

Original Communications.

HERNIA INTO THE VAGINAL PROCESS OF THE PERITONEUM: ITS VARIETIES, COMPLICATIONS, AND TREATMENT: ILLUSTRATED BY CASES.

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THE variety of inguinal hernia, to which I propose to call the attention of this meeting, is perhaps best known by the term applied to it by Haller, namely, "congenital hernia". This name was doubtless assigned to it in consequence of the protruded viscera entering a canal the existence of which is truly congenital; although the occurrence of hernia, either in uterine life or at the time of birth, seems to be a circumstance of extreme rarity. Sir Astley Cooper proposed the appellation "hernia into the tunica vaginalis", as a substitute for the term "congenital"; and I should have adopted it, since it relates in a much more explicit manner to the anatomical disposition of the parts into which the hernia descends, and by which it is surrounded; but it does not comprehend all the varieties, and therefore I have introduced the designation at the heading of this paper.

The variable situation of the testis produces corresponding differences in the relations of the hernial protrusion to this organ, and the more or less complete adhesion of the serous surface of the canal, in some part of its extent, renders it necessary to define the varieties which occur in practice.

It is stated by M. Malgaigne, that obliteration of this canal in fetal life commences at a point corresponding with the site of the external abdominal ring, and that its closure extends from this point upwards and downwards. This being the case, it is readily understood how, by the imperfect closure of the superior portion, a demi-canal remains, continuous with the peritoneal cavity, already formed for the reception of a hernia. From the way in which the entire canal is thus divided into two portions, M. Malgaigne has assigned the name of "testicular" to the lower portion, and "funicular" to the upper. They might, with more anatomical propriety, I think, be designated the *scrotal portion* and the *inguinal portion* of the open vaginal process of the peritoneum.

Anatomical Definitions. In order to insure accuracy in the following details, I shall here give a short description of those parts the names of which will frequently occur in the course of this paper.

The *vaginal process of the peritoneum*. This is the prolongation of the serous membrane which extends from the internal abdominal ring into the scrotum. By the adhesion of the surfaces of this membrane at the external abdominal ring, the vaginal process of the peritoneum becomes divided into two portions—a lower half, "the scrotal portion", which, being a closed serous sac, constitutes the cavity of the tunica vaginalis; and an upper half, which, as it occupies the inguinal canal, may be termed "the inguinal portion". This, in a perfect state of the parts, becomes entirely obliterated, leaving scarcely a trace of its existence behind.

But, in the persistent condition of this serous canal, a communication exists between it and the general peritoneal cavity at the internal abdominal ring, through which foramen a portion of bowel may pass, and occupy the *inguinal portion* of it only, without extending into the *scrotal portion*.

When, however, the occlusion of the canal is not effected at the external ring, the bowel passing into the vaginal process of the peritoneum extends into the scrotum.

Thus there are two varieties of hernia established; viz.—

1. Hernia into the scrotal portion of the vaginal process of the peritoneum; and
2. Hernia into the inguinal portion of the same canal.

An essential condition of either of these varieties being a persistent communication between the general peritoneal cavity and the vaginal process of the peritoneum at the internal abdominal ring.

Relative Situation of the Hernia to the Testis. Let us now

examine the relation of the hernia to the testis; and in the following cases that organ was situated as here described:—

1. In its usual situation in the scrotum in six cases.
2. Outside the external ring, and lying upon the tendon of the external oblique muscle, in one case.
3. Between the pillars of the external ring in one case.
4. In the inguinal region in one case.
5. Entirely hidden in one case.

When the entire length of the vaginal process of the peritoneum remains open, the testicle occupies the scrotum, and the bowel descends into the scrotal portion of the peritoneal process; the common variety of hernia then exists, termed by Haller "congenital". The hernia is in contact with the testis, and may become adherent to that gland. (Cases I, IV, V, and IX.) But, in practice, varieties are met with which are produced by two causes—1. The more or less perfect closure of the vaginal process at or near its middle, which prevents the hernia from descending much lower than the external abdominal ring, and in which case the hernia does not reach so low as the testicle in the scrotum (Case III); and 2. The retention of the testicle in the inguinal region, or even higher, close to the internal abdominal ring, in which cases the hernia descends much lower than the gland, even to the upper part of the scrotum, into which the testis has never passed. (Cases VI and IX.) 3. The testis occupies the aperture between the pillars of the external ring, or, passing that point, rests upon them, or the aponeurosis of the external oblique muscle. The vaginal process of the peritoneum remaining open, a hernia descends, and occupies the inguinal region, forming an indistinct tumour behind the tendinous expansion of the external abdominal oblique muscle. (Cases VII and VIII.) 4. That variety termed by Sir Astley Cooper "encysted hernia of the tunica vaginalis", of which more will be said hereafter. (Case X.)

Sex. All the cases which have fallen under my notice have been of the male sex; but it by no means follows that this variety of hernia should be exclusively confined to the male. There is a prolongation of the peritoneum through the internal abdominal ring into the inguinal canal of the female, the canal of Nuck; and, if this should not become permanently closed, a hernia might descend therein. I have not yet seen such a case, and therefore solicit information from the members upon this point. In Sir Astley Cooper's work on *Hernia* a case is related, which was communicated to the author by Dr. A. Burns of Glasgow.

Age at which the Hernia is developed. Although this form of hernia depends essentially upon a congenital imperfection—namely, the persistent communication of the vaginal process of the peritoneum with the cavity of that serous sac—it does not follow that the protrusion takes place at any definite period of age of the individual. From an examination of the cases which form the data for these remarks, the hernia is primarily developed in infancy, childhood, youth, and adult life, in the following proportions. Of the ten cases—

Infancy and childhood	5 cases
In youth	2 "
In adults	3 "

Total 10

I cannot state the earliest age, from among these cases, at which the hernia descended; but, from the experience of others of the same kind which have come under my observation, it does so in the earliest infancy. In one case, the first hernia did not appear until the man had reached his thirtieth year; and in another, his thirty-seventh.

In adult life, the hernia sometimes suddenly descends into the scrotum, without the patient having previously observed any tendency to the protrusion. This sudden development of a hernia occurred in three of the cases: in one (Case V), at the age of 16 or 17 years; in another (Case IX), in the patient's thirtieth year; and in the third (Case X), at the age of 36 years. In two of these cases, the primary protrusion was reduced by the taxis; but in the third (Case IX), symptoms of strangulation manifested themselves in about three hours afterwards; and, from social circumstances, personal apathy, or neglect, no means were used to reduce the bowel until all chance of doing it without a cutting operation had vanished. The bowel had been strangulated seventy-five hours, but the patient made a good recovery.

Viscera forming the Hernia, their Condition, and other Contents of the Sac. Small intestine and mesentery in eight cases. Small intestine and omentum adherent by old adhesions to the sac in two cases.

Table of Cases of Hernia into the Vaginal Process of the Peritoneum.

Case.	Name and age.	Age when first developed.	Mode of development.	Viscera in Sac.	Site of Testis.	Taxis or Operation.	Result.	Period of strangulation before operation.	Period of descent before strangulation.	Fatal at what period after operation.	Fatal at what period from commencement of attack.	Variety.	Seat of constriction.	Cause of death: Necropsy?
1	Layland, 40. 1853.	20 to 30. Adult. L.		Ileum and mesentery. Serum.	Scrotum.	Operation.	Died.	66	2	37	105	Scrotal.	Sac itself at site of external ring.	Probably perforation of bowel by ulceration. None.
2	Pratt, 17. 1854.	Youth. R.		Ileum and mesentery. Serum.	Cryptorchis.	Operation.	Cured.	72	6			Inguinal.	Internal ring.	
3	Page, 14. 1854.	12. Childhood. R.		Adherent omentum, ileum, and mesentery.	Scrotum.	Operation.	Died.	53	18	24	95	Inguinal.	Internal ring.	Peritonitis; gangrene of bowel. Yes.
4	Vokes, 43. 1855.	Childhood. R.		Adherent omentum, ileum, and mesentery. Serum.	Scrotum.	Operation.	Cured.	83	1			Scrotal.	Internal ring.	
5	Webb, 34. 1856.	16 or 17. Youth. R.	Suddenly.	Intestine.	Scrotum.	Taxis.	Reduced by taxis. Died.					Scrotal.	Internal ring.	
6	Gray, 36. 1856.	Childhood. R.		Ileum and mesentery. Serum.	Inguinal region.	Operation.	Died.	10	1	21	31	Inguinal.	Internal ring.	Peritonitis. Yes.
7	Williams, 19. 1856.	11 or 12. Childhood. R.		Intestine.	External ring.	Taxis.	Reducible.					Inguinal.	Internal ring.	
8	Soesman, 58. 1858.	8. Childhood. R.		Ileum and mesentery.	On tendon of external oblique.	Taxis.	Reduced.					Inguinal.	Internal ring.	Peritonitis. Yes.
9	Harwood, 29. 1858.	29. Adult. L.	Suddenly.	Ileum and mesentery. Serum.	Scrotum.	Operation.	Cured.	75	3			Scrotal.	Sac itself at site of external ring.	
10	Hill, 42. 1858.	36. Adult. R.	Suddenly.	Ileum and mesentery. Serum.	Scrotum.	Operation.	Cured.	5	3			Scrotal.	Internal ring.	

In the majority of the cases upon which I have operated, a coil of the ileum, with its mesentery, formed the hernial protrusion. The bowel in all the cases showed various stages of congestion and inflammation, which varied in degree and acuteness. The morbid condition of its tissues was, however, much greater in those cases in which violent efforts to effect reduction by the taxis had been made, than in those in which the viscus was constricted for a very great number of hours. For example, the bowel of the patient (Case I) in which symptoms of strangulation had existed only sixty-six hours, was inflamed, contused, and black; the scrotum also being quite black from ecchymosis: whilst in another (Case IV), when strangulation had existed eighty-three hours, with employment of slight taxis, the bowel was only congested. Acute inflammation and intense congestion did, however, occur in a case (Case VI), apparently as the result of the combined effects of the constriction produced by the internal ring and the length and narrowness of the canal; for the strangulation had only existed ten hours, and but slight efforts were used to reduce the protrusion by the taxis.

In two of the cases, a portion of the omentum formed the hernia, in addition to small intestine. The omentum was adherent to the sac by old adhesions, and had probably occupied this situation for a very long time.

More or less serum, tinged with blood, flowed from the peritoneal sac, when it was opened, in all the cases but one. The absence of serum in that instance (Case III) is explained by the rent in the sac prior to the operation, and through which it

escaped. One of the marked features of these cases seems to be the rapid increase in the size of the tumour from effusion of serum, and often very soon after the descent of the hernia. The amount of admixture of blood with the serum was always in proportion to the forcible efforts made to reduce the hernia by the taxis.

Situation and Nature of the Impediment to the Reduction of a Hernia. In the majority of cases (in eight cases), the impediment to the reduction of the hernia existed at the internal abdominal ring, and was formed by the peritoneum and subperitoneal tissues. In four of these, the testis occupied its normal position in the scrotum; whilst, in the remaining four cases, in one the testis was hidden, being probably within the abdomen; and in a second, it was in the inguinal region; in a third, between the pillars of the external abdominal ring; and in a fourth case, it rested on the aponeurosis of the external oblique muscle.

The constriction of the sac itself formed the impediment to the reduction of the hernia in two cases. The situation of this corresponded exactly with the region of the external abdominal ring; and, until the pillars of this aperture were freely exposed to view, the external appearance of the tumour induced the observer to conclude that this structure was the cause of the impediment to reduction of the hernia.

Now, to what circumstance are we to ascribe this constriction or narrowing of the hernial sac at this particular point? Writers upon hernia relate cases of a similar kind. Sir Astley Cooper (*Hernia*, pl. ii, fig. 2) has a coloured plate of such a

case, thus described—"intestine strangulated within the tunica vaginalis by a membranous band"; but there is no special explanation given of the origin of this band. Mr. Lawrence (*On Rupture*, etc., 4th edit.) relates cases of this kind also, and states that Wrisberg "ascribes the constriction to the partial accomplishment of the natural process of obliteration". In this interpretation I concur, and I hope to prove, by reference to dissections of the parts, that it is well supported by facts.

There is a preparation, in the Museum of Guy's Hospital, of the vaginal process of the peritoneum, removed from an infant; and, at one particular point on the serous surface, there is a ridge, and partial contraction of the canal. Below this contraction is the testis, and above it the tube becomes narrowed as it approaches the internal abdominal ring. In the Museum at the College of Surgeons there is a preparation (No. 1343) described "sac of a large congenital hernia", which shows that a communication may exist between the tunica vaginalis, which is not in such case perfectly closed, and the hernial sac formed of the inguinal portion of the vaginal process of the peritoneum. Thus an imperfect septum or diaphragm is formed, the central aperture in which might permit the hernia to pass through it into the tunica vaginalis, and touch the testis.

Two of the cases upon which I operated were instances of this imperfect closure of the canal, and in both of them, as well as in the cases related by authors, this constriction existed at the site of the external abdominal ring. It has been before stated, upon the authority of M. Malgaigne, that the obliteration of the vaginal process of the peritoneum commences at a point corresponding with the external abdominal ring; and thus we are able to associate an imperfect process of occlusion with the formation of a ring or ridge, which would exert more or less constriction upon any visceral protrusion passing through it.

The perfect occlusion of the vaginal process of the peritoneum at the external abdominal ring, forming thus a completely closed tunica vaginalis, testis, and reflexa, whilst the inguinal portion of the canal remains open, is very clearly shown by a preparation in the Museum of the College (No 1328). It was derived from the Museum of John Howship, and is thus described: "The sac of an inguinal hernia, nearly two inches long, on the right side. The testicle is directly below the hernia: the cavity of the tunica vaginalis is closed above, and has no connexion with the hernial sac." Now, the size of the preparation indicates that it must be from quite an infant; and it is impossible to believe but that the hernial sac is formed by the inguinal portion of the vaginal process of the peritoneum, and not by an after process of formation subsequent to the closure of this canal at the internal abdominal ring.

In the anatomical disposition of the abdominal rings, a very important feature is always present in these cases. It is the greater distance they are separated from one another; or, in other words, the length of the inguinal canal is very much greater in this variety of hernia than in any other. The process of the peritoneum being, as it were, fixed by one end to the internal abdominal ring, and at the other in the scrotum, seems to prevent that approximation of the abdominal apertures which is common in those varieties of inguinal hernia which result from the slow and gradual formation of a peritoneal hernial sac by the continued forcible impulse from above.

Diagnosication of this Variety of Hernia may be made—

1. From its external appearance;
2. From the tactile examination;
3. From its history derived from the patient.

1. In many cases of this variety of hernia, the tumour resembles very closely the outline of that which is formed by an accumulation of serum in the tunica vaginalis testis, usually called "hydrocele". It is, for example, remarkably pear-shaped; the neck of the swelling near the external ring is very small in comparison with the ordinary varieties of scrotal inguinal hernia. Occasionally, when a large hydrocele exists, it extends towards the lower part of the inguinal canal, and a narrowing or constriction producing an hourglass form, appears at the site of, or a little below, the external abdominal ring. In two of the cases of hernia upon which I operated, this configuration of the tumour must have attracted the notice of the observer at the first glance. Then that gradual blending of the scrotal tumour with the inguinal region does not appear as in ordinary hernial protrusions, but the swelling terminates rather abruptly at the external ring, unless, in the act of coughing, a temporary enlargement should appear in the inguinal region.

When the hernia descends into the inguinal portion of the

vaginal process of the peritoneum only, and the tunica vaginalis testis and reflexa are perfect in the scrotum, a swelling or only fulness appears in the inguinal region, which occasionally protrudes through the external abdominal ring into the upper part of the scrotum. In this case, the outline of the testis is clearly seen at the fundus of the scrotum. Should, however, the progress of the testis have been arrested in its translation, the flattened and shrunken outline of the scrotum draws the attention of the observer to the deficiency; and sometimes the presence of the organ, either in the external abdominal ring, or lying over it, produces a variation in the configuration of the hernial tumour which might prove a source of embarrassment to a surgeon unprepared for such a contingency.

2. The manipulation of the tumour rarely fails to insure a correct diagnosis of the nature of its origin and contents. If it occupies the scrotum, the testis is not felt without considerable difficulty; but it is quite an error to state that it cannot be recognised. It may be detected, I believe, in the majority of cases, at the posterior part of the tumour—closely blended with it, certainly, yet nevertheless to be found by careful examination. The relation of the testis to the hernial tumour is more correctly represented by stating that, whilst in the ordinary forms of scrotal hernia the testis occupies the fundus of the scrotum, and is at once felt below and as it were distinct from the hernial tumour, in the variety immediately under consideration it is situated at the posterior region of the scrotum, is intimately associated with the tumour, and is only to be discovered by careful manipulation.

The neck of the tumour is very remarkable. Any surgeon relying upon the statement in books, that a hernia can always be known from a hydrocele by the size and dimensions of the neck of the tumour, or the part close to the external abdominal ring, would fail in discovering the character of a scrotal hernia, in which the neck is very little larger than the spermatic cord, and seems to dip down, like that structure, at once from the inguinal canal into the abdomen. This is particularly the case when the impediment to the reduction of the hernia exists in the scrotum, and the aperture at the internal abdominal ring is capacious. Under these circumstances, I have seen the inguinal canal gently swell, as if inflated, under the influence of the action of the abdominal muscles; and then the swelling disappears upon slight pressure, and with a gurgling sound, just as though a reducible enterocoele existed.

In most cases, fluctuation, as of a circumscribed collection of fluid, can be felt, and the tumour is more or less elastic in proportion to its dimensions. Vibration, when the tumour is held in one hand and suddenly tapped, is often very distinct; and, if the effusion of serum into the sac amounts to a very few ounces, even translucency may be observed. I conclude it is under such circumstances as these that hernial tumours have been punctured with a trocar and canula, in the belief that the case was one of common hydrocele.

3. However, when by the eye and the finger the diagnosis of the tumour is difficult, the history of the case derived from the patient usually removes all doubt regarding its nature. The existence of a reducible hernia is established, which some years before appeared at once in the scrotum after a contusion of the abdomen or violent exertion. The swelling immediately under observation appeared suddenly at the upper part of the scrotum, and was attended with great pain, soon after which nausea, vomiting, and urgent constitutional symptoms, set in—in fact, all the signs indicative of strangulated intestine.

But it is in those cases in which complications exist, and when also, from peculiar circumstances, the history of the case cannot be obtained with that amount of accuracy upon which reliance can be placed, that the greatest amount of difficulty arises. Such a case as this, for example, which happened in a boy of 12 years old, but whose mental capacity was weak, and whose friends could afford very little assistance. In his tenth year, and about eighteen months before I was consulted in the case, the boy had hydrocele of the tunica vaginalis, which was injected and cured. This gave rise to a somewhat indurated condition of the lower part of the scrotum, and which induration gradually diminished as it extended up the spermatic cord into the inguinal region, where there was a swelling which, when I saw it, was soft, elastic, and translucent. This swelling partially subsided when the body was recumbent, but never entirely disappeared. We were told that this swelling sometimes became larger, but no opportunity had been afforded when a surgeon could examine it. There was slight impulse at the internal abdominal ring when the boy was erect and he coughed, but no tumour could be felt. Subsequent examination proved that the cavity of the tunica vaginalis was very

nearly obliterated; that the enlargement of the spermatic cord was caused by a hernia of omentum which was adherent to the testis, and gradually diminished in size as it approached the inguinal canal. The variable swelling in the groin was due to a collection of fluid which entered the hernial sac from the abdomen; and the occasional tumour described to us was an enterocele, reducible in the recumbent posture, or on the slightest pressure. (Case III.)

We may now consider some of the practical bearings of the anatomical facts just described.

Of the ten cases, three were reducible by the taxis; seven demanded a cutting operation, in order to remove the impediment to the return of the hernia.

Taxis. The employment of the taxis is attended with great disadvantage in these cases in comparison with the other varieties of inguinal hernia. The position of the abdominal rings, the length of the canal which the hernia traverses, the rigid nature of the constriction, especially its situation, if near the external ring, thus constituting two sources of difficulty which must be overcome, this one first and then that at the internal abdominal ring, offer obstacles to overcome which all our efforts are unavailing. More certainly, by far, would it ensure the safety of the patient if a cutting operation were performed at once, as I hope to demonstrate by relating circumstances attending some of the cases which have fallen under my care.

CASE. A healthy man was brought into the hospital suffering with strangulated bowel about forty hours. The taxis, from the appearances exhibited by the scrotum, must have been most unmercifully applied. The scrotum was quite black from ecchymosis. From his symptoms it was considered that the cutting operation was not immediately demanded, and it was delayed twenty-six hours. Every means having been employed to reduce the hernia, and all proving unavailing, recourse was had to the knife after sixty-six hours strangulation. The intestine being exposed, it was found to be partially adherent to the sac; it was inflamed and covered with lymph. The constriction was formed by the sac itself near the external abdominal ring, after the division of which, without any incision of the internal abdominal ring, the hernia was easily reduced. Opium was freely administered, and for thirty hours the case progressed favourably. Intense pain in the abdomen then suddenly came on, collapse rapidly supervened, and the man died. We were unable to obtain a *post mortem* examination; but doubtless ulceration and perforation of the bowel had occurred at the site of the constriction. In all probability the injury to the intestine had been inflicted by the forcible efforts made in the application of the taxis, and especially by forcing the viscus against the sharp edge of the constriction. (Case I.)

Let us now contrast with this case another of a similar kind as regards the situation and nature of the impediment, to the reduction of the protrusion.

CASE. A man was brought into the hospital labouring under strangulated hernia of seventy-five hours duration. Three days before, the hernia came down for the first time, and he sought no surgical assistance until strangulation had existed about seventy hours. He then went to the Union, where the medical officer used the taxis gently, and, failing to reduce the hernia, sent him to Guy's Hospital. I lost no time in relieving the bowel from its severe constriction; and although it had been in the scrotum seventy-eight hours, it appeared to be merely congested, and the man recovered, under the influence of opium, without a bad symptom. In this case the stricture was produced by a contraction of the sac itself at a point corresponding with the site of the external ring, and it was excessively tight. The hour-glass shape of the tumour was very marked in this instance, and I opened the sac first just above the cause of constriction. The bowel was there seen in a healthy condition; and I attempted, by gentle traction, to draw the protruded intestine through the constricted part of the sac before incising it. This, however, I could not accomplish, nor could even a drop of serum, with which the inferior portion of the sac was distended, be pressed through this ring. Indeed, by this examination of the seat of stricture, it was clearly proved how futile must be any attempt to return a hernia through such a ring by manual dexterity. The firmer the compression of the tumour was made below, the more closely was the protrusion begirt by the narrow sac, and it was only by carefully insinuating a grooved director between the bowel and the constriction that the serum escaped along the groove. The contracted part of the sac required to be completely divided before the bowel was liberated; and in this case the

viscus was returned without cutting any portion of the internal abdominal ring, which was very deeply situated. (Case IX.)

But now observe the contrast in the repair of the injured bowel in these two cases. Both were treated with opium, perhaps the last a little more liberally than the first. In both the bowel was firmly constricted by the sac; in one case for sixty-six hours, in the other for seventy-five; yet that patient in whom the strangulation of the intestine had existed the longest time recovered. In what circumstances, then, are we to trace the cause of the unsuccessful issue. I believe we can only attribute it to the damage inflicted upon the protruded bowel by the application of manual force—a violence sufficient to ecchymose the scrotum and excite inflammation of the intestine, and, by forcible compression against the constricting band, so completely to destroy the mucous coat of the bowel as to give rise to ulceration of the other tissues, and finally, extravasation of the contents of the canal into the peritoneal cavity. I had another case, also, in which the operation was successful after eighty-three hours strangulation, but no taxis, although other circumstances were most unfavourable. (Case IV.)

Again, another risk attends the application of the taxis in these cases, and especially if the patient is fully under the influence of chloroform during its employment. I have alluded to the great length of the canal along which the hernia passes in these cases. Now, if the impediment to the reduction of the hernia exists at the internal ring, the force exerted upon the tumour is distributed pretty equally over the whole surface of the walls of the sac; and if the protrusion does not pass through the ring into the abdomen, the weakest part of the sac will be torn, and the serous contents, and after them the bowel or omentum will be pushed up behind the peritoneum, the constriction produced by the internal ring remaining at first as before. The operator, perhaps, feels satisfied that he has returned the hernia into the peritoneal cavity; but all that he has accomplished is to reduce the size of the tumour, and to place it in different and somewhat embarrassing relations to the surrounding parts. To his astonishment and mortification all the symptoms of strangulation are persistent so soon as the patient recovers from the influence of the chloroform; and during some exertion of the patient, or by the effort of coughing, the tumour reappears nearly as large as before. Proceeding to operate to relieve the constricted bowel, he opens the peritoneal sac, and, on tracing the protrusion upwards to that point where he believes the internal ring to be situated, he finds his finger pass very freely through an opening, and he attempts to return the bowel into the peritoneal cavity through it. The intestine seems to be disappearing most favourably, when suddenly it all returns into the sac, and another search is made for the abdominal ring. By pulling down the sac, which an assistant can accomplish better than the operator, the ring is discovered; it is incised, as usual in this operation, and the bowel is returned into the cavity of the abdomen. After this the patient may do well; but they are more embarrassing cases, as I can testify from personal experience.

I have introduced this case because I believe that under much less force than is often successfully employed to reduce a common serotal hernia in the adult, a very untoward complication may result in childhood and youth in the variety of hernia under our especial notice, and particularly when all resistance is removed by anæsthetic influences. Every anatomist knows how readily the peritoneum is detached from the iliac fossa, and it is behind that membrane and into this region that the hernia is forced. Dissections of these cases are related in books; and there are preparations of some in the various museums, sufficient evidence, if any were wanting, of the too frequent results of this complication.

I ought, perhaps, to mention, that the accident to which I here allude differs materially from the reduction "en bloc." In such cases the sac and its contents are pushed into the peritoneal cavity.

Finally, I would lay it down as a law in the treatment of this variety of hernia especially that, if after the proper means have been resorted to, the hernia is irreducible by the taxis, the operation for the liberation of the bowel should be performed immediately. To illustrate the advantage of performing the operation early, I shall again contrast two cases.

CASE. A young man, on a visit in London, the subject of reducible hernia into the inguinal portion of the vaginal process of the peritoneum, came into the hospital in a state of great suffering on account of a hernia which had only been down seven hours. The usual means were employed before the application of the taxis, which failed to reduce the protrusion, even whilst the man was fully under the influence of chloroform.

Ice was then applied, and full doses of opium administered, without any good result; and again failing to reduce the hernia by the taxis, aided by chloroform, I operated when the bowel had been strangulated ten hours, and eleven after its descent. I found the intestine deeply congested, its serous surface inflamed, but its tissues generally in good condition. The neck of the peritoneal sac was incised. Opium was freely administered, but he died twenty-one hours after the operation, from the collapse, which seems to result from the development of inflammatory effusion into the peritoneal cavity. The abdomen was examined after death, and peritonitis, with effused lymph, existed throughout the cavity. (Case VI.)

The next case differed somewhat in regard to its anatomical relations from the last described; for it was an instance of the "encysted hernia of the tunica vaginalis" of Sir Astley Cooper, but in its pathological conditions it resembled it very closely.

CASE. A middle aged man applied for admission at Guy's Hospital, suffering acutely with a hernial protrusion in the right side of the scrotum. He had been the subject of reducible hernia for six years. The hernia fell down suddenly six years before under the influence of "a strain." On this occasion, the hernia had been down eight hours, and symptoms of strangulation had existed five hours. The usual means were employed, and chloroform administered before the application of the taxis, the only result of which was slightly to reduce the tension and size of the tumour. Therefore, I immediately operated, and found the small intestine of a deep claret colour, from congestion, but its tissues otherwise healthy. The neck of the peritoneal sac required to be incised before the bowel could be returned into the abdomen. Upon carefully examining the posterior wall of the sac I discovered a rent in it, through which the finger passed into the subserous connective tissue, and the contents of the sac would have been pushed behind the peritoneum if much force had been employed. This patient was treated with opium, and he made a good recovery without a single drawback. (Case 10.)

May we not conclude that the performance of an early operation saved the life of this man? Not a favourable point would have been gained by delay; but, on the contrary, I believe every morbid condition would have been aggravated. The anatomy of the parts, as revealed by the operation, also fully justified a proceeding which might by some be charged with precipitancy, for no manual dexterity would have ever returned the protrusion through the internal abdominal ring which admitted with difficulty quite the tip of my finger.

Time does not permit me to enter more fully into the details of the ten very interesting cases which have formed the data for these remarks; and I shall conclude by inviting the attention of the members to the following points as matters for discussion:—

1. The nature of this form of hernia, its anatomical relations, varieties, mode of development, and causes.
2. Its frequency in proportion to other varieties of inguinal hernia.
3. The inutility of delay, or, it might be added, the culpability of not insisting upon an operation after the judicious application of the taxis has failed.
4. The facility with which the sac yields under pressure, demanding great care in the employment of the taxis.
5. The advantages, in the after treatment, of opium in comparison with other methods.

EPIDEMIC SORE THROAT.

By CHARLES COWDELL, M.D., Physician to the County Hospital, Dorchester.

THIS disease is exciting a deep interest in the medical profession, and the deepest anxiety and alarm in many a family, and, indeed, in some large districts throughout the land: it is the subject of not a few communications to our medical periodicals, and has been the theme of discussion at our medical societies. In a discussion on "A Case of Diphtheria", by Dr. Semple, recently brought before the London Medical Society, that gentleman expressed his opinion, that "many different kinds" of sore throat were prevailing in the country, and all were receiving this appellation. If this be so, it is time that those who have had opportunities of witnessing epidemic sore throats, and especially where these have been of an aggravated and fatal character, should record their observation and experience on the matter.

It will be observed, that some of the following cases were registered as cases of "Diphtherite," and some of the cases now

being watched by the writer have also been so considered; but, though he has his own decided opinion on the matter, he prefers that his paper should produce any impression it may, free from the prejudice which necessarily attaches to a new title, and he abstains, therefore, from employing any of the names in vogue, until the cases have been fairly reported and commented upon.

The first group of cases occurred about two years since, in which a lady, five of her children, and a nurse, were, within a fortnight, affected. The attack in each one was sudden; from being quite well overnight, a child would come down with its head slightly drawn on one side and held stiffly, the face pale, the tongue thickly furred, the fur being a dirtyish white at the back; the pulse quick and feeble; little or no increased heat of skin, except at night, when also some headache was complained of. On looking into the throat, one or more small yellowish white spots were to be seen on a swollen and red tonsil. No great difficulty of swallowing was complained of. The yellowish white patches became rapidly larger in some of the cases, and in the lady herself, extended back to the pharynx and forward to the side of the tongue. In all seven, the attack was confined to the left tonsil and side of the throat. In a little child, little more than a year old, the throat was not affected while the other seven were ill; but within a week of the recovery of the one last attacked, the tongue was affected with white patches round the sides at its anterior part; these left distinctly abraded spots: and in all the throats severely affected, I have observed a similar appearance of loss of substance. In none of these cases was there any rash.

The second group of cases occurred at Wynford Eagle, about eleven miles from this place. I was called to see in consultation a woman who was affected with sore throat. I learned from the medical friend whom I met, that sore throats had been very prevalent there, attacking a large proportion of the children living in three blocks of cottages, and that some of these had very rapidly died of the disease. Our patient had been similarly attacked, but was now suffering from the addition of a large abscess in one of the tonsils. I visited all the cottages, and saw all who were suffering from the throat affection. The throats presented precisely similar appearances as in the cases of the first group, and, as in them, the patients were void of rash; except that one child was said to have had some blotches occasionally visible, but not persistent. In one of these cases there was renal dropsy.

The third group of cases I saw in the parish of Holwell, fourteen miles hence, in a gentleman's house standing away from the village. His wife, brother, and a child were all seized within ten days with sore throats of precisely similar character to that first described. In the lady, there was also an abscess of one tonsil.

The fourth group of cases, though not perhaps quite properly placed in this order, is so put to keep the chronology of the series unbroken. But there were three cases of sore throat, in which the appearance of the tongue and throat, and the almost entire absence of day-fever, closely resembled the same characteristics of the cases above described; and therefore, although they occurred in a family of which several members were ill of scarlet fever, it has been deemed advisable to record them here. They occurred at West Chelborough, Dorset, in August 1857; and it will be subsequently seen that in that district an extensive epidemic of scarlatina and sore throat appeared to take its commencement in these cases; for scarlatina and cases of sore throat—some of which were registered as cases of *diphtherite*—became very prevalent thereabouts, spreading from Chelborough and Corscomb to Evershot and adjacent parishes. So extensively did this epidemic prevail, that the district surgeon had within eight months three hundred and forty-six cases, — a large proportion of the population.

The fifth group of cases which came under my observation, was in the above-mentioned district, in the parish of Rampisham, and the reader's careful attention is requested at this point. A gentleman of this parish brought to me two little girls suffering from sore throat. Their tonsils were covered with small patches of yellowish-white exudation on swollen and red tonsils; in the elder girl similar patches of exudation were to be seen on the back of the pharynx. These children both recovered. A little brother was taken ill, and sank in two days: I did not see him. The mother, who had been absent, returned while this little boy was ill, and a few days after she was attacked, and also sunk after a very short illness: I was not summoned to her till she was *in articulo mortis*. In her throat there was less appearance of exudation or abrasion than in most. When I saw her six hours before death, she swal-