LUMBAR HERNIA*

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Hernia in the lumbar region is one of the rare varieties and may occur as a congenital affection, as a spontaneous or acquired form, or as the result of severe local injuries or diminished local resistance following infectious processes. In reporting an instance of spontaneous or acquired hernia, we have thought it desirable to review the literature on the subject, as there is considerable uncertainty as to what constitutes a true lumbar hernia. We have studied, therefore, the instances of congenital and acquired hernia and have excluded from our statistics those hernias following direct traumatism of any type, and those the result of local inflammatory processes, both of which have been instrumental in causing a fairly large number of the cases on record. We have found reports of 33 cases of acquired lumbar hernia, 11 of congenital lumbar hernia, and about 40 cases following local injury and disease.

The entire subject of lumbar hernia is attended with much interest from the historical stand-point. We have consulted Jeannel's article freely for the descriptions of the cases reported by the first writers on this subject.

In Pierre Franco's *Traité des Hernies,* published in 1561, nothing is said of hernia other than inguinal, and it is not until a century later (1672 or 1687) that we find what seems to be the first description of lumbar hernia. Paul Barbette at this time states that, "Experience has taught me that the peritoneum may rupture in its posterior aspect toward the back, thus forming a hernia." Stephen Blancard, in 1701, states only, "Peritoneum prope spinam dorsi ruptum dat herniam"; a laconism which suggests the possibility of a lumbar hernia but does not permit of the supposition that the author had seen a case.

Dolée (1703) knew of lumbar hernia, but he, like his predecessors, took no pains to study its anatomy or its mechanism, although later writers without quoting Dolée correctly have interpreted him as describing lumbar hernia. Jeannel emphatically states that there occurs no passage in Dolée's writings to warrant this, and he reproduces verbatim the Latin text, which is without any special interest. Budgeon, in 1728,

* Read before the Philadelphia Academy of Surgery, December 6, 1915.

described a case of congenital hernia, but it is apparent that he had no idea of the true nature of the condition.

The first trustworthy observation on record is that of Garangeot (1731), who mentions a case of strangulated hernia, reducible after death, perhaps at the expense of a ruptured intestine. Although Garangeot made no autopsy, there can be little doubt about the true nature of the case. The report made by Garangeot failed to stimulate the interest of his contemporaries, for Arnaud (1749), although knowing that hernias may present themselves in the back, forbears to say more, as such hernias, " far from instructing those for whom I write, may prevent one from comprehending ordinary hernias." *" Étrange prétexte ou plutôt mauvaise excuse de l'ignorance de l'auteur,"* is the comment of Jeannel.

Ravaton, in 1750, published the first case of strangulated lumbar hernia which was cured by operation, but details are lacking as to the exact location of the tumor. A decade later Hermann (1767) described a case of strangulated hernia which was cured spontaneously by the formation of an artificial anus. In 1768, Balin writes, " Lumbar hernia may arise unexpectedly between the false ribs and the crest of the ilium, at the point where the external oblique is attached only by a cellular tissue." Although this is brief, terribly laconic, according to Jeannel, the latter claims that Petit, to whom is given the credit for describing the triangle which bears his name, has written no more fully. Jeannel discredits Petit (1774), and claims that in his article he has not described the triangle in question, has not furnished us with any anatomical data concerning his case, and Jeannel confesses he is at a loss to know why this region is called " Petit's triangle " any more than by the name of Dolée, Garangeot, Ravaton or Balin, who wrote as fully about it as did Petit. This view, it may be mentioned, is shared by Larrey also.

Since Petit's time no one until the advent of Grynfeltt attempted any serious study on the subject, and the term lumbar hernia was used so loosely that ventral hernias were continually being confused with the lumbar variety (Plenck, Chopart and Desault, Callison).

Grynfeltt (1866) was the first to give the subject deep thought, and described the space which bears his name. " The aponeurotic fibres of the transversalis in dividing form a passage for the lower intercostal artery, just as the spermatic cord enters the two pillars of the external ring. There is at this site a natural point of lessened resistance. If the lower border of the internal oblique inclines more anteriorly than normally, the last intercostal artery perforates the aponeurosis of the transversalis above the border. In other words, if the point of re-

sistance of this artery is in the lumbo-costo-abdominal triangle all the conditions favoring a hernia are realized." The space of Grynfeltt is bounded above by the twelfth rib, internally by the quadratus lumborum, externally by the external oblique and below by the internal oblique muscle.

Four years later Lesshaft (1870), without mentioning Grynfeltt's work, came to the same conclusions and the space is known in Germany as Lesshaft's triangle, but its proper name should be the Grynfeltt-Lesshaft space. Lesshaft studied 108 adult cadavers, and found Petit's triangle present in 84. In 34 cadavers of embryos or new-born the structure was present 9 times. In other words, the triangle is generally present in adults and only occasionally in embryos or the new-born. When the triangle was not present it was noted that the edge of the latissimus dorsi muscle was in direct apposition with or overlapped the margin of the external oblique. The importance of the triangle was emphasized by these studies, as it is more constantly present and is larger than the inferior triangle of Petit.

V. Baracz and Bursynski have in turn made anatomical studies with the following results: After the first layer of the back muscles is turned aside (latissimus dorsi) one sees the second layer, consisting of the posterior inferior serratus muscle and the internal oblique. Between these two may be seen the third layer, the aponeurotic portion of the transversalis. This muscle with the lower border of the serratus posticus inferior, together with the inner edge of the twelfth rib above, the erector spinalis, the internal oblique and the external oblique laterally, and the base composed of the transversalis, make up the triangle lumbo-costo-abdominal of Grynfeltt and Lesshaft.

The authors have made numerous dissections, having reference to Petit's triangle and to the triangle of Grynfeltt, and of 76 examinations, Petit's triangle was missing 12 times on both sides and 4 times on one side only. It existed, then, in 63.13 per cent. of the cases. The size of the triangle varies a great deal, often merely a slit and again having a base 5 or 6 cm. wide. The base may be muscle alone (internal oblique) or muscle and tendon where the internal oblique extends to the lateral base of the erector spinalis. To pierce this layer great force was necessary, and as there are no openings for the vessels or nerves, the authors consider it improbable that a hernia can rise through Petit's triangle.

The Grynfeltt-Lesshaft triangle was present in 93.5 per cent. of the dissections, and the authors regard it as an almost constantly occurring weakness in the lumbar region. The space is not always that of a triangle or rhombus, it may be deltoid, trapezoid or polyhedral. The

shape and size of the triangle depend on several factors: the length of the twelfth rib, whether the internal oblique with its muscle bundles reaches to the lateral border of the erector spinæ, or is in varying distance therefrom forming a tendinous aponeurosis; upon the development of the serratus posticus inferior; upon whether the fibres of the median border of the external oblique insert on the tip of the twelfth rib or above or below the rib; upon the existence of a tendinous arc in the aponeurosis of the transversalis muscle; furthermore, upon whether the median portion of the latissimus dorsi inserts in the eleventh or twelfth ribs or whether it unites with the posterior fibres of the external oblique, and finally the size and shape depend on the development of the quadratus lumborum.

The most common form is an acute angled quadrilateral, or a triangle. The thickness of the aponeurosis varies in this space but at the uppermost limit the thinnest portion of the lumbar region is seen. In this thin area vessels and nerves are found, usually the twelfth intercostal, and it is in this region that hernias most often occur.

Etiology.—In the etiology of the cases quoted in this paper, indirect traumatism alone is accepted as a cause, and all the cases are excluded in which the hernia followed direct injury, or was secondary to infectious processes, sinus formation, or visceral protrusions due to muscle paralysis. By indirect traumatism is meant conditions demanding habitual or sudden strain, lifting of heavy weights, coughing, and the strain following falls. In 14 of 33 cases, such a history is mentioned, the hernia appearing soon after the injury was sustained. Whether there has been a congenital predisposition in these cases is a matter of debate; there is little evidence to support such a view. It must be mentioned, however, that emaciation, old age, repeated pregnancies, by lowering muscle tone, predispose to the development of lumbar hernia. In those cases in which the age is given we find but 5 instances occurring before the fortieth year of life, 4 in each of the three succeeding decades, and in quite a large number of cases, the histories state that the hernia occurred in an elderly person.

There is a marked predisposition toward the development of hernia on the left side, 19 cases being noted here, 10 on the right side and 2 were bilateral. The hernias occurred 22 times in males and 9 times in females.

The hernia is generally subcutaneous but may be separated from the skin by a layer of fat or muscle. There is considerable doubt concerning the formation of a sac, for it has been distinctly noted at operation and at postmortem that a sac composed of peritoneum often is lacking. This

seems to be particularly the case in the hernias composed of fat protruding from the subperitoneal or perinephritic tissues.

The hernia is composed of fat, mesentery, large or small intestine or, in rare instances, the kidney, and as a rule the hernia is reducible without difficulty, even when symptoms of strangulation have developed. As to the site of the orifice it is impossible to determine this with accuracy in most cases unless an operation has been performed. Jeannel claims that hernias due to effort or to trophic changes in the muscles present themselves in Petit's triangle or in the Grynfeltt-Lesshaft space, while traumatic hernias and those due to disease may occur anywhere. In many cases the site of the hernia is distinctly stated, and where accurately described we have found that 6 cases occurred in the Grynfeltt-Lesshaft space and 9 in Petit's triangle. When all the cases are grouped together one triangle is involved about as frequently as the other.

The symptoms depend largely on the cause of the hernia. In our case the onset was insidious, the hernia entirely escaped the patient's notice until it was pointed out to him twenty years after the first symptom following strain. During these years he was convinced that the only inconvenience he experienced was a feeling of weariness in his back after a day of hard work. In this case as in a typical example of any type of hernia, the signs characteristic of a hernia were so well marked that there could be no question of the correct diagnosis. It should be mentioned, however, that errors in diagnosis have been made, and hernias have been incised in the belief that the condition was an abscess. In one instance the bowel was opened and a fecal fistula resulted.

Most authors speak of the serious nature of lumbar hernia because of the tendency toward strangulation. Jeannel in his analysis found strangulation in 18 per cent. of the cases; this collection including hernias due to all causes. In the 33 cases of spontaneous hernia we have collected, symptoms of intestinal obstruction or strangulation, either mild or severe, were mentioned 8 times, or 24 per cent. In many, the symptoms were mild and disappeared when the hernia was reduced. Reduction was accomplished easily, even when the symptoms indicated a severe form of strangulation, a feature probably due to the absence of a sac, removing the danger of constriction exerted at its neck.

Operative measures have been uniformly successful in the treatment of lumbar hernia, although the number of operations reported is comparatively small. Despite the fact that symptoms of strangulation are so frequently encountered, but one operative death is recorded. In

FIG. 1.—Lumbar hernia.

many instances comfort is secured by the use of a truss or belt and the hernia is thus retained within the abdominal cavity with a considerable degree of comfort. As so many of the patients are advanced in years, and in a debilitated condition, operation should be advocated with some degree of caution. Of course a radical cure should be undertaken when symptoms of strangulation arise, or when the general condition of the patient becomes a matter of concern from the pain and inconvenience of the hernia.

Patient, John C., aged fifty-eight, was admitted to the medical wards of the Presbyterian Hospital, service of Dr. James E. Talley, October, 1915, on account of nephritis. On examination of the patient, a swelling in the left lumbar region was noted. The patient said that until our discovery of this tumor he had been unaware of its existence. Just how long it had been present it is impossible to state, but the following history obtained from the patient leads us to suppose that it must have existed for many years.

The patient is a stone mason by occupation and is accustomed to very hard work. About eighteen or twenty years ago, while attempting to lift an unusually heavy piece of stone, he was seized with a sharp pain in the left side of his back, which persisted for about a week and which prevented him from working. He does not know if any swelling appeared at that time, and, as we have stated, has been unaware of any tumor existing in his side, until this autumn. This pain he was told was due to a strain, and since then he has often had attacks of " weak back," particularly when his work was unusually heavy. At times when he has attempted to lift a weight he has felt something tighten in his back, as if something were pinching him, but this sensation would pass off on assuming the upright position, and after resting a few minutes. He has never had any signs of strangulation, nor has there been any permanent interference with his work on account of his back.

Examination reveals the presence of a tumor in the left lumbar region just under the last rib. The tumor is about 3 cm. in diameter, is rounded and painless. On palpation the swelling is soft and may be easily reduced with gurgling, gives an impulse on coughing which makes the swelling more prominent as does any straining effort. On percussion the tumor is resonant and ascultation reveals peristaltic sounds. When the patient bends forward, the tumor becomes more prominent; when he lies on his abdomen, the tumor disappears spontaneously, and there may be felt a small opening in the dorsal muscles admitting the tip of the middle finger, against which is felt an impulse when the patient coughs. These

findings at once led to the certain diagnosis of lumbar hernia, presumably in the Grynfeltt-Lesshaft space, not in Petit's triangle.

We were interested in learning just what part of the intestine formed the hernia, and as far as we are able to decide by means of the X-ray, it is the small intestine which protrudes. Although recognizing that strangulation occurs in a larger proportion of cases than in inguinal hernia we advised against operation on account of the patient's age, the renal condition (nephritis) and on account of the benignity of the hernia, no symptoms developing during the eighteen or twenty years of its existence.

The accompanying photograph shows fairly well the site and the appearance of the hernia.

CONGENITAL LUMBAR HERNIA

Etiology.—The etiology of this form of hernia is unknown, unless it be due to congenital malformation.

For our knowledge of the anatomy we are dependent on the cases of Jeannel and of Coley, and it would seem that the sac is composed sometimes of parietal peritoneum itself, sometimes by the parietal peritoneum and large intestine, the descending colon when on the left side, the ascending colon when on the right. The sac is never adherent to the skin as far as is known.

The contents of the hernial sac may consist of any of the following—large bowel, small intestine, kidney. The site of the hernia may be either in the so-called triangle of Petit or in the space described by Grynfeltt, or in an anatomic region imperfectly described, along the external oblique at the level of the twelfth rib. As to the pathogenicity of this hernia, it may be said that the rupture falls in two categories, the one in which there has been a malformation, and the other not due to a malformation, but more in the nature of a paretic state of the muscles of the lumbar region.

From the diagnostic stand-point the recognition of a hernia should be easy, though there is a case on record in which the intestine was cut, under the impression that the swelling was an abscess (Dolbeau). It would seem that such a mistake should be impossible, as with a little care the diagnosis should be easily made.

Congenital lumbar hernia is an incurable infirmity. The course of the trouble is uncertain; there may be increasing discomfort or there may be progressive improvement with a support. There has been no record of strangulation having occurred, but one should always have before him the possibility of this accident.

Congenital lumbar hernia as well as the spontaneous type is never

cured by means of a bandage or truss, and it would seem that operative measures are to be urged.

CASES OF CONGENITAL LUMBAR HERNIA

CASE I.—Budgeon, 1728. Much contested and much discussed case. Tumor at birth, ruptured at seventeen years of age. Thought by some to have been lumbar hernia, by others, spina bifida, and by Jeannel to have been hydronephrosis.

CASE II.—Plenck, 1774. Hernia of kidney and not of bowel.

CASE III.—Monro, 1811. Hernia of kidney.

CASE IV.—Colles, 1829. Three years old. Tumor observed at time of birth. Tumor now size of a moderate-sized watch, at birth much smaller. Situated posteriorly immediately above skin of ilium, left side. Easily reducible.

CASE V.—Macready: "In 1882, a youth, aged sixteen, presented himself at the Truss Society, and has often been seen since then up to the present time (1890). Soon after birth a swelling was observed on the right side, for which a belt was worn during six months. The lump then disappeared, but was again noticed when he began his apprenticeship as a plate worker, some months before his appearance at the Society. He then had a hernia of the size of half an orange; it was easily reducible, and escaped by an opening immediately below and anterior to the tip of the twelfth rib."

CASE VI.—Mastin, 1890. Male. When six years of age, hernia measured eight and a half by nine inches, contents of sac were small bowel and descending colon. Apparent defect of latissimus dorsi and quadratus.

CASE VII.—Wyss, 1892. Boy, nine months old. Many other congenital defects. Right sided hernia through Grynfeltt's triangle.

CASES VIII and IX.—Berger, 1895. Simply says he has seen two cases, one in a sclerotic, the other in a little child, probably due to congenital defect of the muscles in the lumbar region.

CASE X.—Coley, 1895. Eleven months old child, with a hernia protrusion about the size of a goose egg in the left lumbar region. Noticed since birth and was probably due to a congenital malformation of the abdominal parietes, allowing this mass to protrude through the triangular space between the latissimus dorsi.

CASE XI.—Russell, 1898. Child. Doubt whether congenital or due to congenital absence of a portion of abdominal wall. Hernia is visible except when muscles were stretched. Was inclined to treat by transplant of muscle.

CASE XII.—Jeannel, 1902. Boy, four months old. Shortly after birth, tumor in right flank, size of hen's egg, situated between last rib and iliac crest. Tympanitic on percussion, reducible, increased by exertion, decreased by rest. Operation. Cure.

ABSTRACT OF CASES OF SPONTANEOUS LUMBAR HERNIA

1. RAVATON: Female, age not given, tumor of three weeks' duration, situated in the left lumbar region. Symptoms of strangulation developed. Operation. Cure.

2. PETIT: Patient was an adult female, hernia on left side in Petit's triangle, size of a child's head. Strangulation relieved by taxis. Recovery.

3. MONRO: Bilateral hernia in a child six months old, covered by skin only, immediately under the false rib. Each tumor contained kidney, easily reduced through an oval ring of a considerable size.

4. CLOQUET: Male, aged seventy-five, pain in lumbar region following strain; pain disappeared; recurred in two months with an attack of nausea and vomiting. Round tumor found in right lumbar region, 1 cm. from last rib. Tumor painful on palpation, gurgling, impulse on coughing. Symptoms relieved after reduction. Application of a truss gave considerable relief.

5. KINGDON: Male, aged fifty-four, for several years had asthma and cough. Eight days before he tried to lift a fire engine which he was cleaning and felt something give way in his back. At night when he undressed a swelling was felt which grew larger as he coughed. The hernia was the size of a fist and was situated between the lower ribs and the iliac crest on the left side. It was reducible, and the hole through which it came was small and above the iliac crest, about three inches from the spine at Petit's triangle. It felt crepitant, not gurgling, on reduction. The integuments over it were thin. On exhibiting the patient it was generally and unhesitatingly admitted that the swelling was a hernia through the foramen of Petit. (Quoted by Macready.)

6. BASSET: Young man with a swelling in the left lumbar region, size of an apple and ovoid in shape; had had this tumor since childhood. It was soft, elastic without fluctuation and resembled a lipoma. Coughing increased the size, gave impulse, expansible in character, reducible. There was a family predisposition to hernia in this case.

7. HARDY: Woman, thirty years old, admitted to the hospital for syphilitic paraplegia. While straining at stool noticed a tumor eight centimetres in diameter, just above the iliac bone, subcutaneous, large base, hemispherical, about the size of a fist, soft, no change in color of skin, no fluctuation, resonant on percussion. Reducible with gurgling, reappears on coughing and on effort, impulse. Patient perfectly well.

8. MARQUEZ: Old woman; while attempting to lift a heavy load of grass, felt a sudden pain in the side, becoming more and more painful and being accompanied by nausea, colic and extreme anxiety. Swelling in left flank, tender, gurgling, and spontaneously reduced. This hernia had been present five or six years.

9. TRIPONEL: In the discussion of Marquez's paper, Triponel said he was reminded of a strangulated right-sided lumbar hernia; operation. A year later another strangulation and a new reduction. Patient advised to wear a truss and to avoid violent muscular effort.

10. LEVY: Old country woman, swelling in left flank at side of Petit's triangle. Never had any serious inconvenience. Patient thought the tumor gave her lumbago on that side.

11. TURENNE: Case of elderly male with tumor in left flank of three years' standing, and arising without any apparent cause. It was the size of a nut, uneven, and rounded, and seemed to consist of a portion of the omentum. It was reduced easily, was kept in place by means of a bandage. It had never caused any inconvenience.

12. DOLBEAU: Old woman, no mention of the side. Opened for abscess. Recovery.

13. APPERSON: Female, aged sixty-three, tumor on right side, size of a teacup, now and then presented signs of strangulation but was easily reduced and retained by bandage and compress. Woman feeble and relaxed as the result of child-bearing.

14. COZE: Male, no ascribable cause. Hernia right side, toward the top of

Petit's triangle, size of a hen's egg; soft, reducible. Few months later patient, a soldier, being no longer able to keep up his occupation, was brought to hospital. At this time a large hemispherical tumor 12 to 14 cm. in diameter was noted, soft, no skin changes, readily reducible with gurgling, contents probably ascending colon.

15. COZE: Soldier, right side, toward top of Petit's triangle, 6 by 4 cm. in extent; reducible small tumor; gurgling. Previously operated on for this swelling, scar of operation on skin. The following month tumor had enlarged, was reducible, impulse, no gurgling.

16. GOSSELIN: Male, aged fifty-five. When fifteen years old had lateral curvature of spine, to the right. Since five or six months some pain in left renal region, colicky in character. When he coughs or exerts himself, side pains him, obliged to stop and press it with his hand. In the left lumbar region a hernia, the size of a mandarin; reducible.

17. MACREADY: A man aged fifty-four came to the Truss Society in 1884 with a swelling over the left triangle of Petit, about the size of a walnut. It increased somewhat on coughing, but was not reducible, and therefore, as this aperture could not be examined, some doubt exists whether the tumor was a hernia or a lipoma. He had also a left inguinal hernia.

18. MACREADY: A man aged thirty came to the Truss Society in 1889, who stated that usually after a hard day's work he had pain in the right side in the position of Petit's triangle. An impulse and a bulge on cough were found there, but no complete protrusion.

19. HUTCHINSON described an autopsy on an elderly emaciated man with a hernia the size of a fist, in the left lumbar region, extending from the last rib to crest of ilium; several years in duration; diminished on pressure, resonant on percussion, impulse on coughing, gurgling; no pain, no inconvenience. Thought it was in Petit's triangle, but on dissection found an opening above and to the inner side of Petit's triangle, was outside of the quadratus lumborum, through the transversalis and the latissimus dorsi. No sac of peritoneum found, but one formed from local hypertrophy of subperitoneal fat.

20. HUME: Male, aged sixty-eight, tumor in the left lumbar region for fifteen years, size of a fist, but became larger at intervals, when it was painful and symptoms of intestinal obstruction developed. When admitted for treatment, symptoms of strangulation had been present for two days, operation disclosed gangrenous small intestine caused by pressure of two fibrous bands, and a twisted sigmoid. Hernia did not seem to be in Petit's triangle. Death in twenty-four hours.

21. RUPPANER: Male, aged forty-eight, history of strain and fall followed by pain in left lumbar region. Operation eleven days after injury disclosed a rent in lumbocostal fascia, 1 cm. in length, through which protruded a nodule of fat, size of a cherry. No sac present, tumor reduced, rent and muscles sutured. Hernia was in trigonum lumbale superior.

22. STARR: Male, age not given; eighteen years ago fell while carrying a sack of grain on shoulder, and hurt his side. He thinks lump did not appear at that time. Twelve months ago while stooping down preparing to lift a weight he was seized with pain in the side, which for a few minutes prevented him from assuming the erect position. After the severe pain had ceased, he noticed a lump in his back which has persisted ever since, always a steady pain in the side,

which sometimes becomes sharp and shoots into the backbone. The swelling is about the size of a duck's egg, its long axis being directed from above, downward and outward, and is situated in the right lumbar region, between the lower border of the ribs and the crest of the ilium. Slightly tender on pressure, elastic, reducible; crackling sensation on reduction, on straining tumor gives tympanitic note.

23. GALLOWAY: Male, after being in the army for four years, developed hernia which was the size of a partridge's egg, and has gradually grown to present dimensions, five inches in length by two inches in width, left side.

24. DUMESNIL AND BRUMON: Male, sixty-one years old, complained of shortness of breath and sometimes dyspnœa. During the examination, patient strained and immediately there appeared a tumor in left lumbar region. He says he noticed this fourteen years before. At this time it was about the size of a walnut and painless. In 1891, it was the size of a mandarin orange, but had not increased in size since then. When the patient rested, no tumor, but on exertion it became quite large. It is painless, gurgling and reducible. Never prevented patient from pursuing his occupation as collier. Since 1885 a bandage has sufficed to hold the tumor in position.

25. ZENTNER: Female, aged six years; following whooping cough, developed a walnut-sized tumor in the left lumbar region, also history of violent strain in falling, followed by pain the same day and tumor a few days later. Bandage applied but tumor enlarged in spite of constant pressure. Now tumor is size of hen's egg, is soft, tympanitic and is reduced easily, no gurgle. Situated in Lesshaft's triangle. Operation disclosed sac of peritoneum projecting through transversalis, omentum in sac, sac and muscle sutured. Cured.

26. DEMOULIN: Male, forty-seven years old, mason, who, as a result of a violent effort six months before, felt a severe pain in the lumbar region, followed by an egg-sized tumor. No serious accident has resulted from tumor. Diagnosed lipoma, not completely reducible. This was a hernia developing from the fat capsule of the kidney.

27. JONES: Male, aged forty-five; tumor present for four or five years, lately producing local pain and tenderness, constipation and dyspnœa. Hernia on right side, extended from the ribs to iliac crest; reducible with gurgle; impulse on coughing. Operation. Fat found in hernia; no sac, cure.

28. BARACZ: Male, aged thirteen. Tumor left-sided, below twelfth rib, size of a billiard ball, also small one in left flank. Straining causes prominence, tympany over hernia, reducible, in Grynfeltt's triangle.

29. GAILLAC: Soldier jumped from height; immediately felt severe pain in the lumbar region and swelling—egg-sized tumor, soft, painful, reducible.

30. LEJARS: A man sixty-five years old developed symptoms of strangulation in left lumbar region; large tumor, painful, reducible. Patient stated that he had had it twenty-five years and during this time it was the size of a walnut. In the first three weeks it had been growing in size, painful and colicky. During the last six days obstinate constipation; for past three days not even gas came from the rectum; extreme nausea, distention of abdomen, and pain, particularly in the left flank. Tumor is spherical, little flattened, 7 cm. in diameter, about 3 cm. long, extending to iliac crest, skin reddened. Operation; no peritoneal sac but large intestine found. Recovery. Believes it came out through Petit's triangle.

31. FRIEDENTHAL: Female, aged forty-five. Injury to the spine by fall, and six years later strangulation in lumbar region appeared. Patient could not give any

history of hernia. Cherry-sized hernia in left side, under twelfth rib, attributed to weakening of the muscles following frequent pregnancies and the indirect traumatism of the fall.

32. SECOUSSE AND LASSERE: Male, age not given, carried heavy weight upstairs, three days later noticed a small tumor in left lumbar region about the size of a nut. Ten days later it was the size of a pigeon's egg. This was three years ago and now it has increased very much in size. Round, about the size of two closed fists, becomes larger when patient coughs, and spreads widely over the lumbar region. Reducible and gurgling, non-painful.

33. GOODMAN AND SPEESE: See above.

BIBLIOGRAPHY

SPONTANEOUS LUMBAR HERNIA

Apperson: Quoted by Mastin, ANNALS OF SURGERY, 1890, xii, 20.
Baracz: Arch. f. klin. Chir., 1902, lxviii, 650.
Basset: Bull. de la Soc. de Méd. de Toulose, 1864.
Cloquet: Recherches sur les causes et l'Anatomie des hernies abdominales, 1819, p. 4.
Coze: Rev. méd. de l'Est., 1874, p. 407.
Demoulin: Congrès des Sociétés Savantes, 1901.
Delbeau: Quoted by Larrey, Bull. de l'Acad. de Méd., 1869, xxxiv, 135.
Dumesnil and Brunon: Bull. méd., 1889, xiii, 781.
Friedenthal: Berl. kl. Woch., 1911, lxviii, 407.
Gaillac: Verbal Communication to Jeannel.
Galloway: Medical Record, 1895, xlvii, 294.
Gosselin: Gaz. méd. de Paris, 1881, p. 123.
Hardy: Bull. de l'Acad. de Méd., 1869, xxxiv, 124.
Hume: Brit. Med. Journal, 1889, ii, 73.
Hutchinson: *Ibid.*, p. 71.
Jones: Lancet, 1902, ii, 747.
Kingdon: Quoted by Macready.
Lejars: Congrès franc. de Chir., 1905.
Levy: Quoted by Marquez.
Macready: Lancet, 1890, ii, 963.
Marquez: Gaz. méd. de Strassbourg, 1869, p. 274.
Monro: Observations on Crural Hernia, 1903, p. 8.
Petit: Traité des Maladies Chir., 1790, ii, 225.
Ravaton: Quoted by Jeannel. Traité des pratiques modernes de la Chir., 1776.
Ruppaner: Deutsche Zeitschrift fur Chir., 1908, xcvi, 461.
Secousse and Lassere: Journal de méd. de Bordeaux, 1913, xliii, 594.
Starr: Canadian Practitioner, 1894, xix, 491.
Triponel: Gaz. méd. de Strassbourg, 1869, p. 275.
Turenne: Quoted by Larrey, Bull. de l'Acad. de Méd., 1869, xxxiv, 135.
Zentner: Wiener klin. Woch., 1901, xiv, 1232.

CONGENITAL LUMBAR HERNIA

Berger: Congrès française de Chir., 1895, p. 328.
Budgeon: Philosophical Transactions, 1728.
Coley: ANNALS OF SURGERY, 1895, xxii, 272.

Colles: Dublin Quarterly Journal, 1857, xxii, 380 (date of observation in 1829).
Jeannel: Archiv. provinçiales de Chir., 1902, xi, 1903, xii.
Macready: Lancet, 1890, ii, p. 963.
Mastin: ANNALS OF SURGERY, 1890, xii, 20.
Monro: Morbid Anatomy of the Human Gullet, Stomach and Intestines, 1811, 374.
Plenck: Quoted by Jeannel.
Russell: Intercolonial Medical Journal, 1898, iii, 113.
Wyss: Beiträge z. klin. Chir., 1892, p. 1.

TRAUMATIC HERNIA AND CONTRIBUTIONS TO THE SUBJECT OF LUMBAR HERNIA

Bayer: Centralblatt f. Chir., 1888, xv, 686.
Bestendank: I. D. Marburg, 1889.
Billeton: Thèse de Paris, 1869, No. 103.
Bouisson: Beiträge z. klin. Chir., 1907, liv, p. 229.
Blauel: Montpel. Med., 1866, xvi, 330.
Braun: Arch. klin. Chir., 1879, xxiv, 213.
Broca: Gaz. Hebd. de Méd., 1891, xxviii, 428.
Calvert: Indian Med. Mag., 1901, xxxvi, 19.
Campbell: N. Y. Med. Jr., 1874, xix, 184.
Casteny and Philippe: Echo. Med., 1901, xxv, 15, 313.
Chapplain: Gaz. des Hôp., 1861, p. 406.
Currier: Lancet-Clinic, 1880, n.s., iv, 98.
Decaisne: Ann. de la Soc. de Méd., 1838, iv, 483.
Dolbeau: Quoted by Larrey.
Duplay: Quoted by Rigodin, Thèse de Paris, 1872, p. 12.
Duret: Echo. Med., 1891, v, 325.
Garangeot: Quoted by Jeannel, Traité des Operations, 1731, p. 369.
Grange: Thèse de Lyon, 1896.
Grynfeltt: Montpel. Medicine, 1866, xvi, 329.
Hein: I. D., Berlin, 1902.
Hein: Cent. f. Chir., 1902, xxix, 201.
Larrey: Bull. de l'Acad. Méd., 1869, xxxiv, 135.
Lesshaft: Arch. f. Anat., Physiologic, Med., 1870, p. 264.
Lieber: Über Lumbalherniæ, I. D. Berlin, 1887.
Macready: Lancet, 1890, 963.
Makrocki: I. D., Strassburg, 1879.
Marmisse: Gaz. des Hôp., 1862, p. 170.
Nélaton: Quoted by Larrey.
Owen: Brit. M. J., 1888, i, 957.
De Quervain: Deut. Zeit. Chir., 1902, lxv, 156.
Raymond and Maisonneuve: Limousin Med., 1897.
Schenk: Prager Med. Woch., 1900.
Schraube: Quoted by Braun.
Sistach: Rec. de mem. de Med. chir., *Eng.*
Sweet: Austral. Med. Gaz., 1912, xxxii, 351.
Tereschenkow and Federow: Russ. Arch. f. chir., 1903.
Tucker: Am. Jour. Obstet., 1893, xxviii, 380.
Van Hulget: Quoted by Mastin, ANNALS OF SURGERY, 1890, xii, 20.
Verdier: Traité nat. des Hernies, 1840.
Wolff: Berliner klin. Woch., 1890, xxvii, 3; also Arch. Klin. Chir., 1880, xxv, 908.