in 1 case a perforation occurred in an ulcer on the posterior surface after the anterior one had been sewn up.

APPEARANCE.

The perforated gastric ulcer has in most cases the appearance of an ulcer of some standing; the size varies from that of a farthing to a half-crown, or rarely larger, and the perforation is from one-eighth to three-eighths of an inch in diameter. The edge of the ulcer is raised and thickened with inflammatory infiltration, and the base is less supple and more easily lacerated than the rest of the stomach from the same cause, so that an ulcer is usually readily felt by the finger as a stiff and thickened patch in the stomach wall; also for a couple of inches round the perforation on the serous surface there is a quantity of flaky adherent lymph if more than about six hours have elapsed since the accident. In a few cases the ulcer is found to be of quite recent formation, with no inflammatory reaction in the edges, and then has the characteristic "punched out" appearance of Rokitsansky, the serous membrane being punctured at once. Again, on the other hand, the necrosis of the serous membrane may take place slowly enough for a protective peritonitis to glue the ulcer to a neighbouring organ, so that one finds after death from other causes ulcers adherent by their bases to the pancreas, liver, diaphragm, and even to the abdominal wall; in most of these cases there is no further trouble, but in some the gastric juice gradually erodes a sinus into the tissue to which the ulcer is adherent; this has been the cause of abscess in the liver and in the spleen, of gastro-colic fistula, of perforation of the abdominal wall, and by working through the diaphragm, of pyopneumothorax, pericarditis, and perforation of the heart itself.

SUBDIAPHRAGMATIC ABSCESSES.

When the ulcer has perforated there is not necessarily general peritonitis; out of these 50 cases 23 had sub-diaphragmatic localised collections of lymph or pus, and it is probable that in some of the others operated on by surgeons the spread of fluid over the whole abdomen did not occur till the free incision was made. Mr. Victor Horsley reports this as occurring in one of his successful cases, and it occurred in an unsuccessful case at St. Mary's. Leyden pointed out this not infrequent result of perforating gastric ulcer in his paper on Pyopneumothorax Subphrenicus in 1880; and it is interesting also that the first case recorded in medical literature, by Grassius in 1696, had caused a subphrenic abscess containing food and pus. In the 14 *post-mortem* examinations at St. Mary's the peritonitis was localised in 8, and in examining

* A paper read before the Brighton and Sussex Medico-Chirurgical Society.

these for a cause I find that in all the 8 the ruptured ulcer was within $1\frac{1}{2}$ inch of the lesser curvature, while in the 6 cases of general peritonitis the ulcer was on the anterior surface 2 inches or more from the lesser curvature. On going through the reported cases I find the ulcer was in 16 cases on the lesser curvature or within an inch of it, and in 15 on the anterior surface 2 inches or more from the lesser curvature. Of these latter all but one had general peritonitis; but of the 16 near the lesser curvature 11 had localised collections only, and from the reports 3 more seem to have been very possibly local before the operation, the liver dulness being noted as being present, and the flakes of lymph as being only in the upper abdomen. It seems therefore that in nearly a half of the cases there is not general peritonitis.

The cavities formed in these cases have as their boundaries the diaphragm above, the upper surface of the left lobe of the liver and the upper surface of the stomach below; they are limited to the right by the falciform ligament of the liver, and to the left by the spleen and gastro-splenic omentum, and inferiorly by adhesions between the abdominal wall and the front of the stomach and great omentum, the line taken being just above the transverse colon.

The attachment of the great omentum to the greater curvature of the stomach from its pyloric end to the gastro-splenic omentum, of which there is also a prolongation into the great omentum, and the manner in which this lies over the small intestines, seem to be potent factors in limiting the effusion. The colon, almost invariably distended from chronic constipation in the anæmic girls, who form the large majority of the subjects of perforating gastric ulcer, is pressing the great omentum closely against the abdominal wall, so that when an ulcer perforates near the lesser curvature peritonitis has every opportunity of shutting off the small intestines.

The spleen held up by the costo-colic ligament below, and with the gastro-splenic omentum joining it to the stomach and then passing over the colon into the great omentum, forms an effective block to the spread of peritonitis to the left; while the falciform ligament of the liver stretching down towards the umbilicus becomes adherent to the pyloric end of the stomach and to the omentum, and so forms the limit to the right.

If the ulcer is on the posterior surface a peritonitis localised to the cavity of the lesser omentum glues the stomach to the pancreas, and as in three of these cases the ulcer often grows in size, the pancreas forming its floor, and there is only the risk of hæmorrhage. A much rarer event is for an abscess to form in the cavity of the lesser omentum; the foramen of Winslow closes and prevents general peritonitis, the abscess has the stomach in front, the colon and mesocolon below, the pancreas behind and the liver above. In one case³ this abscess opened into the transverse colon, but in two other cases I have found recorded⁴ it spread forward behind the liver, between the œsophagus and the vena cava along the surface of the diaphragm, pushing the coronary ligament of peritoneum in front of it, so that in one of these cases it extended at one time nearly over the whole upper surface of the liver, pus being found in the right anterior axillary line by operation as well as in the left, and when the patient ultimately died from exhaustion, the right upper surface of the liver was adherent to the diaphragm, and only an abscess of 4 ounces capacity remained on the left side between the diaphragm and liver and stomach. In the other case diphtheria cut short the process ten days after the onset, and the abscess was found to have spread nearly over the whole upper surface of the left lobe of the liver. I have found no case recorded of an ulcer of the posterior surface perforating which has led to general peritonitis.

When the ulcer is close to the pyloric end of the stomach and ruptures, it usually causes general peritonitis, but in very rare cases it takes the course, which is less rarely taken by perforating duodenal ulcers, one which would be difficult to imagine but for the evidence of *post-mortem* examination. The gall bladder and also the falciform ligament become glued by peritonitis to the duodenum and colon, and the colon to the abdominal wall, a channel being so formed, with the gall bladder and falciform ligament on either side, and the liver and colon above and below, up which an abscess spreads round the margin of the liver on to the surface of the right lobe, and forms a subphrenic gas-containing abscess.

If the ulcer is on the anterior surface more than $1\frac{1}{2}$ inch from the lesser curvature and perforates, general peritonitis is the almost invariable result, I have only found one case recorded of a subphrenic limitation (Mason) and then the adhesions were not strong enough to prevent a general peritonitis a few days later.

SYMPTOMS.

Premonitory symptoms to perforation of a gastric ulcer are as a rule very scanty. In many cases even the existence of a gastric ulcer cannot be diagnosed beforehand with certainty, and in others it may be suspected, but is not thought to be serious in the absence of hæmatemesis or severe pain and vomiting. This was well brought out in Mr. Jowers's paper in the *Lancet* in 1895.

In these 50 cases, taken from the records of St. Mary's Hospital and the medical journals, hæmatemesis or coffee-ground vomiting only occurred in 9 within three months of the perforation, and in 4 others had taken place a year or more before, in the other 37 it had never occurred.

Pain and vomiting after food had been present for from three weeks to three months in 21 cases, and pain after food without vomiting in 7 more. Simple dyspepsia without definite pain or vomiting was all that had been noticed by 19 others, while in 3 no symptoms at all had pointed to the stomach before the onset of the attack of peritonitis; in these and some of the cases with simple dyspepsia the ulcers were of recent formation without any reactionary thickening of the edges, and it is probable that the necrosis affected all the coats of the stomach at once, so that the pain and vomiting of the less deep ulcer were absent.

Immediate warnings occasionally do occur. In 3 of these cases the patient had an attack of intense pain in the left epigastrium at from six hours to a day before the true onset. The pain lasted only for about half an hour, but was much more severe than that the patients had usually experienced after food, and was presumably due to a slight peritonitis round the base of the ulcer. Twice in cases of gastric ulcer supposed to be convalescent I have seen similar acute attacks of pain, with rigidity and very marked tenderness in the left epigastric and hypochondriac regions, which, being treated by the withholding of all food by the mouth and the administering of opium suppositories, have recovered without further untoward symptoms, and it seems probable that the bases of the ulcers became adherent to adjacent viscera.

SYMPTOMS OF PERFORATION.

1. The symptoms of perforation vary according to the seat of the ulcer. In a severe case the first symptom is usually a very acute pain in the left epigastric and hypochondriac region, so intense as to lead to fainting or even immediate death.⁵ In the majority of cases also there is vomiting and retching. This is followed by a state of shock, with rapid wiry pulse, low temperature, and a pale, clammy condition of the skin, which lasts for from two to six hours. Then reaction sets in and the symptoms of peritonitis supervene, the abdomen becoming rigid, motionless, and tympanitic; the liver dulness is replaced by resonance if there is much escape of gas from the stomach. The legs are sometimes drawn up, but this is not the case as frequently as in peritonitis starting in the lower part of the abdomen, and never occurs when the effusion is localised above the transverse colon. The pulse is rapid, but loses the wiry feel of the initial stage of collapse; the temperature varies between 102° and 104° . There is vomiting if food is given, the tongue becomes dry and thickly furred, and the face is anxious, pale, and thin-looking, and the eyes sunken, while the cheeks are flushed. If nothing is done, the patient lapses into a typhoid state and death occurs in a week or less.

2. If the ulcer is close to the lesser curvature and the peritonitis is localised, there is severe pain in the epigastrium and shock at the onset, but not of so intense a character; in the majority of cases there is vomiting also. When the reaction sets in the abdomen is motionless in respiration and becomes rigid on palpation, and may be tender all over, but the pain is greatest and the tenderness most marked in the left hypochondriac region. The legs are not drawn up. Occasionally there is pain above the left clavicle similar to the referred pain in the right shoulder in liver disease. The abdomen soon becomes somewhat distended, and tympanitic

resonance may rise as high as the fifth space on the left side, and extend over the right margin of the sternum at the sixth cartilage within a few hours of the attack, liver dullness in the vertical nipple line remaining normal. Instead of getting rapidly worse, as in general peritonitis, the condition of the patient remains about the same—the pulse keeps between 110 and 120, the temperature between 102° and 103° , and the tongue remains thickly furred but does not for some days begin to turn brown. Vomiting usually ceases in two or three days. The subphrenic abscess increases in size, tympanitic resonance rising as high as the fourth rib level or third space, and extending to right and left of the sternum while the heart is pushed upwards and outwards, the apex being in the fourth space an inch or more outside the nipple, and the liver dullness is encroached upon between the vertical nipple line and the sternum, being replaced by the tympanitic resonance. The left lung is compressed, and there is usually some pleurisy with effusion. Bulging may be noticed in the left epigastric region, and rigidity and tenderness are more marked there than over the rest of the abdomen; slight movement of the right side in respiration returns in a few days but it is always slight. An area of diminished resonance on light percussion can sometimes be made out running parallel to the left rib margin just above the umbilical level, which is due to the thickness of the lymph forming the lower limiting adhesions. The *bruit d'airain* can be obtained from just above this level to the upper limit of tympanitic resonance. These cases when not operated upon may survive a fortnight or longer, dying slowly of sapræmia, or the end may be hastened by gangrene of the lung or septic empyema.

3. If the ulcer is on the posterior surface and perforation occurs into the lesser omental cavity, the symptoms at first are similar to those just described; there is shock, with intense pain in the epigastrium, tenderness with rigidity, some distension of the abdomen. and, at first, absence of movement in respiration; but after the first day vomiting is a marked symptom, pus and shreds of lymph being found in the vomit. Apparently the abscess by stretching the posterior wall of the stomach keeps the ulcer open, and the offensive pus, entering the stomach, causes the vomiting; whereas, in the subphrenic abscesses, in front of the stomach the ulcer is usually found closed after the first two days, and vomiting is often absent. A tumour may be felt in the epigastric and hypochondriac regions, though in the first few days the rigidity of the abdominal walls makes its recognition very difficult. Its transverse position and the colon resonance lying below it distinguish it from a perinephric abscess. As already mentioned in the account of the pathology, these cases may lead to subphrenic abscesses by extension upwards between the vena cava and the œsophagus, or may perforate into the colon, causing the vomiting to become fecal, and pus to be found in the motions.

4. In the exceedingly rare cases where an ulcer near the pylorus causes a right subphrenic abscess, the first symptoms are not intense; presumably the extravasation of stomach contents is small, or general peritonitis would result. There is a severe cramping pain in the epigastrium without much shock, and there is vomiting on taking any food; the pain spreads towards the right hypochondrium on the second and third days. The patient feels and looks worse, and the temperature rises to 102° or 103° , and the pulse to about 120. One finds tenderness and rigidity of the abdomen below the right costal margin, and no movement in respiration. A tympanitic area develops above the liver and soon extends from the fourth rib level down to the abdominal resonance, entirely replacing the liver dullness. The liver itself cannot be made out owing to the rigidity of the abdominal walls. Bulging is noticeable in the right hypochondrium also.

Above the tympanitic area there is diminished resonance in the second and third spaces, and breath sounds are weakened owing to compression of the lung, but above that is skodaic resonance, and the breath sounds are exaggerated. The tympanitic resonance extends an inch to the left of the sternum at the fifth cartilage, and the heart is displaced outwards and upwards, the apex being in the fourth space 1 to 2 inches outside the nipple.

Pleurisy and compression of the lung cause dullness of the right back below the middle of the scapula.

The *bruit d'airain* and succussion splash may be obtained over the tympanitic area, and the second sound of the heart is heard echoed over it.

DIAGNOSIS.

If the perforation occurs directly after a meal, when the stomach is full, the onset is more acute and the shock very great. The pain in these cases is often not referred to the gastric region, but to the umbilical or even to the lower abdominal region, so that without a previous history pointing to gastric ulcer a diagnosis of perforation of some part of the intestine unknown or of ruptured ovarian tumour is all that can be arrived at before operation. In one of these cases, also, during the first state of shock there was no rigidity of the abdomen, and palpation caused no special pain, but there was no movement of the abdomen in respiration, and the liver dullness was replaced by resonance, and as soon as the patient rallied a little from the shock rigidity of the abdomen came on. In these as in other cases of peritonitis a reversed movement of the abdomen in respiration due to complete inhibition of the diaphragm might prove deceptive if the alternate movement of the chest and abdomen was not noticed.

Whenever a subphrenic abscess is formed there is a raising of the diaphragm, which leads to collapse of the base of the left lung. Inflammation also rapidly spreads through the diaphragm and pleurisy results, but the effusion does not in most cases become purulent. In some cases the lung becomes adherent and an interstitial pneumonia spreads for some distance from the base, while in others gangrenous pneumonia may result; in rare instances purulent pericarditis has been caused. Each of these complications has been mistaken for the primary disease, for the gastric symptoms may be so slight beforehand, and even at the time of perforation, if the stomach was nearly empty and the escape of its contents occurred slowly, that the pain and shock may not be more severe than is consistent with simple pleurisy, and there being no abdominal symptoms to point to the real origin of the mischief, with the exception perhaps of a slight amount of swelling, a mistake is easily made. In this condition, however, as compared to simple pleurisy, on careful observation it will be noticed that the patient appears more ill and has the drawn and grey-looking face of an abdominal or septic case; also that the apex of the heart, if displaced at all, is to the left of the normal position, and in most cases the tympanitic resonance on the left side reaches higher than normal, and then rigidity and some amount of swelling in the epigastric region and possibly a bell note with two coins over the tympanitic area may point out the true nature of the case.

From empyema the diagnosis would be more difficult were it not for the fact that gas is always developed in these abscesses due to ruptured gastric ulcer. More than once an exploring needle has been inserted into the left pleural cavity, and the finding of clear fluid where pus was expected from the condition and look of the patient, has led to a careful examination and correct diagnosis. By the time that a secondary empyema does form in these cases, so much gas has been evolved under the diaphragm that the difficulty of diagnosis is between this condition and pyopneumothorax instead of empyema.

With a subphrenic gas-containing abscess there is extension of the tympanitic note as high on the chest in some cases even as the third intercostal space, and metallic tinkling and succussion splash may be heard in the cavity, also the *bruit d'airain* can be obtained, but if the abscess is under the left wing of the diaphragm, as is most common in cases due to gastric ulcer, the heart will be found displaced upwards to the left instead of being pushed over to the right as in pneumothorax, and if the abscess be under the right wing the heart is pushed upwards as well as outwards, the apex being usually in the fourth space. In subphrenic abscess on either side, at the apex of the lung, there is pulmonary resonance on percussion, and normal breath sounds extending down to within one or two inches of the tympanic area, then there is a band of diminished breath sounds with vocal resonance and fremitus still present due to compressed lung, and finally the tympanitic area with sounds very similar to those of pneumothorax. In a localised pneumothorax the apex of the lung would have tuberculous cavities in it or other signs of

disease. Another point of difference from true pneumothorax is found on examining the back; in the subphrenic cases dulness is always present to a certain height from the base from compressed lung and pleurisy, and the line of dulness does not shift on changing position, and the tympanic note is never obtained. But it must not be forgotten that true pyopneumothorax may be caused by perforation of the diaphragm by an ulcer which has become adherent to it, or by the bursting of a subphrenic abscess into the thoracic cavity.

Pericarditis has been simulated in two recorded cases by pleuro-pericardial friction due to the pleurisy excited, and pericarditis, simple and purulent, have been caused by spread of inflammation through the diaphragm from a subphrenic abscess. An absence of a rheumatic history would probably raise suspicion, and the accurate mapping out of the precordial dulness and of the tympanic resonance below, with the bulging and rigidity in the left epigastric and hypochondriac region, would in most cases lead to a correct diagnosis, when there is a subphrenic abscess; but in cases where the ulcer has some time previously become adherent to the diaphragm and has eroded its way through, a diagnosis of the cause seems impossible. Dr. Finney^a describes such a case. A man, aged 19, had a slight attack of pericarditis, clearing up in a fortnight, then for the next three weeks he had a hectic temperature and considerable pain under the left ribs, not affected at all by food and relieved by pressure. At the end of that time he passed some liquid blood, and fainted and died in half an hour; it was found that the pericardium had become adherent recently, and the left ventricle was perforated by a sinus from a gastric ulcer. Dr. Finney collected from various sources three cases of similar perforation of the heart, in only one of which were vomiting and gastric pain marked symptoms, and also two cases of pneumo-pericardium, in one of which there was first a subphrenic abscess, and in the other only a diagnosis of pleurisy had been arrived at.

When there is a slow leak of stomach contents from an ulcer close to the pylorus, the acute pain to the right of the epigastric region with vomiting and fever has to be distinguished from an attack of biliary colic due to a stone in the cystic duct. This was the diagnosis made by the doctor who saw at the time of attack my case of right subphrenic abscess, but as a rule the patient is younger than the usual age for gall stones, and the abdomen does not move in respiration, and the pain is constant, not spasmodic.

Suppuration of an infarct of the spleen or rupture from injury may cause subphrenic abscesses on the left side; these contain no gas, and are associated with swelling and tenderness in the hypochondrium or loin. On the right side abscess of the liver or suppuration of a hydatid cyst causes subphrenic abscesses without gas, which closely simulate empyema owing to the presence of the liver. Gas containing abscesses under the left wing of the diaphragm seem to be invariably due to gastric ulcer, but those under the right wing are much more commonly due to duodenal perforation than to gastric, so that without a definite history of gastric ulcer one may conclude the cause is duodenal ulcer or perityphlitis, of which latter cause there are several cases recorded, the spread of the abscess being retroperitoneal in some cases, but in others intraperitoneal between the ascending colon and abdominal wall, these sometimes containing pus only. Dr. Osler records also a case of perinephric abscess perforating the colon, which gave rise to a gas-containing right subphrenic abscess.

TREATMENT.

There is no doubt, from a study of the reports of these cases, that the earlier an operation is undertaken the more likely is the result to be favourable, so that the surgeon depends greatly on the promptness of diagnosis of the medical man who first sees the case. I should be going beyond my province in discussing the operations, but I would suggest, if there is a subphrenic peritonitis localised by adhesions of two days' standing at least, that the best incision would be one close along the rib margin, as a vertical or oblique one would not give room enough without cutting into the adhesions below; in these cases also it seems better not to risk damaging the adhesions by a determined search for the ulcer, which is almost certainly safely closed by

lymph, but to be content with cleansing the cavity, especially above the liver, and then to leave in a large drainage tube. If such a case is met with within two days of the onset, it seems to me it would be better treated by a median incision, with removal of all the lymph and sewing up of the ulcer; but the surgeon might only open the peritoneum at the top of his wound at first, and let as much as possible of the fluid and lymph be got rid of before the general peritoneal cavity is opened; and considering that in 23 of these 50 cases the peritonitis was localised above the colon, I think it would be advisable in all cases where the liver dulness has not disappeared for surgeons to take this precaution of opening into the upper part of the peritoneum only at first, so as to avoid an unnecessary spread of the effusion.

REFERENCES.

¹ *Prager Vierteljahrsschrift*, vol. ix. ² *Lancet*, August, 1843. ³ *BRITISH MEDICAL JOURNAL*, May 8th, 1886. ⁴ Dr. Mason, *Journal of American Physicians*, 1893, and *Lancet*, March 7th, 1891. ⁵ *BRITISH MEDICAL JOURNAL*, October 20th, 1894. ⁶ *BRITISH MEDICAL JOURNAL*, June 12th, 1886.

A CASE OF PUERPERAL SEPTICÆMIA TREATED BY ANTISTREPTOCOCCUS SERUM: RECOVERY.

By LESLIE DURN, M.D.,
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A PRIMIPARA, aged 25, was confined on May 2nd, 1897. The labour, though somewhat tedious, was perfectly natural in every respect.

On the third day, May 5th, she had a rigor; the evening temperature was 104°, the pulse 140. She complained of pain, and had marked tenderness over the uterus. The lochia were abundant and foetid. The vagina was douched with 1 in 20 carbolic lotion, and the uterine cavity with 1 in 2,000 perchloride. Quinine and opium were given internally.

On May 6th the morning temperature was 105°, the pulse 140. She had passed a bad night. Pain and tenderness in the abdomen were much increased, and there was considerable tympanites and sickness, in fact, signs of peritonitis. The uterus was again douched with 1 in 2,000 perchloride, and the vaginal douches of 1 in 40 carbolic were used every three hours. She was sponged with lukewarm water every four hours, and antipyrin 30 gr. given in three doses at two hours' interval. The evening temperature was 106.2°, the pulse 150. She looked very ill, and sickness was incessant; 10 c.cm. of antistreptococcic serum were injected under the skin of the right side of the abdomen.

On May 7th the morning temperature was 101.5°, the pulse 120, and she had passed a fairly good night. She had had diarrhoea in the early morning. The uterus was douched. Pain, tenderness, and sickness were all much improved; 10 c.cm. of serum were again injected. At 3 P.M. the temperature was 101°, and the pulse 110. She was feeling much better, and sickness had stopped. At 10 P.M. the temperature was 103°, and the pulse 120. All the symptoms were aggravated, and sickness and diarrhoea had recurred. A morphine suppository, gr. ½, relieved the diarrhoea very much.

On May 8th the morning temperature was 105.5°, and the pulse 130. She had had a bad night, and looked very ill. Vomiting was incessant, and tenderness and tympanites very great, 10 c.cm. of serum were injected, and the uterus douched. At 3 P.M. she was feeling better; the temperature 102°, the pulse 118; and sickness stopped. At 10 P.M. the temperature was 102°, the pulse 120. The general condition much improved; 10 c.cm. of serum were injected.

On May 9th the temperature was 101.5°, and the pulse 110. She had passed a good night, and the general condition was much improved. The evening temperature was 101°, the pulse 102, and she was feeling comfortable; 10 c.cm. of serum injected.

On May 10th the morning temperature was 101°, the pulse 106; the evening temperature 102°, and the pulse 106. She was feeling fairly comfortable; 10 c.cm. of serum were injected.

On May 11th the morning temperature was 100°, the pulse 105; the evening temperature 102°, pulse 112. She was feeling fairly well; 10 c.cm. of serum injected.