morbid conditions within the abdomen during the progress of an operation has materially increased our capacity to make a more certain and an earlier diagnosis, and has accordingly equipped us with more efficient therapeutic power. It is, I submit, by a close study of the anamnesis followed by a careful investigation of the parts implicated in the disease, *during the life of the patient*, that the surest foundations for accurate diagnostic power can be built. The surgeon, after hearing the detailed story of an illness has not to wait until death comes to the patient before he can lay bare those pathological processes which have given rise to all the symptoms. He can see and handle the organ or organs affected at the time they are exciting the sufferings of the patient; not at the time, months or years later, when all bounds have been overstepped by the unchecked extension of the disease, in parts laid waste by a late infection. At the time when symptoms are being caused, the pathological changes are open to examination; that is the advantage which comes from a study of the pathology of the living. So far as abdominal diseases are concerned, he is the best diagnostician who spends much of his time in the operation theatre. The lessons there to be learnt are far greater in number and far outweigh in value those that can be learnt in the *post-mortem* room, in so far as they bear any reference to the treatment of the living.

I would, therefore, urge upon all those engaged in practice the desirability of following their patients to the operation table whenever opportunity occurs. The lessons there to be learnt will in practice be of a value beyond all reckoning, and interest in the daily work will be thereby quickened to an unaccustomed degree.

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THE SACCULAR THEORY OF HERNIA.*

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BEFORE dealing with the subject of this communication, I wish to express my sincere regret that death has recently removed from our ranks one who by his writings has done so much to broaden our views and advance our knowledge regarding the cause and the treatment of hernia. Needless to say I refer to the late Jonathan Macready, whose *Treatise on Ruptures*, the outcome of a wide clinical experience, has long been regarded as the standard work on this subject in the English language.

In directing attention to what Mr. Hamilton Russell has named the saccular theory of hernia, I am perfectly well aware that there is nothing really new in the arguments I propose to advance in favour of this theory, but I do believe there is something really true in the statements I am about to make in support of it.

Inguinal, femoral, and umbilical hernia are so much more commonly met with than the other varieties of abdominal hernia that I propose to confine my remarks to them, but wish it to be clearly understood that I believe the saccular theory offers the only satisfactory explanation of the occurrence of all abdominal herniae which have not a definite traumatic origin.

OBLIQUE INGUINAL HERNIA.

Though inguinal hernia is a very common complaint, has a wide geographical distribution and a very ancient origin—in fact, it is far from improbable that an inguinal hernia first appeared in one of the children or grandchildren of Adam—we are still far from agreed as to its exact causation, and, consequently, still further from agreement as to the best way of curing it.

Every medical man has been taught—and probably medical students are still taught—that there are two distinct types of oblique inguinal hernia: hernia occurring during infancy and childhood, in which the sac is of congenital origin, and the hernia of adult life, in which the sac is said to be almost invariably acquired. This is the orthodox faith maintained by the writers of all surgical

textbooks and generally accepted by the medical profession throughout the world.

Though every man should long hesitate before changing his faith, it is well, in surgical matters at all events, not to rely too implicitly on authority, but to think for oneself, and from time to time to carefully review the evidence upon which our faith rests, and to consider the rules which should guide our surgical conduct.

If the evidence on which the orthodox teaching respecting the etiology of inguinal hernia rests be thus considered, it will, I think, appear somewhat remarkable that the theory of an acquired inguinal hernia sac should have met with such general and lasting approval.

As we have to distinguish between an acquired and a congenital hernia sac, it will be well at the outset to understand clearly in what respect they resemble or differ the one from the other.

The difference between a typically acquired sac, such as occurs when a ventral hernia follows upon a laparotomy, and a typical congenital sac, as seen in the inguinal region when the bowel descends into a sac formed by the unobliterated processus vaginalis testis, is, however, sufficiently obvious to render further comment in this respect unnecessary.

It has long been recognized that the frequent occurrence of inguinal hernia during infancy is due to the presence of a preformed sac, a defective obliteration of the processus vaginalis testis, and the type of sac most commonly met with in infants and young children is exactly the same type as that most commonly met with in adult life, namely, a sac entirely separate from the tunica vaginalis. I wish to emphasize this point because there appears to be an impression in the minds of many medical men that the usual type of hernia sac in infants is one in which the bowel descends into the tunica vaginalis. So far from this being the case, a hernia involving the tunica vaginalis is only met with in about 18 per cent. of all cases.

From clinical experience, then, we know that during infancy and childhood two distinct varieties of the same type of congenital hernia sac are seen: the complete sac which involves the tunica vaginalis, and the incomplete sac which is entirely separate from the tunica vaginalis, the latter being much the more common of the two. In the adult, also, two distinct varieties of the same type of hernia sac are seen: the complete sac which involves the tunica vaginalis, and the incomplete, the latter being much the more common of the two. The general relationship of the sac, whether complete or incomplete, to its coverings is remarkably constant, and similar both during infancy and adult life. In the diagram, *a* and *A* are both obviously

Fig. 1.

of congenital origin; *b*, the typical hernia sac of infancy, is also undoubtedly of congenital origin; *B*, the typical hernia sac of adult life, it is whose origin excites so much interest. It is to this type of sac, the sac of the so-called acquired hernia, that I wish particularly to direct attention. It surely has been the experience of all hospital surgeons to operate for inguinal hernia, possibly a strangulated hernia, which has suddenly and for the first time appeared, and at the operation to discover that the sac includes the tunica vaginalis. In such a case, though the hernia appeared for the first time during adult life, there can be no doubt that a preformed sac had been present since birth.

I have on several occasions operated on adults in whom an inguinal hernia had appeared for the first time and become strangulated. The sac was entirely separated from the tunica vaginalis, had a relatively long narrow neck, and there was no extravasation of blood outside the sac or other indication to suggest that the hernia sac had

* A paper read in the Section of Surgery at the Annual Meeting of the British Medical Association at Exeter, 1907.

been suddenly acquired. Surely in these cases it is clear that the bowel had descended into a peritoneal diverticulum which had existed since birth.

Recently I operated upon a man, aged 29, for the radical cure of an oblique inguinal hernia which he had first noticed four months previously. The sac was of moderate size, separate from the tunica vaginalis, and presented no characteristics whereby one could distinguish it from an ordinary hernia sac. The mother of this patient subsequently told me he was ruptured when a baby. Now in this case it is evident that the bowel had, after twenty-eight years, again descended into a preformed sac, and yet, apart from the history of a hernia being present on the same side during infancy, this sac would, I believe, have been regarded by most surgeons as having been acquired.

It is thus evident that in a fair proportion of cases in which an inguinal hernia appears for the first time during adult life, the sac is of congenital origin and not acquired, and as in the remainder of the cases the sac presents exactly the same general appearance and has the same relationship to the surrounding structures as in cases in which it is preformed, the inference is obvious, namely, that in these cases also the sac is of congenital origin. Further evidence in support of the saccular theory is obtained from the results of operative treatment. Experience has fully justified the assurance with which in children a radical cure of the hernia can be promised after an operation which essentially consists in the complete removal of the sac. Evidence is also rapidly accumulating which goes a long way to prove that in adults also a radical cure of the hernia is brought about by an operation which aims at little more than the complete obliteration of the sac. The results obtained by Professor Kocher and others who adopt his method of operating compare very favourably with the results obtained by surgeons who practise more elaborate methods, devised with the intention of filling a gap in the inguinal region rather than aiming at complete obliteration of the sac.

During the past few years I have practised the same method when operating upon infants or adults for the radical cure of inguinal hernia. I always open up the inguinal canal and have the sac pulled taut in order to apply the ligature to the neck of it at the highest possible level. The aponeurosis of the external oblique is subsequently united by overlapping; the inguinal canal is thus narrowed and strengthened and its original obliquity restored. The after-results obtained have been most gratifying, more especially as the vast majority of the adult patients have been men who subsequent to the operation have engaged in hard manual labour and wear no truss or support of any kind.

If the primary cause of inguinal hernia in the adult were due to muscular weakness in the inguinal region, it is surely unlikely that either of the operations I have mentioned would be likely to result in a permanent cure of the complaint.

Inguinal hernia is such a common affection that if it really is the case that the essential factor in its production is the presence of a preformed sac, an unobliterated portion of the processus vaginalis testis, then we would expect to find evidence in the *post-mortem* room of the patency of this process in a certain number of persons who during life never suffered from hernia.

In 200 consecutive and in no way selected *post-mortem* examinations kindly made for me by Dr. Nathan Raw at the Mill Road Infirmary upon persons in whom there was no history or evidence of hernia, a potential hernia sac was found in 47, and in these 47 bodies 68 diverticula were present. Of the diverticula 13 were inguinal, 52 femoral, and 3 umbilical. In 16 cases more than one diverticulum was present; and in one case an inguinal and a femoral diverticulum existed on either side. In most of the cases the unobliterated portion of the processus vaginalis testis was about 1 in. in length, and the opening at the internal abdominal ring so small as barely to admit a large probe; in others the opening was sufficiently large to admit the little finger.

From the results of these *post-mortem* examinations it is obvious that the presence of a potential hernia sac in the inguinal region does not mean that the individual in whom it occurs must necessarily suffer from a hernia. Why is it, then, that the bowel descends into these peritoneal pouches in some persons and not in others?

Granted the existence of a patent funicular process in

Potential Hernia Sacs Found in 200 Consecutive Post-Mortem Examinations.

Number.	Sex.	Age.	Potential Hernia Sac.
1	Male	48	Double inguinal and right femoral.
2	"	61	Double inguinal.
3	"	46	Left femoral.
4	"	57	Right femoral.
5	"	29	Right inguinal (contained omentum).
6	"	55	Left inguinal (contained omentum).
7	"	42	Left femoral.
8	"	29	Right femoral.
9	"	44	Double inguinal and double femoral.
10	"	30	Right and left femoral.
11	"	63	Right and left femoral.
12	"	62	Right femoral.
13	"	32	Left inguinal.
14	"	45	Right femoral.
15	"	60	Right femoral.
16	"	61	Right and left femoral.
17	"	44	Right femoral.
18	"	64	Right femoral.
19	"	33	Right and left femoral.
20	"	54	Right femoral.
21	"	22	Right and left inguinal.
22	"	63	Right femoral.
23	"	44	Right and left femoral (small opening).
24	"	64	Right and left femoral (small opening).
25	"	28	Right and left femoral.
26	"	31	Right femoral.
27	"	44	Left femoral (small opening).
28	"	24	Right femoral.
29	"	56	Right and left femoral and umbilical.
30	"	55	Left femoral.
31	Female	40	Right femoral.
32	"	14	Right and left femoral.
33	"	62	Left femoral.
34	"	54	Right femoral.
35	"	33	Right femoral.
36	"	60	Right and left femoral.
37	"	47	Left femoral (contained omentum).
38	"	56	Umbilical (contained omentum).
39	"	30	Left femoral (small opening).
40	"	43	Right femoral.
41	"	30	Right femoral.
42	"	37	Left inguinal.
43	"	44	Right femoral.
44	"	62	Right femoral.
45	"	7	Right and left femoral (small opening).
46	"	68	Right femoral and left inguinal.
47	"	18	Left femoral.

Case 46 had also a large umbilical hernia. In Case 29 the umbilical sac contained a small piece of omentum. These cases were examined at Mill Road Infirmary; list completed June 15th, 1906.

Two Hundred Bodies Examined.

In 47 bodies 68 peritoneal diverticula were found. The average age of these 47 persons was 44½ years; 30 were males and 17 were females. In 16 instances more than one diverticulum was present.

20 Males	{ 1 Umbilical. 11 Inguinal (4 double). 34 Femoral (11 double).	Average age, 47½.
17 Females	{ 2 Umbilical. 2 Inguinal. 18 Femoral (3 double).	Average age, 40.

The youngest person was 7 years of age, the oldest 68.

the inguinal region, I would suggest that the occurrence or not of a hernia largely depends upon two factors—the size of the opening at the internal abdominal ring and the strength of the muscles guarding it.

It is unnecessary for me to enter into anatomical details as to the formation of the inguinal canal and the attachment of the internal oblique and transversalis muscles, which together with Poupart's ligament form a sphincter-like structure guarding the canal. When the processus vaginalis is patent, provided the opening at the internal abdominal ring is small and the muscles guarding it powerful, then the probability of a hernia occurring is slight. If, on the other hand, the internal opening is large and the inguinal sphincter weak, the probability of a hernia occurring is considerable. The frequent occurrence of inguinal hernia during infancy would thus be explained.

The frequency with which inguinal hernia first appears about the age of puberty I would account for by the increased amount of exercise usually indulged in at this period, and the muscles which under ordinary conditions are able to guard the internal opening are suddenly overtaxed, and the bowel enters the inguinal canal. The escape of the bowel will, of course, largely depend upon the size of the internal opening.

When a hernia appears later in life, it may be even in old age, the same reasoning would hold good. Though the processus vaginalis testis has been to some extent patent since birth, no hernia has appeared because the opening at the internal abdominal ring was never large, and the inguinal muscles well able to guard it, but with declining years the weakened muscles gradually yield, and the bowel or omentum passes through.

Instances have been recorded in which an inguinal hernia has for the first time developed during or after a long illness, and under these circumstances it appears to me far more reasonable to explain such an occurrence in the way I have suggested, than to suppose the bowel to have forced the parietal peritoneum in front of it.

After all, what need is there to suppose that the sac of an oblique inguinal hernia is ever acquired when we know that during intrauterine life a peritoneal diverticulum normally exists in this region, and from clinical experience and *post-mortem* evidence that this diverticulum frequently persists throughout life? So confident am I of the correctness of my contention that I would go a step further and say that in a person born with a completely obliterated processus vaginalis testis it is impossible for an oblique inguinal hernia to occur.

DIRECT INGUINAL HERNIA.

It is unfortunate that this hernia is usually described in connexion with the oblique variety, for it belongs to an entirely different class of hernia. All authorities on the subject are agreed that a direct inguinal hernia is in fact a hernia through the lowest part of the linea semilunaris. Consequently its etiology should be considered in common with hernial protrusions occurring in other parts of this aponeurotic line.

Macready says: "When hernia occurs in the linea semilunaris, it is usually below the umbilicus. The majority of these herniae are close to the pubes, where they receive the name of direct hernia. In two cases seen at the London Truss Society the hernia was above the level of the navel. The two patients were boys aged 1½ year and 6 months respectively. In both the protrusion was about the size of a Tangerine orange, was reducible, and situated on the right side. The aperture in the elder boy was just below the costal arch and as large as a sixpenny piece. In the younger child the opening was more oval and placed lower down."

Considering the early age at which the hernia appeared in these two patients, it is extremely probable that the primary cause of the protrusion was a local congenital defect in the fibrous structure of the abdominal wall. I mention these causes merely to show that there is evidence in favour of the belief that in the upper part of the linea semilunaris hernia may be due to some local congenital weakness, though, as far as I am aware, there is no proof that a preformed sac has ever been demonstrated in this region.

Direct inguinal hernia is essentially a hernia of adult life, the majority of cases first appearing in males between the ages of 40 and 50 years. Macready, however, mentions

13 cases in which the hernia first appeared in young men between 16 and 25 years of age.

A peculiarity of direct inguinal hernia, which I believe has some indirect bearing on its etiology, is the marked tendency there is for it to become double; this occurs in no less than 55 per cent. of all cases.

More direct evidence in favour of the saccular theory, as applied to this class of hernia, is contained in the writings of Macready. In the chapter on direct inguinal hernia he says:

Some have supposed that, whether the descent takes place gradually or suddenly, the viscera enter a preformed sac. In support of this, Englisch has recorded the occasional presence of peritoneal pouches in the space between the hypogastric and the epigastric arteries. Englisch examined 300 bodies, and found peritoneal pouches in 6 of them. In certain cases a direct inguinal hernia had formed on one side, and a peritoneal diverticulum was present on the other. When it is remembered that in double hernia the two protrusions are seldom equal, but that one precedes and has larger dimensions than the other, there is strong probability that Englisch is correct in his conjecture, and that in some instances the viscera occupy these preformed sacs.

In 100 cases of direct inguinal hernia, Hesselbach noticed and drew the condition of the aperture in the posterior wall of the canal. In 8 it occurred as a narrow split, in 13 as a small round hole, in 29 as a segment of a circle, and in 50 no trace of the posterior wall could be discovered.

It is evident that as a direct hernia develops it enlarges at the expense of the internal wall of the canal and that it encroaches on each side, but principally in the direction of the epigastric artery, until the whole of the posterior wall of the canal between the artery and the rectus muscle has disappeared.

If, as certainly seems probable, the primary cause of the hernia is the presence of a congenital opening in the direction of the fibres of the conjoined tendon, through which a peritoneal diverticulum has passed, this would explain why it is the hernia does not usually develop until after middle life, when some failure in muscular tone is to be expected, and the "corporation" has a most objectionable, but equally undeniable, tendency to increase.

UMBILICAL HERNIA.

Hernia at the umbilicus occurs with equal frequency in male and female children, the hernia in the vast majority of the cases appearing during the first year of life.

It is generally agreed that the bowel passes through the opening at the umbilicus which gave passage to the fetal vessels, and it is sufficiently obvious that the hernia sac in these cases is almost certainly preformed, owing to the process of peritoneum at this point not being completely obliterated.

In the adult the hernia also protrudes through the umbilical opening, and in every case upon which I have operated the margins of the opening were clearly defined. The coverings of the hernia are, apart from its size, identical in the child and in the adult, and as we know that congenital peritoneal diverticula occur in this position, particularly at the upper part of the umbilicus, it seems reasonable to suppose that both in the child and in the adult the hernia sac is preformed.

In considering the advent of umbilical hernia I would adopt the same line of argument as when discussing oblique inguinal hernia. The two important factors in the production of the hernia are:

1. A peritoneal diverticulum at the umbilicus.
2. Increased abdominal pressure.

If the diverticulum has a large abdominal opening, the probabilities of a hernia occurring during infancy are considerable. If the abdominal opening be only of moderate size, then increased abdominal pressure, from whatever cause, may be necessary in order to bring about a hernial protrusion. It is therefore quite possible for a person born with a peritoneal pouch at the umbilicus never to suffer from hernia, but with increasing years and an acquired increase in the abdominal girth the originally small diverticulum is stretched and the bowel may enter it.

I would thus account for the frequency with which an umbilical hernia is met with in women, more especially stout women who have borne children. Given the preformed hernia sac, we have in these persons two important factors added—namely, increased abdominal pressure during pregnancy, together with the stretching of the anterior abdominal wall, which would widen the abdominal opening of any existing pouch.

It would be interesting to know, but extremely difficult to ascertain, what proportion of women suffering from umbilical hernia were ruptured during infancy.

FEMORAL HERNIA.

Though the sac of a femoral hernia is almost invariably found to occupy a position between the femoral vein and Gimbernat's ligament, cases have been recorded in which it has been seen in other situations.

It has been found over and external to the femoral vessels. Partridge, in the *Transactions of the Pathological Society* for 1847, relates a case of double femoral hernia in which both sacs were outside the femoral vessels. The left sac contained the sigmoid flexure; the caecum and vermiform appendix were in the right sac. The accompanying figure, which is copied from Macready's *Treatise on Ruptures*, shows three sacs—one in the usual position of a femoral hernia, a second peritoneal sac had traversed Gimbernat's ligament, and a third protruded over and to the outer side of the femoral artery.

These three peritoneal diverticula appear to me to have a very important bearing upon the etiology of femoral hernia. Macready tells us that

the specimen was taken from the body of a woman between 40 and 50 years of age, who had a rupture for several years. The hernia is in the usual situation. The abdominal entrance of both the other pouches was narrower than the fundus, and both were surrounded by fat which had been partly removed by dissection.

Fig. 2.

How are we to explain the formation of these three peritoneal diverticula?

Surely one of two explanations must be true—either all three sacs had been acquired, or, as appears more probable, all three were of congenital origin. The fact that three diverticula were found in such close proximity is in favour of the developmental view, and this view as to their origin receives support from their shape, for it is distinctly stated that the abdominal entrance of both these pouches was narrower than the fundus. Had these diverticula been produced by the bowel pushing the peritoneum in front of it, then the mouth of each sac would have been wide.

It might be argued that all three diverticula were acquired, that is to say, all three at one time were hernia sacs, but in two of them the neck and mouth of the sac had become narrowed, having undergone a natural cure. The objection to such an explanation is that clinical experience has never yet furnished a single instance in which an undoubtedly acquired hernia sac has undergone a spontaneous cure.

The evidence, then, is strongly in favour of the congenital origin of two of these sacs, and as it is extremely unlikely that an acquired hernia sac would be formed between two existing peritoneal diverticula, we are compelled to believe that, in this instance at all events, the femoral sac was also preformed.

Macready, in referring to persons seen at the City of London Truss Society during the years 1888, 1889, and 1900, mentions 21 cases in which femoral hernia was met with in males under 15 years of age, and 42 cases in which femoral hernia was noticed in females under 15 years of age. In accordance with orthodox teaching, all these 63 hernial sacs had been acquired; but, considering the age of the patients, and remembering that in five instances the hernia first appeared between the ages of 1 and 5 years, it is far more probable that the bowel had descended into a preformed sac.

The younger the person the greater is the probability of a hernia sac being due to some developmental defect, and in this connexion I will quote from an article in the *International Textbook of Surgery*. W. T. Bull and W. B. Coley, writing on femoral hernia, say:

This variety is always acquired, and is seldom met with before maturity. It may occasionally, however, occur in children. One of the writers has operated upon 14 cases under the age of 14 years, one of these being a double femoral hernia in a male child aged 2 years.

Contrary to the opinion expressed by the writers, these cases appear to me to afford strong, though of course not conclusive, evidence in support of the saccular theory as applied to femoral hernia.

The frequency with which femoral diverticula were found in the 200 bodies examined at the Mill Road Infirmary was surprising. Of the 68 diverticula no less than 58 were femoral, 14 of them being bilateral. They invariably occupied a position corresponding exactly to that of a femoral hernia, and in shape closely resembled the inguinal pouches, having a narrow mouth and lumen, which would make it appear more probable that they were produced by some force pulling the peritoneum outwards, rather than by a pushing force from within. The fact that in the 47 bodies more than one diverticulum was present in 16 instances strongly suggests a developmental origin for both the inguinal and femoral pouches, and this view is strengthened by Case No. 9, in which a double inguinal and double femoral sac existed.

I would direct attention to the facts that so many of the femoral sacs were bilateral, and that in Case No. 45, a girl aged 7 years, a femoral diverticulum was present on both sides of the body. These femoral pouches are either all of congenital origin or all have been acquired; no compromise can be accepted. If they are all of congenital origin and occur with such frequency as the tables indicate, and are so often found in the position which the sac of a femoral hernia normally occupies, then why suppose the sac of a femoral hernia is ever acquired?

I would remind surgeons who held to the orthodox teaching that, if their view be correct, then these pouches must have been acquired by the bowel pushing the parietal peritoneum in front of it. Consequently we are asked to believe that amongst 47 persons no less than 58 femoral herniae must at one time have existed, and that quite unknown to the individuals concerned—a suggestion which, to say the least, is extremely improbable.

It is a well-known fact that femoral hernia occurs with far greater frequency in women than in men, and, granted that a femoral sac occurs with equal frequency in both sexes, I would suggest that a hernia is more likely to occur in women, mainly for two reasons:

1. Because in females the lateral expansion of the pelvis which takes place about puberty would tend to widen the mouth of a peritoneal diverticulum in the femoral region.
2. On account of increased pelvic pressure during pregnancy.

This suggestion receives support from the fact that femoral hernia appears with greatest frequency between the ages of 21 and 45 years, the child-bearing period.

The results obtained after operating for the cure of femoral hernia favour the view that the primary cause of the hernia is the presence of the sac, for if the sac were acquired owing to the weakness of the abdominal wall, recurrence of the hernia after operation should very frequently take place, as for anatomical reasons it is extremely difficult to strengthen the abdominal wall at this point. Yet we know that satisfactory results have been obtained after excision of the sac alone, and better results still when the sac has been invaginated and transplanted, without any attempt being made to reinforce the abdominal wall at the site of the hernia.

How to account for the presence of peritoneal diverticula in the femoral region is, I admit, a difficulty. For my own part, I favour the explanation offered by Mr. Hamilton Russell, of Melbourne, which is that early in fetal life, when the bud-like processes appear from which the lower limbs are developed, a little pouch from the pleuro-peritoneal cavity is produced by the branches of the femoral vessels assuming a tortuous course, and so dimpling the peritoneum at this point. In this connexion it is interesting to note that in femoral, sciatic, and obturator hernia the sac is in close relationship with blood vessels leaving the abdominal cavity.

CONCLUSION.

Where absolute demonstration is impossible our opinion should be guided by what is most probable, and it seems to me that if, in view of the facts I have stated, the etiology of femoral hernia be considered in the light of common sense, the sacular theory offers the only satisfactory explanation.

The etiology of abdominal herniae is not merely of academic interest, but has an important bearing upon the question of treatment. A surgeon who believes that the chief factor in the production of the hernia is the presence of a preformed sac, would, in operating for a radical cure of the complaint, adopt less complicated measures than would be adopted by one who believes that the muscular and aponeurotic structures of the abdominal wall are primarily at fault.

Direct evidence as to the exact manner in which a hernia sac is formed in the femoral or other regions is not obtainable, "but the conclusion forced upon the mind by an unbroken train of circumstances pointing in the same direction is often more forcible than positive direct testimony, for witnesses may be mistaken, deceived, or deliberately false, while circumstances 'cannot lie.'"—(G. P. McNeill on Evidence.)

It appears to me that circumstantial evidence in favour of the sacular theory of inguinal, femoral, and umbilical hernia is so strong, so convincing, that I have every confidence in obtaining a verdict in favour of this theory from the general body of the medical profession.

PRELIMINARY NOTE ON A SIMPLE OPERATION FOR UNCOMPLICATED OBLIQUE INGUINAL HERNIA IN YOUNG ADULTS.*

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"The natural power of recovery is often so great that all that is needed is but to remove any unfavourable condition."—Mackenzie (Burnley): *Caledonian Medical Journal*, July, 1907.

MR. PRESIDENT AND GENTLEMEN,—Last month on mentioning the subject of this paper to a physician he remarked, "I thought you surgeons had said all there is to say about hernia"; yet Rigby,¹ in his review of recent literature on hernia, commences with the following sentence: "It seems extraordinary that a definite decision has not yet been arrived at as to the origin of the hernial sac."

The rationale of the operation which I wish to bring to your notice this evening depends upon the following hypotheses:

1. That for practical surgical purposes all oblique inguinal hernias are primarily due to a congenital or preformed sac.

2. That in young adults suffering from oblique inguinal hernia the valvular action of the muscles guarding the internal abdominal ring will regain its normal action if the cause of the dilatation of the canal be removed.

3. That if the neck of the sac be efficiently dealt with, it is quite unnecessary to interfere with the remaining portion in the inguinal canal or scrotum.

Two years ago I made various dissections of the inguinal region in the cadaver, and, as a result, devised a simple operation, the steps of which are the following:

OPERATION.

An incision is made half an inch above and parallel to the middle third of Poupart's ligament, the centre of

which corresponds to the position of the internal abdominal ring. This incision exposes the external oblique muscle, which is incised in the direction of its fibres and

Fig. 1 shows relation of incision to Poupart's ligament. A, The middle of Poupart's ligament.

Figs. 2, 3, 4, and 5 (actual size) show different stages of the operation.

retracted, thus exposing the lower portion of the internal oblique muscle and the upper portion of the cremasteric. The fibres of the latter are divided in the same direction

Fig. 2.—A, The middle of Poupart's ligament; B, retracted skin, fat, and fascia; C, external oblique muscle.

as those of the external oblique muscle. The lower edges of the internal oblique and transversalis muscles are then retracted upwards and outwards, and the transversalis

Fig. 3.—A and B as above; C, external oblique muscle retracted; D, fibres of internal oblique muscle; E, fibres of cremasteric muscle. (The ilio-inguinal nerve is not represented in the drawing.)

fascia exposed. This fascia is dealt with in the same manner as the external oblique and cremasteric muscles. The neck of the sac is thus exposed at the internal ring.

Fig. 4.—A, B, and C as above; D, internal oblique muscle retracted upwards, after cremasteric muscle has been split; E, split cremasteric muscle; F, split infundibuliform fascia; G, neck of sac freed from cord; H, position of cord which is not represented.

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