

aids the pelvic half of the capsule in its effort to retain the head of the femur, and, in the extended limb, tightens it. It is tied to the trochanters by the ischio- and pubo- (or pectineo-) femoral bands, which, as they pass from the pelvis to the trochanters, cross the annular ligament and are incorporated with it.¹ In these cross-bands lies the main strength of the femoral insertion of the posterior capsule. Between them, at a point between the trochanters, is its weakest part—a mere membrane, supported by these fasciculi. It is often accidentally opened in dissection; and when torn along its margin, as sometimes happens in dislocation, after the bands are ruptured, the wide flap may occlude the socket as effectually as in Fenner's case.

But among these minor anatomical details connected with the posterior capsule, it is important not to lose sight of the main surgical facts. To these facts the ilio-femoral ligament is the key. It lies mostly in front. In an anterior view it is triangular, narrowest above. Its inner part, the ligament of Bertin, limits extension of the limb; its outer part limits eversion; while to the latter alone belongs the inversion of dorsal dislocation. The functions of its outer and inner portions are therefore largely distinct. The habitual action of the thigh tends to develop them separately. In fact, they can be easily distinguished by the direction of their fibres, some of the fibres of one branch being inserted into the other half way up. They are separated by a cribriform interval for vessels, corresponding to a frænum of soft capsule inside the joint, which adds to the thickness, but little to the strength of the ligament. They vary in development in different subjects; the outer band is not unfrequently the more voluminous, and, as is stated in my paper, the whole ligament is sometimes of uniform thickness. In that case its margins act as bands.

In recent times the narrow ligament of Bertin has been generally described and recognised as the ilio-femoral ligament. It is but the inner part of it. Its outer band, and even its triangular shape, were scarcely known to modern anatomists, and were unknown in their surgical application to dislocation when I came across them in dissection.² I afterward found that while the Webers describe the ligament as simply triangular, the anatomist Winslow, and especially Weitbrecht, still perhaps the highest authority on ligaments, had described the "binæ divaricationes" a century and more ago. Thus much for the lower and sometimes distinctly forked insertion of the ilio-femoral ligament along the anterior intertrochanteric line of the femur.

The upper or pelvic insertion of this ligament is into the front of the inferior spinous process of the ilium, and also into the outside of this process, along a rough depression existing beneath the reflected tendon of the rectus, three-quarters of an inch or more in length.³ All this part is thick and arrests displacement directly upward. From this pelvic insertion, the outer margin of the outer band runs to the trochanter major, and the inner margin of the inner band toward the trochanter minor. Together the two bands constitute the strongest ligament in the body. While it is not difficult by circumduction to tear the whole capsule on either side up to the margin of the bands, these resist. In a strictly surgical point of view, the exact extent of their varying interval may have little importance. But in order to emphasize their separate normal functions, and especially the fact that the characteristic attitudes, the mechanism, and the reduction of hip dislocation are essentially dependent sometimes upon one of these sets of fibres and sometimes upon the other, I have given to the whole, as brief and suggestive of its "binæ divaricationes," the name (inverted) **Y** ligament.

¹ The pubo- and ischio-femoral bands are best seen in extreme flexion, which, in the recumbent subject, brings the back and lower part of the capsule to the front, with the lesser trochanter above. Parallel lines then drawn from points on the pubes and the ischium, just above the socket and just below it, horizontally outward to the two trochanters respectively, will sufficiently indicate the two fasciculi, and the rectangular shape of the posterior capsule they enclose. In the extended limb they become oblique, and are no longer parallel.

² The only modern anatomy in which I find an allusion to the fan-shaped outline of the ilio-femoral ligament is that of Sappey, Paris, Second Edition, 1867. The First Edition (1862) figures and describes only the ligament of Bertin. My photograph was made in 1861 and published in 1869.

³ This roughened surface, extending from the inferior spinous process outward, and, in the normal oblique attitude of the pelvis, a little upward, has been sometimes assigned by anatomists to the reflected tendon of the rectus. It belongs to the wide outside insertion of the powerful ilio-femoral ligament, to which the tendon is often attached by connective tissue only, having a comparatively small bony insertion beyond it.

LARGE, DEEP-SEATED, ACUTE ABSCESS OF THE LIVER, OPENED WITH ANTISEPTIC PRECAUTIONS; CURE.

BY EDWARD HENDERSON, M.D.,
AND
NEIL MACLEOD, M.B.

E. A. F.—, aged thirty-five, a married man of temperate habits, accustomed to daily exercise in the gymnasium, and well developed, has resided fifteen years in Shanghai, and enjoyed good health with the exception of an attack of dysentery of five weeks' duration two and a half years ago. On Dec. 30th, 1877, he complained of loss of appetite and of pain, pointing to the right epigastrium as its seat, stitch-like in character, and aggravated by deep breathing and coughing. No friction-sound was audible at the seat of pain. On Jan. 2nd, 1878, the patient described himself as feeling better and the pain less. Hepatic dulness was not increased. Visits discontinued.

Jan. 9th.—Sent for again, to find the patient looking thin and anxious, without appetite, with a temperature of 99.4° F., a diarrhoea of two days' standing, tongue dry and coated with a white fur. Two days before he had had a rigor on getting into bed. To-day the hepatic dulness is increased in the nipple line, and there is fulness and tenderness in the right epigastrium. Pulse 106, weak but regular; respiration 26. Ordered two grains of quinine and ten minims of nitro-muriatic acid thrice daily.

10th.—Temperature 99.4°; pulse 100; respiration 24. He complains of dragging in, and inability to lie on, the right side, and has no cough or pain. Measurement in the nipple line from the upper margin of the third rib to the costal margin is half an inch greater on the right than on the left side. Evening temperature 102.8°.

11th.—Temperature: Morning, 100.8°; evening, 102.2°.

12th.—Tongue clean. The diarrhoea still continues, there being five or six motions in twenty-four hours, yellow and watery, and passed without pain. On examination, there is distinct bulging of the right lower ribs and right epigastrium, and in this bulging area the intercostal spaces are flattened. On the left side the corresponding spaces are quite distinct. There is resistance on palpation all over this area, especially in the epigastrium, where there is tenderness on deep pressure, and no friction fremitus on deep inspiration. On percussion in the prone position, in the right nipple line, comparative dulness begins at the third and becomes absolute on the fifth rib, the dulness extending one inch below the costal margin. The measurements from the lines of comparative and absolute dulness to the lower line of dulness are respectively ten inches and six and a half inches. This area of dulness is unaffected by change of position. Posteriorly on sitting up there is comparative dulness at the level of the lower angle of the scapula, becoming absolute over the lower ribs. On auscultation, the heart-sounds are heard very distinctly over the dull area; loud, constant, gurgling sounds heard in the epigastrium prevent the detection of friction-sounds if present. The area of splenic dulness is increased, but not capable of being defined. Respiration 24 per minute. There is no cough and no pain on deep inspiration. Vocal fremitus is absent on the right side, below the level of the fourth rib, either sitting or lying. The breath-sounds are harsher at the right apex than the left; these and the vocal resonance are feeble at, and absent below, the level of the fourth rib; posteriorly there is the same condition at and below the lower angle of the scapula. Pulse 108, of medium strength and regular. The apex-beat is visible in the fourth interspace, four inches to the left of the median line, and behind the nipple, raising it at each impulse. Transverse cardiac dulness at the level of the fourth costal cartilage cannot be separated from the hepatic. Vertical dulness in the parasternal line commences at the upper margin of the third rib. Cardiac sounds normal. The urine is clear, yellow, has a specific gravity of 1017, is strongly acid, and contains no albumen, sugar, or bile. Under the microscope, a few amorphous urates are to be seen. Evening temperature, 100.8°.

13th.—Pulse 108. The patient had a tickling cough during the night. At the level of the sixth interspace, after expira-

tion, the circumference of the left side measured 17 in., the right 17½ in. After inspiration the left measured 17½ in., the right 17¾ in. From the upper border of the fourth rib to the lower costal margin in the nipple line the left side measured 8 in., the right 8½ in. Evening temperature, 100° 8'.

15th.—Pulse 102; respiration 18. The cough continues. There are now three or four motions daily of a bright yellow colour, streaked with a greyish pus-looking fluid, and containing minute blood-clots and undigested orange-pulp. The apex beat is half an inch lower than, and a little to the right of, its position on the 12th. The comparative dullness on the right side now commences on the third interspace, close to the costal margin in the right epigastrium, at a point between the midsternal and nipple lines, friction sounds even being heard on forced respiration (this was the seat of the pain complained of early in the attack). Evening temperature, 100° 4'.

16th.—Five motions. The greyish streaks before mentioned contain pus-cells, bacteria, and large round cells with a single nucleus and nucleolus, the cell being about thrice the diameter of a pus-cell. There is double friction in the fourth and fifth right interspaces anteriorly. Evening temperature 100° 8'. To cease eating oranges.

17th.—Pulse 106. The vertical measurements made on the 13th remain the same. Evening temperature, 100° 6'.

18th.—No friction audible in the epigastrium. Evening temperature 100° 8'.

19th.—Pulse 96; respiration 18. The diarrhoea has ceased. Friction sounds are audible all over the dull area in front on the right side, between the fifth rib and the costal margin. Posteriorly the comparative dullness is limited to the lower fourth, and the breath-sounds are feebly heard at the base. Evening temperature, 99° 8'.

21st.—Pulse 80; respiration 18; temperature 98° 8'. There is less cough, and it is to be noted that it has been present only at night. There has been no pain on deep inspiration since the commencement of the attack. In the right epigastrium, where friction was formerly heard, there is tenderness and obscure fluctuation over an area about the size of a shilling close to the costal margin. Evening temperature 100° 4'.

23rd.—Morning: Temperature 98° 4'; pulse 90; respiration 18. An attempt to throw back the arms on the previous evening caused tearing pain in the right epigastrium, of which he still complains. Evening temperature 98° 9'.

24th.—Morning temperature 98° 2'. He is markedly thinner and weaker, and has little appetite. Evening temperature 99° 6'.

25th.—Morning temperature 98° 6'. Comparative dullness commences in the fourth interspace, becomes absolute in the fifth, and extends to a point half an inch below the costal margin, the extreme measurement being eight inches. The lower line of dullness crosses the median line three inches and a half below the tip of the xiphoid cartilage. Fluctuation still obscure, but over a slightly larger area. The dullness posteriorly is as on the 19th. Evening temperature 99° 5'.

26th.—Morning temperature 98° 8'. A No. 2 needle of Matieu's aspirator being dipped in carbolic oil and passed at the fluctuating spot one inch and six-eighths in a direction upwards, backwards, and slightly to the right, pus flowed, and continued to flow when withdrawn to a depth of three-quarters of an inch. The pus was thick, very slightly tinged with blood; and, under the microscope, besides the pus-cells, which were for the most part granular, were to be seen blood-corpuscles, fatty, granular vibrios and crystalline bodies afterwards to be described. About a drachm was thus drawn off, and it was put under the microscope three hours after removal. It was decided to open the abscess next day with antiseptic precautions, the patient having consented.

27th.—Temperature 98° 6'; pulse 70. Chloroform being administered, the bulging in the right epigastrium seemed less prominent. An incision, two inches long, was made parallel to, and half an inch from, the costal margin, and through the puncture of the previous day, dividing skin and fat, and exposing the muscles; these being divided and no pus appearing at three-quarters of an inch depth, a tenotomy knife was thrust as nearly as possible at the point and in the direction of yesterday's puncture. Pus appeared, and the opening was enlarged with a probe-pointed bistoury. The deep edges of the wound were then held aside by means of a pair of dressing forceps, with the points separated,

to facilitate the flow of pus and the entrance of a large-sized drainage-tube five inches long. Pressure was applied from below until no more pus could be made to flow, when air freely entered the tube on withdrawing the pressure. The skin had been soaked with a solution of carbolic acid (1 to 20) for twenty-four hours before the operation, during which the spray was used. The usual protective deep dressing—eight-ply of gauze, macintosh, and elastic bandage, were applied. Over twenty ounces of pus were thus evacuated, very thick, and containing a large amount of shreddy matter, occasionally tinged with blood, and, at the end of the flow, with bile; the latter was particularly noticed to follow pressure in the right hypochondrium. The pus, under the microscope, presented the characters already described, and contained also liver-cells, small hæmatoidin crystals of rhombic form, roundish masses of radiating spiculæ with a condensed centre, the whole mass having about the diameter of a pus-cell, and filamentous bodies six or eight times the diameter of a pus-cell in length, singly, and in irregular bundles. The spicular and latter bodies had exactly the same colour as the rhombic crystals.¹ Reaction of pus neutral. At 8 P.M. temperature 99°; pulse 70. The patient had slept for two hours after the operation. Milk diet ordered.

28th.—Temperature 99° 6'; pulse 104. The patient looked and felt excited, and complained of the tightness of the bandages, and of pains in the back on movement. He had no pain at the seat of the wound, or on deep respiration. At the time of our visit he was found sitting by the fire, and stated that he could not lie in bed. Complete relief followed the change of the dressings, when the pulse fell to 72. The discharge in the dressing amounted to about an ounce, contained but little pus, and was charged with bile. At 6 P.M. the pulse was 78. He slept three hours and a half after having been dressed, and awoke hungry. Evening temperature 99° 6'.

29th.—Temperature 98° 4'; pulse 77. He had ten hours' sleep without awaking. At the dressing air entered the abscess cavity with a loud gurgling sound, and there was a high tympanitic note on percussion over the right lower ribs where formerly the note was wooden. The probe passed five inches into the cavity without touching the back wall, being too short to pass further. The patient hears and feels air gurgling in the cavity, and has done so since yesterday, even when the dressing is applied, though to a much less extent than when it is removed. No pus in the dressing. Apex beat in the fifth interspace, three inches and a quarter to the left of the median line. The bowels were moved for the first time after the operation by compound liquorice powder, the motion being very pale. Evening temperature 98° 6'.

30th.—Temperature 98°; pulse 68. Slept ten hours and a half. Dressings not changed, and leave given to sit by the fire. In the evening the temperature was 98° 4'; pulse 58.

31st.—Temperature 97° 8'; pulse 68. The dressing to-day contained no pus, and less than a drachm of serous discharge. The probe entered four inches, and met with firm resistance. Evening temperature 98° 2'. He has sat up all day, and had one pale motion.

Feb. 1st.—Temperature 97° 8'; pulse 56. Dressing not changed. Air no longer heard in the cavity. Evening temperature 98° 4'.

2nd.—Temperature 96° 8'; pulse 88. Dressing changed; tube withdrawn, cleaned, and replaced. It was plugged through its whole length with shreds. No pus; one pale motion. Evening temperature 99° 4'.

3rd.—Temperature 96° 8'; pulse 64. The patient states that he had champagne at tiffin and dinner yesterday, and complains that he is not having enough to eat. Diet now to be unrestricted, but no stimulants allowed. His temperature in the morning has hitherto been taken in bed before breakfast, immediately after awaking, in future to be taken after getting out of bed, but before breakfast. Evening temperature 98° 8'.

4th.—Temperature 98° 1'; pulse 60. At dressing a tube of smaller calibre was substituted for the old one, which gave some pain on introduction. The shreds which plugged the tube under the microscope were seen to consist of granular pus and hepatic cells massed together. Evening temperature 98° 7'.

5th.—Temperature 99° (after breakfast); pulse 72. The

¹ Feb. 26th.—A microscopic preparation of the pus was put up on the 27th. It contained the rhombic crystals and filamentous bodies; the latter were green by reflected light.

motions are slightly coloured. Evening temperature 99°; pulse 72. Not dressed.

6th.—Temperature 98.2°; pulse 72, after dressing it fell to 60. In the nipple line comparative dullness begins in the fourth interspace, becomes absolute in the fifth, and the lower margin of the liver cannot be traced below the costal margin. Evening temperature 99°.

7th.—Temperature 98.1°; pulse 66. Not dressed. Since the operation the bowels have not moved except with compound liquorice powder. To take fruit and vegetables, which latter have been by some misunderstanding hitherto avoided. Evening temperature 99°.

8th.—Temperature 98°; pulse 74. He has had four motions. Dressing changed, and the drainage-tube shortened by half an inch. Evening temperature 98.8°.

11th.—Temperature 97.8°; pulse 72. Dressing changed; scarcely stained with discharge. Evening temperature, 98.8°.

13th.—Temperature 99.2°; pulse 74. It had been decided to let the dressings remain unchanged for four days, but on account of the slight rise of temperature they were removed; the tube was plugged along its whole length tightly with shreds, and its withdrawal was followed by a gush of brownish-green fluid, 1½ drachms in amount. The probe passed 3½ in., and 2½ in. length of drainage-tube inserted. The probe passed much more obliquely upwards than formerly. The patient has manifestly gained flesh, and was out of doors to-day for the first time, the past week having been rainy and cold. Evening temperature 98.8°.

14th.—Temperature 98.2°; pulse 72. Out of doors one and a half hours. Evening temperature 98.6°. Not dressed.

16th.—Temperature 97.6°. Out of doors all day. Not dressed. The motions are now natural in colour and consistence.

17th.—As on the 13th, there was a gush of serous fluid on the withdrawal of the tube, which was again blocked with shreds. The probe passed 1½ in.; 1½ in. of drainage-tube reintroduced. Not to be dressed for four days.

21st.—Dressings changed. No gush of fluid. The drainage-tube projected from the wound, and the probe passed one inch. No tube reintroduced, and the dressings to be changed six days hence. The patient has been at work in his office.

26th.—The patient complaining of itching at the wound, and the dressings having become loose, they were removed. The wound was healed. Comparative dullness begins in the fourth intercostal space, becomes absolute on the sixth rib, and extends to a point one inch above the costal margin. The measurements from the lines of comparative and absolute to the lower line of dullness are respectively five and three inches. There is no dullness at the cicatrix, or resistance to palpation in the right epigastrium. Breath-sounds are distinctly audible on the right side at the sixth rib, and feebly below this level. Posteriorly, on the right side, there is now no dullness; and the breath-sounds are audible at the base. The apex-beat is in the normal position, and the splenic dullness can scarcely be demonstrated. The patient weighs 155 lb., and says he has never felt better in his life. Slight uneasiness is felt in the hepatic region on forced inspiration.

March 2nd.—No uneasiness is now present. The vertical measurement in the nipple line from the upper margin of the fourth rib to the costal margin is equal on both sides—being eight and a quarter inches. At the level of the sixth interspace the circumference of the right side is the same as that of the left—on full expiration being seventeen and a quarter inches, on full inspiration eighteen inches.

14th.—Weight 162 lb.

Remarks.—Before the abscess was opened, the area of comparative dullness in front and behind diminished considerably, the pulmonary physical signs improved, the apex-beat moved a little downwards, the temperature and pulse fell, and pain and sweating were absent. During the first three weeks of January the thermometer was almost constantly below the freezing-point, on some occasions registering from 15° to 20° frost. On the other hand, the appetite did not improve, weakness increased, the motions remained colourless, the bulging of the ribs and epigastrium did not decrease, the area of absolute dullness became slightly less and remained stationary, friction presented itself, and finally obscure fluctuation.

The partial improvement above described is apt to throw distrust on the diagnosis of hepatic abscess, and, putting

the physician off his guard, not unfrequently leads to the patient being sent away for change of air, with anything but satisfactory result.

After the opening of the abscess, the descent of the apex-beat, the marked and continued improvement in appetite, the gain in strength and flesh, the absence of pain, and the low pulse and temperature, are all noteworthy. There was no pus in the dressing after the day following the operation, and the wound, over five inches deep on January 29th, was healed completely on Feb. 26th. The consistence of the pus and the large and numerous shreds it contained would have rendered treatment by aspiration much less satisfactory. The contraction of the cavity of the abscess was from below upwards, the upper part of the organ having contracted adhesions to the diaphragm and chest wall, and as it contracted emptied itself of the shreds not at first removed. No precautions were used to prevent the free access of air to the abscess cavity, which on several occasions was demonstrated to contain it, and out of which it could be forced by pressure. A few days after evacuation of the abscess the motions began to be coloured, and in about a fortnight they were of their usual colour. There never was any bile in the urine. The presence of the hæmatoidin crystals in the pus suggests a blood-clot as a probable cause of the abscess.

Shanghai.

CASE OF CARDIAC THROMBOSIS AFTER ABORTION.¹

By S. HOLGATE OWEN, M.D., M.R.C.S.

I REGRET that I am not able to give every detail of the following case, owing to the fact that the patient was under treatment only about two days, and that during that brief period it was my misfortune not to have the case under personal observation. On both occasions upon which I was summoned to attend, my assistant took my place without my previous knowledge. I inquired of course very carefully into the nature of the symptoms, and as far as I am able I will give them.

In the early part of December, 1876, I was called to attend a charwoman who had been seized with flooding. She had suffered from hæmorrhage for two or three days previously, and was a good deal exhausted. She was unmarried, and denied the possibility of her attack being an abortion. It was impossible to obtain any reliable information from the woman herself as to menstruation previously. Her character was not good, and the neighbours stated that she boasted of her power to procure abortion for herself whenever her condition suggested the probability of pregnancy. At the first visit it was clearly made out that she had lost much blood for two or three days previously, and a portion of deciduous membrane was brought to me for examination. At the second visit she was in a better condition, and strict rest in the recumbent posture was enjoined. About forty-eight hours after the first visit, I was summoned again. My assistant found her struggling for breath and dying. It appeared that she had disregarded the strict order to remain quiet, and had got up hastily for a few minutes. She died shortly after his arrival.

About thirty hours after death I made a post-mortem examination, and found what was expected—namely, cardiac thrombosis and congestion of the lungs. The heart was removed, and was free from any disease, either valvular or of its walls. Every valve was carefully examined, and the size of the heart carefully noted. In removing it, I fear, the bifurcation of the thrombus into the branches of the pulmonary artery were severed, so that the whole reach of the fibrinous plug was not brought away. The lungs were much congested, even on the surface. The lips were blue, and there was a frothy exudation from the mouth. Externally, in fact, the appearance was that of a person who had been drowned or suffocated.

As is well known, a large proportion of the loose fibrinous masses found in the heart and large vessels are the result of post-mortem coagulation; yet there is often adequate proof, derived from the symptoms previously observed and from appearances presented by the coagula themselves, that the

¹ Paper read before the East Cheshire Medical Association.