ON IRREDUCIBLE HERNIA

BY

WARRINGTON HAWARD, F.R.C.S.

SURGEON TO ST. GEORGE'S HOSPITAL

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IN this paper I have analysed eighty-five cases of "irreducible hernia" with a view to ascertaining the causes of the irreducibility and the treatment necessary to overcome it; and I have ventured to bring the results before the Royal Medical and Chirurgical Society, because it seems to me that the conclusions to be deduced from them are somewhat different from those usually set forth in the text-books of Surgery. The term "irreducible hernia" is used in the commonly accepted technical sense; that is to say, a hernia of which a part, or the whole, cannot be returned into the abdominal cavity, but which, nevertheless, exhibits none of the symptoms of strangulation or obstruction.

An irreducible hernia may, however, and often does, become strangulated; and this is one of the dangers to which persons the subject of irreducible hernia are liable; but when spoken of as simply "irreducible," it is implied that neither the circulation nor the function of the part protruded is materially interfered with.

The cases I have tabulated include all the cases of irreducible hernia operated upon in St. George's Hospital during the last ten years, together with a few from my private practice.

It is difficult to estimate from hospital practice what proportion the irreducible variety bears to other kinds of hernia, because it is chiefly the severe and intractable cases which seek admission.

M. Paul Berger¹ gives the following table showing the number of cases of irreducible hernia met with among 10,000 herniæ of all kinds :

	Inguinal.		Femoral.		Um-bilical.	Epi-gastric.	Ventral.	Trau-matic.	Total.
	R.	L.	R.	L.					
Men . . .	123	87	20	19	8	17	—	1	275
Women . . .	18	13	64	38	164	2	6	2	307
Total . . .	141	100	84	57	172	19	6	3	582

i. e. nearly 6 per cent. of the whole number were irreducible. Mr. Macready gives the proportion of irreducible cases as about 1 per cent. of inguinal herniæ, and about 10 per cent. of femoral.²

These statistics show that the condition is by no means uncommon, and my own tables prove that it is attended with considerable danger : for of eighty-five cases of irreducible hernia requiring operation for various reasons, strangulation had occurred in twenty-five : and of the whole number of cases of strangulated hernia operated upon in St. George's Hospital during ten years, 12½ per cent. had been for varying periods simply irreducible.

Besides the danger of strangulation, an irreducible hernia is often the cause of much inconvenience and distress. Excluding the cases in which operation was imperative

¹ 'Dix mille observations de Hernies,' par Paul Berger, Paris, 1896, p. 173.

² 'Treatise on Ruptures,' p. 218.

because of strangulation, the remainder sought operation either because their condition interfered with the pursuit of their ordinary avocation, or because of the pain or inconvenience caused by the hernia.

Nearly all herniæ which are irreducible tend to increase in spite of any sort of bandage or support which may be worn ; this is, of course, especially the case if the patient suffers from cough, or follows a laborious trade. Thus, in the course of time, many irreducible herniæ attain most inconvenient dimensions ; the weight of the tumour, the sense of dragging on the parts above, and the soreness of the skin from friction, causing constant discomfort. Moreover, the larger a hernia, the more liable is it to injury, and the greater is the danger should operation become necessary. Dyspepsia, constipation, and attacks of abdominal pain are other troubles met with in connection with irreducible hernia.

If now we investigate the reason of the irreducibility of the herniæ tabulated, we find that it was due in nearly every case to adhesion or other changes in the protruded viscera, not to any special condition of the containing sac. Reduction of a hernia is, however, occasionally prevented by thickening or contraction of the neck of the sac, and by hour-glass contraction of the body of the sac ; but these conditions must be rare, and were met with in only two of the cases I have tabulated. The great size of a hernia of long duration may, no doubt, prevent the possibility of returning the protruded viscera into the abdomen from which they have long been absent ; but this, again, is a condition not very often seen in the present day.

The changes observed in the contents of the sac, which rendered the herniæ irreducible, were of various kinds ; but by far the most frequent cause of irreducibility was the presence of omentum which had either contracted adhesions to the sac, or had undergone other changes preventing its reduction. Of the eighty-five cases tabulated, sixty-seven contained omentum in the sac ; in thirty-four of these the omentum was adherent to the interior of the sac ; in the

remaining thirty-three the omentum had become thickened, indurated, and matted together in a manner which rendered its return through the abdominal ring impossible. In one case (No. 74) the omentum, besides having become adherent and nodular, contained several cysts within its folds, a condition effectually preventing reduction.

In one case (No. 77) a lady had had an irreducible hernia a year, which had recently increased in size, and had become painful and tender ; no truss could be worn. She suffered much from constipation and dyspepsia. Operation was advised, and on opening the sac it was found to contain a piece of omentum, which was twisted spirally, so that the distal part of it was much congested and swollen. After untwisting the omentum it was returned, and an operation for the radical cure of the hernia was then performed. In this case it was evident that the rotation of the omentum had taken place recently, the congested folds had not become adherent, and could be again spread out ; but it seems to me probable that this twisting may be not uncommon, and may account for the adherent and indurated condition in which the omentum is often found in cases in which no truss has been worn.

In one case (No. 55), reduction of the hernia was prevented by enormous thickening and induration of the mesentery of a large coil of intestine. The patient, a stout man aged sixty-six, had a large scrotal hernia of three years' duration, which had been irreducible for a year, and was a source of much trouble and pain. He also suffered from severe cough, due to chronic bronchitis. He was kept in bed, of which the lower end was raised, pressure was applied to the scrotum, he was freely purged, and attempts were made to reduce the hernia. This treatment was persisted in for more than a month, as it was felt that the large size of the hernia, and the condition of the patient, rendered the case a somewhat unfavorable one for operation ; but as not the least effect was produced on the hernia an operation was decided upon. The sac contained no omentum, but there was a large coil

of small intestine, the mesentery of which was as thick as the palm of the hand, very hard and quite inflexible. This condition of the mesentery rendered reduction of the bowel impossible, until the ring had been considerably enlarged by incision. The bowel having been then with some difficulty returned, the sac was drawn down, divided and ligatured, the pillars of the ring laced together, and the wound closed with deep and superficial sutures. The man made a good recovery.

In twenty-two cases the hernia consisted of irreducible intestine as well as omentum. In fifteen of these the bowel became strangulated. In three cases both omentum and bowel were adherent to the sac; in two of these strangulation of the bowel occurred. Of the twenty-two cases containing bowel and omentum, in eight the omentum only was adherent to the sac: in eleven the omentum was simply thickened and its folds adherent; in one the intestine was adherent to the sac, and the omentum thickened and adherent, but not to the sac; in only four of the twenty-two was the reduction of the bowel prevented by its adhesion to the sac.

Of the eighty-five cases tabulated, twelve were irreducible because of adhesions of the bowel to the sac, and four because of adhesion of the coils of intestine. That these are both conditions of serious danger is apparent from the fact that of the twelve cases in which the intestine was adherent to the sac, the bowel became strangulated in five, of which two died; and of the four cases in which the coils of intestine were adherent, strangulation of the bowel occurred in three, which were all fatal.

One of these last (No. 78) was that of a man aged fifty-four who had been operated upon for strangulated hernia five years previously, when the coils of bowel in the sac were found firmly adherent and were not returned into the abdomen. The hernia was of twenty-nine years' duration, and had been for many years irreducible. The man had been frequently in danger from strangulation and obstruction, and constantly suffered so much discomfort that he

was anxious for some further attempt to be made for his relief. The sac being opened, the coils of bowel were found to be firmly bound together by old adhesions over a large part of their surface and quite inseparable; there were also firm adhesions to the sac. The sac was dissected from its surroundings and from the bowel, and cut away, portions being left attached to the bowel. The intestine was returned with considerable difficulty, the neck of the sac ligatured, and the pillars of the ring laced together.

The patient died on the fifth day from paralysis of the intestine. The case well illustrates the dangers of leaving a hernia unreduced. It is impossible to say what was the cause of irreducibility when the hernia first occurred, but it could probably have been overcome by an operation of very little risk; whereas the subsequent adhesions of the intestine rendered reduction both difficult, dangerous, and of doubtful benefit.

I am inclined to think that in this case it would have been better to have resected the adherent coil; for the adhesions were so firm and the flexion so acute as to constitute an almost inevitable danger in the future.

In only two cases (Nos. 60 and 82) did the obstacle to reduction appear to have been simply the large amount of protruded bowel; and one of these (No. 60) proved fatal from paralysis of the bowel, probably due to the unavoidably prolonged handling necessitated by the difficulty in returning the intestine into the abdomen.

In the second case (No. 82) the bowel became strangulated, was operated upon, and the patient recovered.

In one other case (No. 80) the irreducibility depended partly upon the presence of thickened and adherent omentum, and partly upon the large amount of intestine in the sac. Here again the bowel became strangulated, the patient was operated upon and recovered. But all three cases show the dangers belonging to large irreducible herniæ, their liability to strangulation and the greater risk of operation, in consequence of the prolonged

handling of the bowel frequently rendered necessary by the difficulty of reduction.

Of the eighty-five cases, in only three was reduction prevented by the condition of the sac.

In one (No. 6) a band stretched across the sac, and perhaps this would have prevented reduction of the bowel ; but there was also adhesion of the coils of intestine, such as to render its return impossible without operation. Strangulation of the bowel occurred and proved fatal.

In a second case (No. 39) a constriction of the sac appeared to have been the only obstacle to reduction. After several years of irreducibility, strangulation of the bowel occurred, the patient was operated upon, and recovered.

In the third case (No. 56) the sac was thickened by layers of laminated clot like those in an aneurism, and this was the only discoverable obstacle to reduction of the bowel. The sac was removed, and an operation for the radical cure of the hernia performed. The patient had worn a variety of trusses which were ineffectual and uncomfortable, and the hernia had lately become painful and tender. I presume, therefore, that the blood-clot was due to hæmorrhage caused by the pressure of the truss on unreduced bowel.

One other condition remains to be mentioned,—a case of ventral hernia of subperitoneal fat (No. 73). A man aged forty-two years had a tumour the size of a hen's egg between the ensiform cartilage and the umbilicus. It had a distinct impulse on coughing, was irreducible, and was dull to percussion. He complained of pain in the tumour on stooping. The tumour was exposed by incision, and found to be fat protruding through an opening between the recti muscles. The tumour was removed, the edges of the opening freshened and laced together, and the wound closed by a continuous suture.

It will be seen from an analysis of the preceding eighty-five cases of irreducible hernia that the causes of the irreducibility may be arranged as follows :

Table showing Cause of Irreducibility in Eighty-five Cases of Irreducible Hernia.¹

	Cases.
Thickened and adherent omentum . . .	31
Adhesion of omentum to sac . . .	34
Twisting of omentum . . .	1
Cysts in omentum . . .	1
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Total number of cases in which irreducibility due to condition of omentum . . .	67
Adhesion of intestine to sac . . .	12
Adhesion of coils of intestine . . .	4
Large amount of intestine . . .	3
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Total number of cases due to conditions affecting intestine . . .	19
Due to thickening of mesentery . . .	1
Due to conditions affecting the sac only . . .	3
Ventral hernia of subperitoneal fat . . .	1

From this table it is evident that in the great majority of cases of irreducible hernia, the irreducible material is a piece of omentum which is either adherent to the sac, or has undergone inherent changes which prevent its reduction. When the sac contains both bowel and omentum, the bowel is very often reducible, while the omentum is not, for the bowel does not so easily contract adhesions as does the omentum; but in such cases the condition of the patient is extremely insecure. For adhesion and induration of the omentum and its attachment to the interior of the sac commonly result from attempts to wear a truss upon unreduced omentum; a truss so worn is usually a source of pain, is never efficient, and is frequently discarded; moreover, the omentum forms a kind of guide along which the bowel is apt to descend, and thus at any

¹ In a few cases more than one of the above causes of irreducibility were present.

moment strangulation may occur. Of this among the eighty-five cases there are fourteen examples, with three deaths.

It seems to me, therefore, that in all cases in which after a reasonable attempt at reduction there remains in the sac of a hernia a portion of omentum which cannot be returned, an operation is demanded. For if the omentum is adherent to the sac it is obviously irreducible except by operation, and if it is not adherent it will soon become so if subjected to the pressure of a truss. A truss so worn is inefficient, and the security of the patient is very little greater than if no truss is worn, when there is the constant danger of protrusion and strangulation of the bowel. Another source of danger in cases of irreducible omental hernia is that of internal strangulation of the intestine by a band connected with the omentum in the hernial sac. An example of this is Case 83. A woman was admitted into the hospital with symptoms of acute intestinal obstruction. She had an irreducible hernia consisting only of a piece of omentum adherent to the sac; from this a band extended across a portion of intestine within the abdomen, and thus caused strangulation of the gut. The patient was enormously fat (the subcutaneous fat on the abdominal surface was four inches deep), and she was in the fifth month of pregnancy. Having ascertained that there was no intestine in the sac, the abdomen was opened, the band traced and divided, and the strangulated bowel released. Unfortunately abortion occurred, and she died on the third day. I may mention in connection with this case that the operation was performed without anæsthesia, because of the extreme abdominal distension and the unfavorable condition of the patient. A 1 per cent. solution of cocaine was injected in the line of the skin incision, and the patient stated that she felt no material pain.

Considering, then, the dangers that arise in connection with the presence in a hernial sac of irreducible omentum, and that of the sixty-seven such cases tabulated there was not one in which the omentum could have been reduced

without operation, I would suggest that the proper course in cases of irreducible omental hernia is to cut down upon and open the sac, ligature and remove the adherent or thickened omentum, return the stump into the abdomen, and then to perform an operation for the radical cure.

That the risk of such an operation is very small is proved by the fact that of forty-one cases operated upon in which the sac contained irreducible omentum only, there were but two deaths, one of which (No. 84) was from cerebral hæmorrhage in an alcoholic man three days after the operation; the other (No. 67) was a case of old umbilical hernia in a woman with fatty heart, and in whom there was old thickening and great distension of the bowel, so that presumably the hernia had at some time contained bowel as well as omentum.

If there be intestine in the sac as well as omentum, an attempt should be made to reduce the bowel before operation, and then the omentum should be treated as I have suggested above; but in no case should a truss be applied upon unreduced omentum. To wear a truss upon irreducible intestine is a still more dangerous practice. For the pressure and irritation of the truss are nearly certain to produce inflammatory adhesions between the adjacent coils of intestine, or between the intestine and the interior of the sac, a condition favouring strangulation and otherwise interfering with the function of the bowel, and adding greatly to the dangers of any operation that may subsequently become necessary. This is shown in a striking manner by the fact that of the sixteen cases in which the hernia was irreducible because of adhesions of the bowel, strangulation of the bowel occurred in eight, and of these five were fatal.

I maintain, therefore, that cases of intestinal hernia which cannot be completely reduced so that a truss can be efficiently applied, should be looked upon as of sufficient gravity to necessitate the patient being confined to bed and subjected to surgical treatment, so that every chance may be given of replacing the bowel within the

abdominal cavity; and that in no such case should the patient be allowed to go about, or wear a truss. This should be quite irrespective of whether the hernia gives rise to any functional disturbance. For it matters not how long a hernia has been simply irreducible, it may at any moment become strangulated and the patient's life endangered. This happened in twenty-five of the eighty-five cases; and in one of these (No. 47) the patient, a woman seventy-eight years of age, had had an irreducible femoral hernia for forty years without it troubling her much, until at last it became strangulated so tightly that a few more hours' constriction would have produced gangrene, and when I operated I was in some doubt as to whether it would be safe to return the gut.

In connection with the change from the irreducible to the strangulated condition I would venture to allude to the diagnostic importance of the occurrence of vomiting. This is not a symptom belonging to irreducible hernia, though constipation and flatulent distension are common, so that I would strongly insist that a person the subject of irreducible hernia (of however long duration) if attacked with persistent vomiting should be treated without delay as a case of strangulated hernia.

A hernia, however, that is simply irreducible, and which is unaccompanied by any untoward symptoms, may be treated for a time in the hope that it may become reducible. And for this, I think, generally the best plan is to keep the patient in bed, recumbent upon a mattress sloping towards the shoulders, while gentle pressure is made upon the hernia by an elastic bandage over a layer of wool. A fluid and spare diet should be given, and the bowels kept freely purged. The cases in which this is most likely to succeed are those in which there is only bowel in the sac and in which no truss has been worn. But if after three or four weeks of such treatment any part of the hernia remains irreducible, I have no doubt that an operation should be performed; for the irreducibility will probably be found to depend upon adhesions or

some condition not remediable except by operation, and the dangers of an irreducible hernia are much greater than those which belong to the operation for its relief. Moreover, an operation for the radical cure of the hernia can often be undertaken at the same time.

The only exceptions to this rule should, I think, be very large old herniæ, in which a great quantity of the intestine has been so long outside the abdominal cavity that it might be difficult or impossible to make room for it within. Moreover, in very large herniæ the amount of handling necessary for returning the bowel makes the operation a more serious one (as in Case 60). This is an additional argument for operating upon irreducible herniæ before they attain a large size, and also for endeavouring to return as much as may be possible of all large herniæ before operating upon the irreducible remainder. It will be found that there are very few herniæ of the bowel only, even of large size, which are not reducible by the measures I have indicated *as long as the bowel has formed no adhesions*, and this will depend chiefly upon whether a truss has been worn over unreduced bowel. And even when adhesions have formed it is often possible to return a considerable part of a large hernia.

An example of the size which a neglected hernia may attain, and showing also how large a hernia may yet be reducible, is represented in the accompanying illustration.¹ The patient, a woman aged forty-three years, was admitted under my care into St. George's Hospital, in 1895. She had an enormous inguinal hernia reaching halfway down the thigh, and across the middle line. The size and weight of the hernia gave her much distress, which was aggravated by the soreness of the skin produced by friction of the tumour against the thighs. The hernia had existed eight years, and had been irreducible for more than a year. She had worn no truss, and the hernia steadily increased in size. During the last year she had had frequent attacks

¹ I am indebted to the kindness of my colleague Mr. Clinton Dent for the photograph of this remarkable hernia.

of pain, constipation, and occasional sickness. The tumour was resonant and tense, and there was impulse conveyed to it on coughing, but attempts at reduction made at first no impression upon it. She was kept recumbent with the foot of the bed raised, given a spare diet, and purged.

Ice, and subsequently gentle pressure, were applied to the tumour. In three weeks the bowel had all been returned into the abdomen, but there remained a very large pendulous mass of thickened and ulcerated skin which had been stretched over the hernia. The sac was opened and ascertained to be empty, its neck ligatured, and the whole of the pendulous skin together with the sac cut away. The pillars of the ring were laced together, and the wound closed. The woman made an excellent recovery, and there was no protrusion at the inguinal ring, but as her abdominal muscles were very lax, I thought it wise to apply a truss.

It will be observed that in this case the hernia consisted entirely of bowel, and that no truss had been worn, and therefore it was that in spite of its large size and its having been long irreducible, I had hope of it being eventually returnable, as proved to be the case.

There remain for consideration the three cases in which the irreducibility depended upon conditions affecting the sac only. In one case there was "hour-glass" contraction, in one a band stretched across the sac, and in one the sac was thickened by laminated clot. These conditions I have shown to be of rare occurrence, and it may suffice to point out that each of them was such as could be remediable only by operation.

The foregoing facts, and the arguments based thereupon will, I think, justify the following conclusions :

1. That irreducible hernia is a condition of serious danger, the gravity of which increases with its duration or neglect.
2. That the application of a truss upon an irreducible hernia is not only useless but harmful.

3. That irreducible herniæ which consist wholly or in part of bowel are very apt to become strangulated.

4. That herniæ consisting wholly of bowel, upon which no truss has been worn, may (even when of large size and of considerable duration) generally be returned by appropriate treatment.

5. That of the cases of hernia in which proper treatment fails to obtain reduction, the great majority are irreducible because of adhesions of, or changes in, the protruded viscera, conditions which are remediable only by operation.

6. That the most common cause of irreducibility is the presence in the sac of adherent omentum.

7. That the presence of irreducible omentum in the sac of a hernia is a source of constant danger, which can nevertheless be remedied by an operation of extremely small risk.

8. That herniæ containing irreducible bowel are more dangerous than those containing only omentum ; and that as the danger of operation increases with the magnitude of the hernia, and with the occurrence of adhesions, these herniæ should be operated upon as soon as they are proved by the failure of proper treatment to be irreducible.

Analysis of Eighty-five Cases of Irreducible Hernia.

No.	Sex and age.	Situation of hernia.	Duration			Contents of sac.	Cause of irreducibility.	Treatment.	Result.
			of hernia.	of irreducibility.	of strangulation.				
1	F., 56	Un-bilical	26 years	1 year	2 days	Small intestine, omentum	Adhesion of omentum and intestine to sac	Herniotomy	Died. Fatty heart; pulmonary thrombosis. Recovered.
2	F., 56	Right femoral	30 years	6 years	2 days	Small intestine, omentum	Adhesion of omentum and intestine to sac	Herniotomy	Recovered.
3	M., 21	Left inguinal	All his life	Always	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
4	M., 63	Left inguinal	8 years	Several years	4 days	Small intestine, omentum	Thickened and adherent omentum	Herniotomy	Recovered.
5	M., 41	Right inguinal	Many years	Many years	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
6	M., 67	Right inguinal	18 years	18 years	6 days	Small intestine	Coils of intestine adherent; band of adhesion across sac	Herniotomy	Died. Collapse.
7	M., 45	Left inguinal	18 years	5 months	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
8	F., 39	Left femoral	Some years	Uncertain	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
9	F., 46	Left femoral	3 years	3 years	4 days	Omentum, small intestine	Thickened and adherent omentum	Herniotomy	Died. Perforation of bowel.
10	F., 59	Right femoral	2 years	Uncertain	5 days	Omentum, small intestine	Adherent omentum	Herniotomy	Recovered.
11	M., 35	Right inguinal	Uncertain	Uncertain	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
12	F., 42	Right femoral	4 years	4 years	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.

No.	Sex and age.	Situation of hernia.	Duration of hernia.	Duration of irreducibility.	of strangulation.	Contents of sac.	Cause of irreducibility.	Treatment.	Result.
13	M., 59	Left inguinal	Many years	6 years	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
14	M., 48	Left inguinal	Many years	Many years	A few hours	Cæcum and appendix and portion of small intestine	Doubtful	Herniotomy	Died 8th day. Collapse. No P.M.
15	M., 25	Left inguinal	2 months	2 months	24 hours	Small intestine	Intestine adherent to sac	Herniotomy	Recovered.
16	M., 41	Left femoral	15 years	Uncertain	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
17	M., 40	Left inguinal	5 years	Some months	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
18	M., 30	Left inguinal	Since birth	Uncertain	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
19	M., 21	Right inguinal	4 years	4 years	3 days	Omentum, small intestine	Omentum adherent to sac	Herniotomy, radical cure	Recovered.
20	F., 35	Unilateral	14 years	Several years	5 days	Omentum, small intestine	Omentum adherent to sac	Herniotomy, radical cure	Recovered.
21	M., 36	Left inguinal	9 years	9 years	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
22	M., 30	Left inguinal	5 years	1 week	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
23	F., 38	Right inguinal	4 years	4 years	2 days	Omentum	Omentum adherent to sac	Herniotomy, radical cure	Recovered.
24	M., 49	Left inguinal	18 years	Some months	—	Omentum, small intestine	Thickened and adherent omentum	Radical cure	Recovered.
25	M., 35	Right inguinal	5 years	5 years	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
26	M., 38	Right inguinal	10 years	Uncertain	16 hours	Omentum and small intestine	Omentum adherent to sac	Herniotomy, radical cure	Recovered.
27	F., 68	Right femoral	30 years	Several years	2 days	Omentum, small intestine	Omentum adherent to sac	Herniotomy	Died. Bronchitis. No P.M.

28	M., 47	Right inguinal	Several years	14 hours	Small intestine	Intestine adherent to sac	Herniotomy	Recovered.
29	M., 27	Right inguinal	Uncertain 3 years	12 hours	Omentum, small intestine	Omentum adherent to sac	Herniotomy	Recovered.
30	F., 66	Right femoral	3 years	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
31	F., 38	Left femoral	4 years	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
32	F., 47	Un-bilical	16 years	2 days	Omentum, small intestine	Omentum adherent to sac	Radical cure	Recovered.
33	M., 30	Right inguinal	1 year	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
34	M., 52	Right inguinal	10 years	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
35	M., 18	Left inguinal	Since birth	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
36	M., 46	Left inguinal	7 years	—	Omentum, small intestine	Thickened omentum ; gut adherent to sac	Radical cure	Recovered.
37	M., 29	Left inguinal	5 years	—	?	?	Radical cure	Recovered.
38	F., 52	Left femoral	Many years	24 hours	Omentum, small intestine	Thickened and adherent omentum	Herniotomy	Recovered.
39	M., 29	Right inguinal	7 years	3 hours	Small intestine	Constriction in sac	Radical cure	Recovered.
40	M., 23	Right inguinal	15 months	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
41	F., 65	Right inguinal	30 years	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
42	F., 37	—	2 years	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
43	F., 51	Right femoral (left femoral reducible)	6 years	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
44	M., 18	Right inguinal	Uncertain 20 years	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
45	M., 50	Left inguinal	20 years	4 days	Omentum, small intestine	Thickened and adherent omentum	Herniotomy	Died an hour after operation.

No.	Sex and age.	Situation of hernia.	Duration		Contents of sac.	Cause of irreducibility.	Treatment.	Result.
			of hernia.	of irreducibility.				
46	M., 32	Right inguinal	4 years	3 weeks	Uncertain	Uncertain	Radical cure	Recovered.
47	F., 78	Right femoral	40 years	4 days	Omentum and small intestine	Omentum adherent to sac and surrounding bowel	Herniotomy	Recovered.
48	F., 71	Left femoral	Many years	—	Omentum and small intestine	Thickened and adherent omentum	Radical cure	Died. Abscess from perforation of colon; broncho-pneumonia. Recovered.
49	M., 52	Right inguinal	Many years	Uncertain	Small intestine	Intestine adherent to sac	Radical cure	Recovered.
50	M., 39	Right inguinal	18 years	18 years	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
51	M., 42	Right inguinal	20 years	Many years	Omentum, small intestine	Omentum adherent to sac	Radical cure	Recovered.
52	F., 70	Right femoral	Many years	Many years	Omentum, small intestine	Thickened and adherent omentum	Herniotomy	Recovered.
53	M., 32	Right inguinal	Since birth	Since birth	Small intestine	Intestine adherent to testis	Radical cure	Recovered.
54	M., 49	Left inguinal	5 years	3 years	Omentum, small intestine	Omentum and intestine both adherent to sac	Radical cure	Recovered.
55	M., 66	Right inguinal	3 years	1 year	Small intestine	Great thickening of mesentery	Radical cure	Recovered.
56	F., 38	Right inguinal	24 years	2 weeks	Small intestine; blood-clot	Sac thickened by laminated and adherent clot	Radical cure	Recovered.
57	M., 29	Right inguinal	7 years	6 months	Omentum	Omentum adherent to sac	Radical cure	Recovered.
58	M., 51	Right inguinal	30 years	20 years	Small intestine	Coils of intestine adherent to each other and also to sac	Radical cure	Recovered.
59	M., 40	Right inguinal	Uncertain	Uncertain	Omentum	Omentum adherent to sac	Radical cure	Recovered.
60	M., 52	Right inguinal	Many years	7 years	Small intestine	Large amount of bowel returned with difficulty	Radical cure	Died. No P.M.

	M.	Right inguinal	Many years	Many years	—	Large and small intestine and omentum	Intestine and omentum adherent to sac	Radical cure	Recovered.
61									
62	F., 53	Um-bilical	Many years	Many years	4 days	Several feet of small intestine (a very large hernia)	Intestine adherent to sac	Herniotomy	Died. Paralysis of intestine.
63	M., 34	Right inguinal	From childhood	From childhood	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.
64	F., 54	Right femoral	6 years	6 weeks	—	Omentum and small intestine	Thickened and adherent omentum	Radical cure	Recovered.
65	M., 40	Left inguinal	Many years	2 months	—	Small intestine	?	Radical cure	Recovered.
66	M., 25	Right inguinal	7 years	7 years	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
67	F., 43	Um-bilical	9 years	3 years	—	Omentum	Thickened and adherent omentum	Radical cure	Died. Old thickening of bowel; distension; fatty heart.
68	M., 62	Left inguinal	12 years	Several years	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
69	F., 37	Right femoral	7 years	7 years	—	Omentum and small intestine	Omentum adherent and thickened	Radical cure	Recovered.
70	M., 45	Left inguinal	20 years	3 weeks	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
71	M., 23	Left inguinal	6 months	6 months	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
72	M., 35	Left inguinal	Several years	Several years	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
73	M., 42	Ventral	3 months	3 months	—	Subperitoneal fat projecting through opening in recti	Fat spread out and indurated	Radical cure	Recovered.
74	F., 54	Right femoral	Several years	Several years	—	Omentum	Omentum nodular and adherent and containing cysts	Radical cure	Recovered.
75	F., 82	Left femoral	Uncertain	Uncertain	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
76	F., 65	Femoral	Uncertain	Uncertain	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.

No.	Sex and age.	Situation of hernia.	Duration		Contents of sac.	Cause of irreducibility.	Treatment.	Result.
			of hernia.	of irreducibility.				
77	F., 60	Right femoral	1 year	—	Omentum	Omentum twisted and swollen	Radical cure	Recovered.
78	M., 54	Right inguinal	29 years	—	Small intestine	Coils of intestine adherent to each other and to sac	Radical cure	Died 5th day. Paralysis of intestine.
79	F., 24	Left femoral	Uncertain	—	Omentum	Omentum adherent to sac	Radical cure	Recovered.
80	F., 47	Unilateral	6 years	4 days	Cecum and vermiform appendix; small intestine, omentum	Thickened and adherent omentum, and large size of hernia	Herniotomy	Recovered.
81	M., ?	Inguinal	Many years	? 2 days	Small intestine	Adhesion of coils of intestine	Herniotomy	Died 3rd day. No P.M. A very fat, feeble man.
82	M., 73	Right inguinal	Many years	1 day	Small intestine, blood-clot	Large amount of intestine in sac	—	Recovered.
83	F., 37	Unilateral	Uncertain	2 days	Omentum	Omentum adherent to sac, from which extended a band which caused internal strangulation of bowel	Herniotomy, abdominal section, division of band of adhesion	An enormously fat woman, 4 months pregnant. No intestine in sac, but internal strangulation by band. A portion and death on 3rd day.
84	M., 56	Right inguinal	Several years	—	Omentum	Thickened and adherent omentum	Herniotomy, omentum removed	Died. Cerebral hæmorrhage. Alcoholic subject.
85	M., 48	Left inguinal	A year	—	Omentum	Thickened and adherent omentum	Radical cure	Recovered.

(For report of the discussion on this paper, see 'Proceedings of the Royal Medical and Chirurgical Society,' Third Series, vol. ix, p. 148.)

DESCRIPTION OF PLATE XXVI.

On Irreducible Hernia (WARRINGTON HAWARD).

Case of very large Inguinal Hernia in a woman. The hernia consisted of bowel, and had been irreducible for more than a year, but no truss had been worn. It was entirely reduced in three weeks by the treatment described in the text.

(From a photograph by Mr. Clinton Dent.)