Ascites : being a clinical lecture delivered at Guy's Hospital on February 3rd, 1900 / by J.H. Bryant.

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ASCITES.

BEING

A Clinical Lecture delivered at Guy's Hospital on February 3rd, 1900,

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11.

ASCITES.

GENTLEMEN,—During your hospital career you will have the opportunity of seeing a good number of cases of ascites. Between the years 1888 and 1898 inclusive, 501 cases were admitted into the medical wards of this hospital, *i.e.*, an average of about 45 cases each year. In women it may be often difficult to distinguish ascites from ovarian tumour and other conditions which cause general abdominal distension. Both in males and females, when you have come to the conclusion that the abdominal distension is due to the presence of fluid in the peritoneal cavity, you will often find it very difficult to determine the actual cause of the condition. You must not be satisfied with a diagnosis of ascites ; you must go further and endeavour, if possible, to find out what morbid condition is producing it. You must look upon ascites as the indication of, or the chief symptom of a disease, and not as a disease itself. It may be produced by a great variety of conditions—Bright's disease, cirrhosis of the liver, tuberculous peritonitis, or cardiac disease. If you do not determine the cause, how can you expect to give a prognosis, or to treat your patient with any hope of success? Some of the cases will present very few difficulties, whereas, in others it will be almost impossible to determine the primary condition producing the ascites.

I have at present under my care in John ward, a patient suffering from ascites, the primary cause of which we have not at present been able to determine.

In this lecture I shall, first of all, give you an account of the physical signs of ascites. I shall then tell you how to distinguish it from other conditions which may simulate it, then give you a classified list of the causes, and finally tell you the chief points about each particular variety, which will help you, I hope, to make a correct differential diagnosis when you come across a case in practice.

Physical signs.

Inspection.—The abdomen is uniformly distended. The degree of the distension, however, varies with the amount of fluid present. If the quantity of fluid is large, and its accumulation has been rapid, the abdomen presents a rounded, globular appearance, the umbilical region being most prominent. The skin is tense and shiny in appearance. If the quantity of fluid is large, but its accumulation has been gradual, bulging of the flanks is the most prominent feature of the general distension. With large effusions the skin may show well-marked lineæ albicantes in the lower half of the abdominal wall, and the lower ribs may be somewhat pushed outwards. If the quantity of fluid is small, only a slight bulging of the flanks may be noticed. It must, however, be remembered that the appearance of the abdomen depends a good deal on the position of the patient. The above description applies to a patient lying flat on the back. If lying on one side more than the other, the most dependent

part is the most prominent, as the fluid gravitates to that side of the abdomen. If the patient stands or sits upright, the hypogastric and iliac regions will be most bulged.

The umbilicus may be flattened or protruded, and umbilical hernia may result from separation of the recti ; it retains its position, however, in the median abdominal line, but may be nearer to the pubes than the ensiform cartilage. In tuberculous peritonitis, the skin in its immediate neighbourhood may be reddened, inflamed and œdematous. In cirrhosis of the liver, the veins around the umbilicus may be dilated, forming the so-called caput medusæ. The superficial veins all over the abdomen and lower part of the chest may be dilated, the blood flowing in an upward direction ; this condition occurs in portal obstruction, and also when the inferior vena cava is obstructed.

The abdominal respiratory movements may be absent or much diminished. The cardiac impulse may be displaced upwards and outwards.

The legs and thighs may be œdematous.

Palpation.—The abdomen may be very tense or quite flaccid.

A fluid thrill may be obtained by placing the palm of one hand flat against one of the lumbar regions, and by flicking the other flank with the fingers of the other hand ; a distinct wave or slight shock may then be felt by the hand which has been placed flat on the lumbar region. The possibility of a thrill which is transmitted in the abdominal wall, especially if it is thick, must be eliminated by getting the patient or an assistant to place the side of his hand, or the edge of a bed-letter on the front of the abdomen. This procedure has the effect of stopping this thrill

at the point of contact of the hand or bed-letter with the abdominal wall. If the above precaution is taken, and a thrill is still obtainable, it denotes the presence of fluid.

If the liver and spleen have enlarged, they sink in the fluid, so that between these organs and the abdominal wall, a layer of fluid is present. If the tips of the fingers are placed on the abdomen in the right or left hypochondriac regions, as the case may be, and then are suddenly depressed, the fluid is displaced, and the surface of the enlarged organ can then be felt. This particular form of examination is called the method of displacement or dipping. The direction of the blood-flow in dilated veins, the position of the cardiac impulse, and the diminished respiratory movements may be confirmed by palpation.

Percussion.—When the patient lies flat on his back, the fluid gravitates to the posterior part of the abdomen, and the air-containing viscera float to the anterior part, so that the percussion note is resonant in front and dull in the flanks. As the fluid increases in quantity, the line of dulness creeps forward, and in extreme cases the abdomen may be dull all over. This is not at all uncommon in children suffering from ascites.

The most important physical sign of ascites is the effect produced on the percussion note by a change in the posture of the patient. If after examining a patient lying on the back, and finding dulness in the flanks and resonance in the front, he or she be turned on one side, the uppermost flank now becomes resonant, and the line of dulness on the other side rises nearer to the median abdominal line. This phenomenon

is due to the fluid gravitating to the most dependent part.

In some conditions which produce ascites, shortening of the mesentery is associated; the intestines cannot then rise, and the result is dulness all over the abdomen, *e.g.*, in some cases of tuberculous peritonitis. In chronic peritonitis there may be local collections of fluid on account of matting together of the intestine. The abdominal distension may not be uniform in such a case, and change of posture may not alter the character of the percussion note.

If a very small quantity of fluid is present, the abdomen may be resonant all over when the patient lies on the back; if such be the case, place the patient in the knee-elbow position, and then on percussion the umbilical region may be found to be dull.

Mensuration. — The abdomen should be measured, fixed points being taken in front and behind, *e.g.*, the umbilicus in front, and the tip of the third lumbar spine behind. This is important in order to watch the effect of treatment. The distance of the umbilicus from the ensiform, pubes, and anterior superior iliac spines should also be noted.

It is nearer to the pubes than the ensiform, and is equi-distant from the anterior superior iliac spines.

A very important point to remember is to always examine carefully the abdomen after paracentesis has been performed. The diagnosis of the cause of the ascites can often be made or confirmed in this way, tumours and enlargements of organs being made out which previously were hidden or obscured by the tenseness of the

abdominal wall. When speaking to you of perihepatitis I shall read some notes of a case which illustrates this point.

Diagnosis of ascites.—Ascites has to be distinguished from other conditions which may give rise to general abdominal distension.

1. Tympanites.
2. Ovarian and parovarian cysts.
3. Gravid uterus with hydrops amnii.
4. Distended bladder.
5. Distension associated with obesity.
6. Phantom tumour.
7. Large abdominal cysts.

Tympanites is distinguished from ascites by the following signs:—

a. The outline of distended coils of intestine may be visible, and peristaltic movements may be noticed.

b. There is no fluid thrill if the above-mentioned precautions to prevent a thrill being transmitted by the abdominal wall are taken.

c. The abdomen is resonant all over, both in front and in the flanks.

Ovarian cyst.

a. There may be a history of the enlargement of the abdomen having at an early date been noticed to be more on one side than the other, and to have arisen from the pelvis.

b. The umbilicus may be nearer to the ensiform cartilage than the pubes, and nearer to one anterior superior iliac spine than the other.

c. A fluid thrill may not be obtained far back in the flanks, but only be noticed in front of the mid-axillary lines.

d. There is usually dulness in front with resonance in the flanks.

e. The outline of the cyst may possibly be noticed during the respiratory movements.

f. On measuring the abdomen the greatest circumference is usually below the umbilicus, whereas, in ascites it is generally at the umbilicus.

g. A vaginal examination may reveal that the uterus is drawn upwards and that its mobility is impaired, whereas, in ascites it is low down and movable.

h. If paracentesis has been performed the nature of the ovarian fluid is characteristic, it usually being thick, tenacious, viscid, and of a brownish or greenish colour; whereas, ascitic fluid is yellowish, limpid, and clear.

I have seen now a number of cases of ascites mistaken for ovarian cyst, and of ovarian cyst mistaken for ascites. I remember in particular a patient who was examined in the front surgery by the House-physician and the Obstetric-Resident. After they had discussed the physical signs and symptoms she was admitted into the Obstetric ward as a case of ovarian tumour. There she was seen by the Obstetric Physician, and, later, by one of the physicians in consultation, both of whom diagnosed ascites, and she forthwith was transferred to a medical ward where paracentesis was performed on account of the enormous distension interfering with the respiratory movements and the cardiac action. The fluid withdrawn proved to be thick, viscid, of a dark-brownish colour, and was obviously not ascitic, but ovarian. A laparotomy was subsequently performed, and the distension was definitely proved to be due to an enormous ovarian cyst.

Gravid uterus with hydrops amnii.

In this condition it may be possible to make out:—

a. The outline of the enlarged uterus; and the tumour may vary in consistency.

b. On vaginal examination, the cervix is soft and patulous, and the uterus is enlarged.

c. The presence of other signs of pregnancy, the characteristic condition of the breasts fœtal movements, etc., and the history of amenorrhœa.

A *distended bladder* may reach well above the level of the umbilicus. This condition occurs most frequently in women as the result of a retroverted gravid uterus. The most important symptoms are: incontinence of urine from over-distension, and abdominal distension. If there is any question of such a condition being present, the passage of a catheter will clear up all doubt.

The abdomen may be much distended as a part of *general obesity*. The mesentery, omentum, and abdominal wall may be very much thickened with fat. I remember once performing a post-mortem and finding the abdominal wall four and three-quarter inches in thickness. Under such conditions it is very difficult to make a satisfactory examination, and it is almost an impossibility to definitely determine the presence of a small or even a moderate amount of fluid.

The abdomen may occasionally be much distended in women, especially at the time of the climacteric. Such a distension may present difficulties in diagnosis, and may be mistaken for ascites, ovarian tumour, or pregnancy. If an anæsthetic is administered the distension often disappears, the rigid abdominal wall becomes flaccid, and it can be determined with

certainty whether fluid in the peritoneal cavity or any abdominal tumour is present or not.

Occasionally large abdominal cysts may simulate ascites, *e.g.*, hydronephrosis, pancreatic cyst and hydatid cyst; they do not, however, as a rule, cause uniform distension of the abdomen. They are most likely to be mistaken for simple chronic peritonitis, in which case local collections of fluid may occur, owing to matting together of the intestines.

Hydronephrosis may be distinguished by its position and by the fact that it may vary in size, a decrease being associated with an increase in the amount of urine passed.

Pancreatic cyst may be differentiated by its position in the upper part of the abdomen.

If paracentesis abdominis has been performed, the character of the fluid would point to the nature of the disease in each of the three above-mentioned conditions.

Having made up your mind that the general abdominal distension is due to the presence of fluid in the peritoneal cavity, you must next differentiate the cause of the ascites. In order to do this you must first of all have a knowledge of the possible conditions which give rise to ascites. I have found the following classification most practical and useful :—

ASCITES.

1. *Diseases of the peritoneum.*
   - *a.* Simple acute peritonitis (non-suppurative).
   - *b.* Simple chronic peritonitis.
   - *c.* Tuberculous peritonitis.
   - *d.* Malignant peritonitis.

2. *Portal obstruction.*

A. Diseases of the liver.

a. Cirrhosis.
b. Perihepatitis.
c. Carcinoma.
d. Syphilis.

B. Pressure on the portal vein.

a. Tumours of the liver { Carcinoma. Sarcoma. Abscess. Hydatid.
b. Tumours of the pancreas { Carcinoma Hydatid
c. Tumours of the kidney.
d. ,, stomach.
e. ,, duodenum.
f. ,, colon.
g. ,, suprarenal.
h. Enlarged glands { Malignant. Lymphadenomatous. Tuberculous.
i. Aneurysm of the hepatic artery.
j. Thrombosis of the portal vein.
k. Obstruction of the inferior vena cava above the hepatic veins { Thrombosis. Pressure from mediastinal growth.

C. Backward pressure in :—

{ Chronic heart disease. Chronic bronchitis and emphysema. Fibroid lung,

3. *Bright's disease.*

In Bright's disease ascites may be caused in four different ways :—

a. It may occur as part of a general dropsy.

b. Acute peritonitis.

c. Chronic peritonitis.

d. Secondary to hypertrophy and dilatation of the heart.

4. *Rupture of an ovarian cyst.*

Differential Diagnosis of the Cause of Ascites.

If ascites is the only fluid accumulation present in the patient, or even if there is swelling and œdema of the legs, but the ascites appeared first, or if the ascites is out of proportion to dropsy elsewhere, it is most probably due to some form of peritonitis, or to portal obstruction from pressure on the portal vein, or disease of the liver. If it is associated with general anasarca, *e.g.*, with œdema of the legs, body and face, with other serous effusions, the probable cause is Bright's disease.

If swelling and œdema of the legs and lower part of the body were first noticed, and the ascites followed: cardiac disease, chronic lung disease, or obstruction of the inferior vena cava above or involving the hepatic veins would be the most likely cause.

If jaundice is associated with the ascites it points to some form of portal obstruction either in the liver or in the portal fissure as the cause ; if the jaundice is intense, to some actual pressure on the portal vein and common bile-ducts, or to carcinoma of the liver.

If enlargement of the liver is associated with it: to carcinoma, cirrhosis, perihepatitis, syphilis of the liver or congestion, the result of backward pressure from chronic heart or lung disease.

If associated with multiple abdominal tumours, to tuberculous or malignant peritonitis.

Simple acute peritonitis.—By this I mean an acute inflammation of the peritoneum which is not due to the perforation of a viscus, or to an abscess opening into the peritoneal cavity. It is a condition analogous to acute pleurisy with serous effusion.

The fluid may be clear; it is usually turbid and contains flakes of pale lymph. It occurs most frequently as a complication of acute or chronic nephritis. The onset is acute, the abdominal distension occurs rapidly, there is considerable pain and tenderness, and the temperature rises to 101–104°. It is usually fatal.

The acute onset and its association with nephritis are the most important points to consider in making the diagnosis.

Simple chronic peritonitis.—By this I mean a chronic inflammation which is not tuberculous or malignant. It may follow simple acute peritonitis, it is usually associated with perihepatitis; it occurs as a complication of nephritis, both acute and chronic, and may follow as a result of repeated paracenteses abdominis.

The peritoneum becomes thickened, and the intestines may be bound down and matted together. The ascites which results may give rise to a general or local abdominal distension, and this depends whether local cavities are formed or not by the adhesions. There may be a little abdominal pain, also vomiting, constipation and albuminuria. On account of the

shortening of the mesentery and the matting together of the intestines, there may be dulness all over the abdomen. This form of ascites in particular is liable to be mistaken for ovarian tumour.

Tuberculous peritonitis.—This is the most common cause of ascites in children. There are several varieties, which may be classified according to the morbid changes found in the abdomen.

a. The peritoneum may be studded with tubercles only; the physical signs of this form are simply those of ascites—no abdominal tumour is felt. I have several times seen this condition mistaken for atrophic cirrhosis of the liver. Quite recently I performed a necropsy on a case of malignant peritonitis which during life was diagnosed as tuberculous peritonitis of this kind. It was considered to be a most suitable case for laparotomy, and this operation had been performed a few days before death.

b. The omentum may be contracted and thickened from caseation, and a hard tumour may be felt simulating an enlarged liver; it may, however, be distinguished by the presence of a resonant percussion note between its upper limit and the costal margin, and the edge of the liver may be felt above it.

c. The intestines may be matted together and the adhesions be thickened and infiltrated with tuberculous deposits. In consequence, the peritoneal cavity may be divided up into several smaller loculi, which may contain fluid, so that the distension of the abdomen in such a case will not be uniform.

d. The mesentery may be thickened and contracted, and the intestines bound down to

the posterior parts of the abdominal cavity. There may be general abdominal distension, a hard, large, irregular-shaped and deeply situated tumour may be felt, and dulness on percussion may be elicited all over the front of the abdomen.

e. The mesenteric glands may be enlarged and caseous, and on palpation irregular-shaped tumours be felt. Ascites is by no means a constant sign of this form of the disease.

f. Occasionally local thickenings in the abdominal wall may be felt, which are due to subperitoneal inflammatory deposits. This condition resembles the hard, rigid feeling produced by contraction of the recti.

Abdominal pain and tenderness are often marked symptoms of tuberculous peritonitis. In acute cases the temperature may rise to 103° or 104°, and the condition be mistaken for typhoid fever; on the other hand, in more chronic cases the temperature may be subnormal. Occasionally there is redness and œdema for some little distance around the umbilicus, even a purulent discharge from it. Wasting and diarrhœa are usually present.

Cancerous peritonitis usually occurs in patients over forty years of age. The growth is in nearly all the cases secondary. The omentum may be thickened and infiltrated, and large nodules may develope all over the peritoneum. There may be rapid emaciation and marked cachexia. A large quantity of fluid may be present, and if paracentesis is performed it will be found in many instances to contain blood. Evidence of a primary growth may be forthcoming. On palpation, multiple abdominal tumours may be detected. Ascites may be the

first and only evidence of disease. It is with difficulty distinguished unless tumours are palpable. I have already mentioned a case which was mistaken for tuberculous peritonitis.

Cirrhosis of the Liver.—With ascites from this cause there may be a history of chronic alcoholism, the presence of acne rosacea and dilated stellate venules on the cheeks, furred and tremulous tongue, a slight icteric tinge of the skin and conjunctiva, a history of morning sickness and cramps in the legs at night, loss of appetite, epistaxis, hæmatemesis, and melæna, the presence of distended superficial abdominal veins, enlargement of the liver, the surface of which is hard and rough-feeling, and the edge of which is irregular and beaded, enlargement of the spleen, which is a further result of the portal obstruction, and sometimes a bruit over the spleen.

I will tell you about a case in which this last-mentioned curious condition was present. The notes of the case are as follows:—Patient is a female, forty-nine years of age, with a well-marked alcoholic history. She has been accustomed to take alcohol freely with her daughter who is a music hall artiste. She first noticed swelling of the abdomen a year ago. Paracentesis abdominis had been performed six times. She rambled a good deal and her statements were unreliable. She was very tremulous, dilated venules were visible all over her face. Pulse 80 and regular.

The abdomen was distended and there was considerable bulging of the flanks. The umbilicus was protruded and prominent. A curious pulsation which was of a fluttering character was noticed below the left costal margin. The

abdominal walls were flaccid. The superficial veins were dilated and the blood was running upwards. The edge of the liver was hard and irregular, and could be felt one-half to three-quarters of an inch below the costal margin. The spleen was considerably enlarged and reached to within a level of the umbilicus. There was no fluid thrill. The flanks were dull on percussion when she was on her back. If she turned over on one side the uppermost flank became resonant. A well-marked systolic bruit could be heard over the spleen.

Perihepatitis.—Unless the liver can be palpated the diagnosis of this disease is most uncertain. The capsule of the liver becomes much thickened and contracts, distorting the shape of the organ, especially of the edge which becomes rounded or turned up. If this curled or turned up condition of the edge can be detected, a certain diagnosis of perihepatitis can be made. Albuminuria occurs in the majority of cases of perihepatitis. The following case is most instructive, and brings out forcibly the necessity of a careful physical examination. The patient was a laundress, thirty-two years of age, and was admitted on October 6th, 1893, under Dr. Goodhart (who has kindly given me permission to mention it) for swelling in the abdomen. She is a widow and has four children. Her father and mother are alive. One sister died of (?) phthisis. She has never had a day's illness in her life before the present complaint came on. There is no history, or evidence, of alcoholism.

About five months ago she caught a chill and became very ill. She suffered from pain across the abdomen, became feverish, and after eating

anything she felt herself to be bursting. A month or two after this she noticed that her abdomen was increasing in size. She was at first treated by her medical man, but she did not get any better. She then went to Blandford Cottage Hospital, remained there ten days, and from thence was sent here. She was first admitted into Dorcas ward under Dr. Galabin who diagnosed ascites and had her transferred to Mary ward under the care of Dr. Goodhart.

Condition on admission.— Temperature 98°. Patient is tall and fairly well-nourished. Not jaundiced. Legs, tongue, gums, and fauces healthy in appearance.

Abdomen.— Uniformly distended, umbilicus flat, superficial veins not enlarged. The liver can be felt about three inches below the ensiform cartilage; its edge is thin and sharp, and the surface of the left lobe feels quite smooth. In the nipple-line the liver can also be felt one inch below the costal margin, the edge is sharp and well-defined, and the surface is smooth.

A fluid thrill can be obtained. On percussion, the flanks and hypogastric regions are dull; around the umbilicus a resonant note is obtained. On turning the patient on her side, the uppermost flank becomes resonant, and the area of dulness on the other side reaches to the umbilicus. The girth of the abdomen on a level with the umbilicus is thirty-five and a half inches; the distance from the ensiform to the umbilicus is seven inches, and from the umbilicus to the pubes nine inches.

Circulatory system.— Pulse 100, regular and compressible. Heart sounds normal.

Respiratory system.—Normal.

Urine 1020, acid. Trace of albumen present.

Treatment.—Mist. Potas. Acet. Co.

Diagnosis.—Ascites.

The abdomen became more distended; in fact there was more fluid forming, and on December 7th paracentesis abdominis was performed, eleven and a half pints of clear, yellow, serous fluid being withdrawn. After the paracentesis the edge of the liver could be palpated in the anterior axillary line; *it felt as if it was curled up, and on the strength of this a diagnosis of perihepatitis was made.* On December 14th the patient went out feeling much better, very little fluid having re-accumulated.

Carcinoma of the liver.—Ascites due to this cause is usually associated with intense jaundice. The liver may be felt to be much enlarged, the edge reaching well below the level of the umbilicus. Carcinoma is the cause of the greatest enlargement of the liver. I once performed a necropsy on a case of carcinoma and found the liver enlarged from this cause, and weighing twenty-two pounds; the usual weight of this organ is under four pounds. It may be painful and tender, and large umbilicated nodules may be felt on its surface. There may be indications of the primary growth in some other organ. The patient is usually over forty-five years of age, is wasted and cachectic in appearance.

Last year I had a male patient under my care in Stephen ward, aged sixty-five, who was admitted for ascites and intense jaundice. The age of the patient, the marked ascites with intense jaundice suggested a diagnosis of carcinoma of the liver. A few days after admission he became drowsy, a condition which was soon followed by coma and death. At the necropsy, which I performed, I was astonished

to find no sign of carcinoma. The liver appeared to be smaller than normal, and its capsule was very much thickened. The disease from which he suffered was perihepatitis. This did not explain such intense jaundice; jaundice is very rarely produced as a result of perihepatitis. A microscopical examination of the liver cleared up the mystery, for changes characteristic of yellow atrophy were found. I relate this case under this heading, as during life the patient was thought to have been suffering from carcinoma of the liver. The ascites was due to the perihepatitis, and the jaundice to the acute yellow atrophy. The moral is to examine the urine for leucin and tyrosin in every case of jaundice; unfortunately no such examination was made in this case.

Pressure on the portal vein by tumours of adjacent organs and enlarged glands.—Ascites due to any of these conditions is also as a rule associated with intense jaundice, the common bile-duct being involved as well as the portal vein, on account of its close relation to it. Tumours may be felt, and great difficulty may be experienced in determining the nature and origin of them.

Carcinoma of the head of the pancreas may be accompanied by glycosuria and the passage of fatty stools. On account of the relation to the aorta, markedly transmitted pulsation may be felt in the tumour, and further by inflating the stomach it may be demonstrated that the tumour has a posterior relation to that organ.

Renal tumours may be associated with hæmaturia, pyuria, etc. When large they may be difficult to distinguish from an enlargement of the liver.

Carcinoma of the stomach may give rise to obstruction of the pylorus and dilatation of the stomach; there may be vomiting and hæmatemesis.

Thrombosis of the portal vein.—The diagnosis of this condition is difficult. It has to be distinguished from the other forms of portal obstruction, and especially from cirrhosis of the liver. The absence of an alcoholic history and of signs and symptoms of alcoholism are the chief points to consider. The obscure case I mentioned to you, at present in John ward, may possibly be of this nature.

Obstruction of the inferior vena cava above the hepatic veins.—This is a very rare cause of ascites, and, as in cardiac disease, the onset of ascites is usually preceded by swelling and œdema of the legs. I can best illustrate this by telling you about a case. A man fifty-eight years of age, sought advice for loss of flesh, weakness, ascites, and swelling of the legs. He had always had good health until a year before, when he noticed blood in his urine for the first time. A year before this he noticed a sediment like sand in his urine. Three weeks after he passed the blood, he had shooting pains in his right lumbar region, and pain also in his left lumbar region. At this time he noticed more blood in his urine, also some blood-clots. He also had rigors. The swelling of the legs was noticed a few weeks before he was admitted, and this was soon followed by swelling of his abdomen. The urine contained a little albumen, there was no blood present.

Condition on admission.—His legs were swollen and œdematous, and the skin was shiny. The abdomen was tense and uniformly distended.

The liver could be felt to be slightly enlarged. There was a well-marked fluid thrill. On percussion a dull note was elicited in the loins, and a resonant note in front. On making him lie on one side, the uppermost flank became resonant. The superficial abdominal veins were distended. Urine 1014, trace of albumen; no blood. It was thought that the ascites was due to cirrhosis of the liver.

The patient died about a month after admission, and I performed the post-mortem examintion. The right kidney was enlarged, and was irregular and soft on the surface; the whole organ was studded with nodules of growth which had coalesced and undergone softening in the central parts. The right renal vein and the whole of the inferior vena cava were filled with a firm thrombus. The upper half of the vein was much distended with the thrombus, which appeared to be cancerous. An ante-mortem thrombus was found in the right auricle; it was continuous with the thrombus in the inferior vena cava. The explanation of the symptoms and physical signs is as follows: the hæmaturia and the lumbar pain was the first indication of the carcinoma of the kidney. The swelling and œdema of the legs was caused by the thrombus in the right renal vein extending to and blocking the inferior vena cava. The onset of ascites indicated a spread of the thrombus upwards in the inferior vena cava, with consequent obstruction of the hepatic veins, a condition which produced portal obstruction.

Backward pressure in chronic heart and lung disease.—Ascites from these causes is usually preceded by swelling and œdema of the legs. A careful examination of the heart and lungs,

and the detection of valvular disease of the heart, or chronic bronchitis, and emphysema would satisfactorily account for the presence of ascites. It should be remembered that enlargement of the liver also results from these diseases. The enlargement may be considerable; the edge is usually sharp and well-defined, and may reach to the level of the umbilicus in the right nipple line. The surface is smooth; it may be tender, and pulsation may be detected in it. The urine is concentrated and may contain a little albumen.

Bright's disease.—Ascites from this cause is usually associated with general anasarca. A diminution in the daily amount of urine, a high specific gravity, the presence of a large quantity of albumen and blood, and a diminution in the amount of urea, point to acute nephritis. I have already drawn your attention to the fact that ascites in Bright's disease may be due to four different causes. I have also alluded to acute and chronic peritonitis under their respective headings, and have just told you about that form associated with general anasarca, so that only one variety remains for consideration, viz., ascites caused by backward pressure, the result of hypertrophy and dilatation of the heart. This form occurs most frequently with chronic interstitial nephritis, and it may be difficult to distinguish from the ascites caused by primary disease of the heart. Pale urine of low specific gravity, with a trace of albumen, would point to chronic interstitial nephritis, especially if an examination of the eyes showed the presence of albuminuric retinitis, and the arteries were found to be thickened and tortuous.

Ovarian disease.—Ascites may follow rupture of an ovarian cyst, or it may be associated with papilloma of the ovary, secondary papillomatous growths developing in the peritoneum. A few years ago a very familiar figure in Mary ward was a woman, just over thirty years of age, who used to come in sometimes twice a week to be tapped. Altogether paracentesis abdominis was performed two hundred and ninety-nine times between September 20th, 1884, and April 24th, 1893. Occasionally she relieved herself by performing paracentesis with a knitting needle.

At the post-mortem examination two large cauliflower-like masses of papillomatous growth were found on one side of the uterus, that on the right being the larger and reaching as high as the umbilicus. All the pelvic viscera were adherent to each other. The left Fallopian tube was distended. Secondary peritoneal growths were mainly confined to the parietal peritoneum and over the surface of the liver, stomach, and spleen, which were adherent to one another. The peritoneum covering the intestine was almost free from growth. A report of this case by Dr. Pye-Smith will be found in the Path. Soc. Trans. of a few years ago.

I have told you of these different forms of ascites, illustrated them with some cases, and I have endeavoured to show you that the diagnosis of ascites is not so simple as at first sight it may appear to be, but that it is often extremely difficult. By bearing in mind the different points that I have directed your attention to, you may be helped perhaps to make a correct differential diagnosis of the cause of ascites when you come across a patient suffering from this important manifestation of disease.


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