

On splenectomy : with notes of three cases / by W.D. Spanton.

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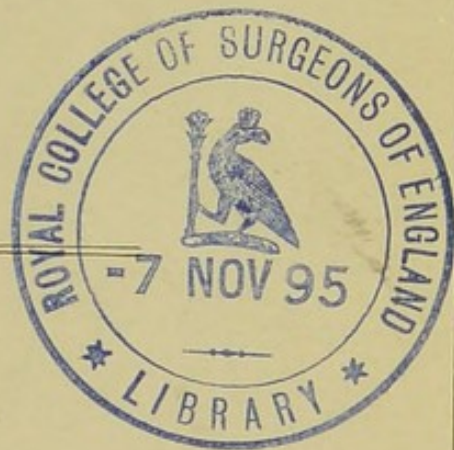
ON SPLENECTOMY

WITH NOTES OF THREE CASES

BY

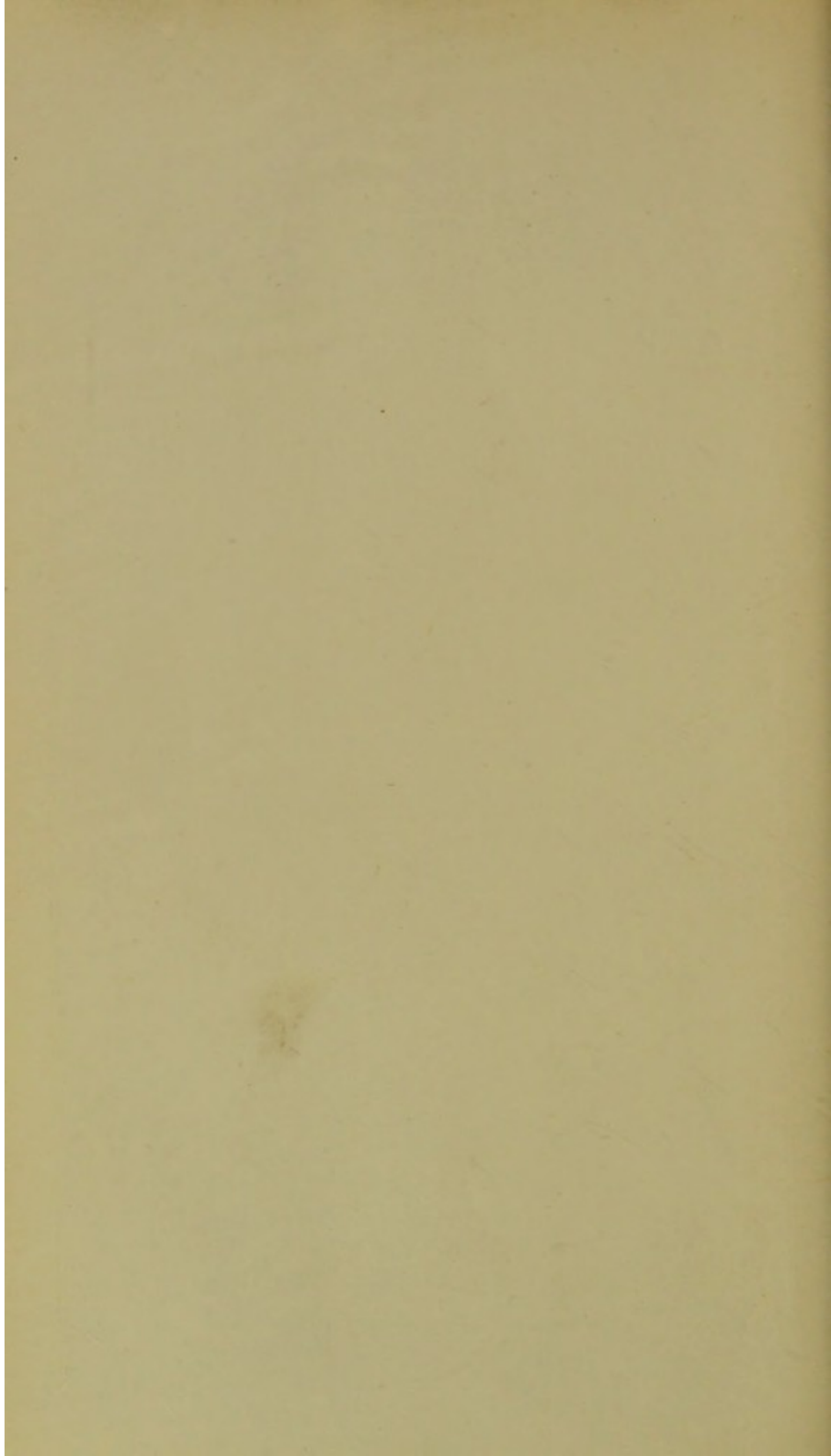
W. D. SPANTON, F.R.C.S.E.

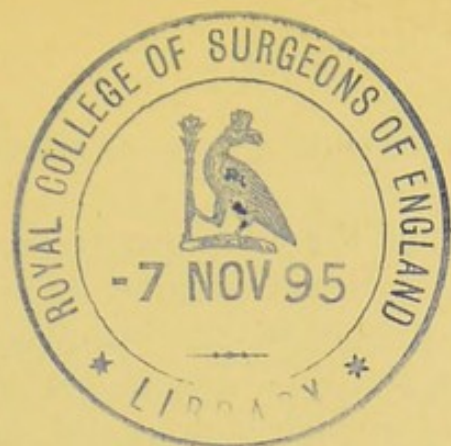
Surgeon to the North Staffordshire Infirmary.



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1895





ON SPLENECTOMY.

WITH NOTES OF THREE CASES.

BY W. D. SPANTON, F.R.C.S.E.

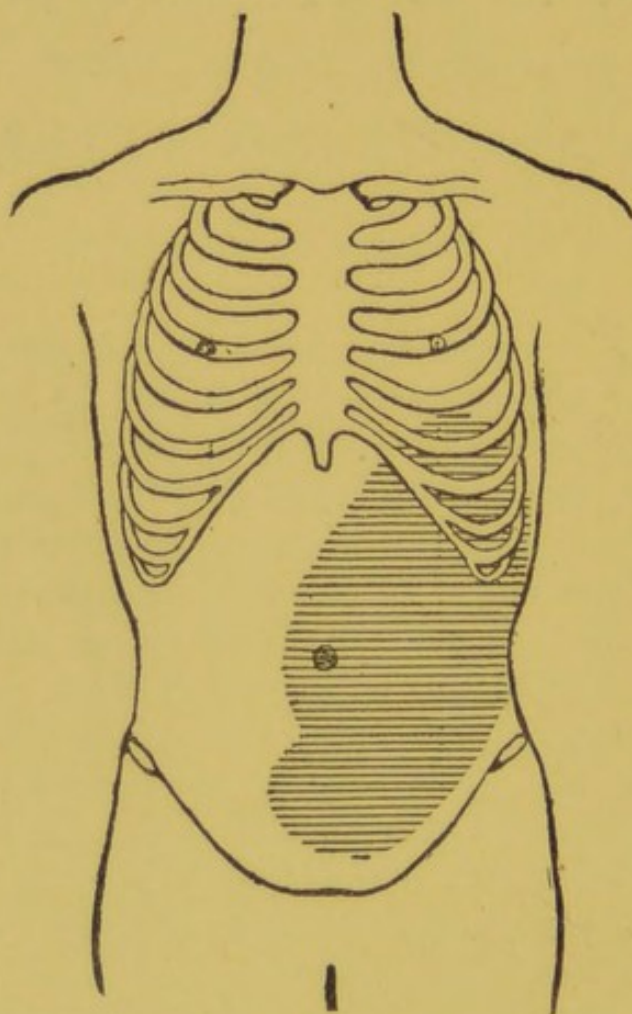
I HAVE now performed the operation of splenectomy three times—two of the cases being followed by a fatal result, one by recovery—and they are sufficiently typical to afford an opportunity to consider the subject in its general aspect, and to endeavour to deduce from them some observations of practical importance. It is only during the last few years that the propriety of such an operation has gained favour. In this respect it stands by no means alone, for almost all formidable surgical procedures have had to pass through a similar ordeal, and it is only by experience that we are enabled to eliminate cases unsuitable for operation, and to perfect our methods of performing it so as to render it at the same time justifiable and reasonably safe. The records of the cases are as follows:—

CASE I.¹—Mrs. Sarah B., aged 47, married, admitted into North Staffordshire Infirmary, under Mr. Spanton, Sept. 1, 1883. Patient always strong, no illness until the present; twelve children, all living, youngest four years old; never been abroad, and never lived in ague district. Illness commenced two years before with pain and enlargement on the left side of abdomen, she thought at first that she was

¹ This case was briefly reported in the *British Medical Journal*, 1883.

pregnant ; the pain has never been very acute, but chiefly of a dragging character.

The enlargement of the abdomen increased gradually, and twelve months ago she became an in-patient in the medical wards on account of the inconvenience it caused her. At that time she was able to get about to do her household work, and was fairly stout and strong.



The tumour then was very distinct, and had all the character of an enlarged spleen. It extended to within about an inch and a-half of Poupart's ligament—in fact it covered nearly half the abdomen. (See diagram.) Since leaving the infirmary she has been under medical treatment outside, but without any benefit resulting. There had been no ague fits or any attacks of that nature before her first admission, but during the last few months she has some-

times felt cold, which has been followed by a free perspiration. For the last twelve months she has lost flesh rapidly, and has got so weak that she cannot get about to do anything.

Digestion fairly good ; no sickness, no marked anæmia ; catamenia absent for about twelve months. Urine contained phosphates but no albumen. Blood examined under microscope, but found to present no marked deviation from a normal specimen ; the white corpuscles were not increased, and the red ones were well formed. The patient had an anxious expression, appeared much troubled about her complaint, and was prepared to submit to any operation. She suffered from severe pain in the head and in the abdomen while in the infirmary, and the temperature varied from 100° to 103° F. She had no distinct shivering attack, but perspired much when the pain was most severe.

A consultation was held, and it was decided to operate, but on account of her condition it was thought advisable to postpone it until the temperature had subsided.

On September 11, she seemed much better, the pain was less, and the temperature was only 99° F. It was therefore arranged for the operation to take place on the following day. Patient removed to Victoria Ward on September 12, but no purgative was given, and no enema administered, because a few days before she had a tendency to diarrhœa.

September 12.—In very good spirits ; very little pain, except in region of spleen ; temperature 99° F. ; no diarrhœa ; slight cough and a few râles were audible on right side of chest, but no dulness on percussion, and no physical signs on left side. The tumour feels smooth on the surface, very hard, and extends from fifth rib above to Poupart's ligament below, and forward it extends across the middle line to the *outer* margin of the right rectus. The notch could be felt two inches below umbilicus, and one inch to the outer side. The margin above and below this was smooth and regular, convex from above downwards, with the convexity towards the right. The tumour

could be lifted forward by pressure in the left flank, and the right margin was sufficiently thin for the hand to be passed behind it. In front, where the experiment was practicable, the abdominal wall could very readily be separated from the tumour. It occupied a large portion of the right side of the abdomen when the patient lay on her right side, but quickly assumed a different position when the position of the patient was changed. The liver dulness extended a little distance below the ribs. There were no enlarged glands in axilla or groin, and no congestion of the superficial veins of the abdomen. The heart was normal.

The operation was commenced at 4.40 and concluded at 5.55. An incision was made in the median line, from near the xiphoid cartilage nine inches downwards. The small lobe of the liver first came into view, and next the great omentum; the omentum was drawn to the right and the spleen was then exposed; it had a very congested appearance, and the veins of the great omentum were considerably enlarged. The spleen was lifted upwards and a large vessel ligatured beside some smaller ones.

It was proposed to pass one large ligature round the base of the tumour as a preliminary measure, but this could not be done without breaking down its connection with the diaphragm. Many vessels were also ruptured in the attempt. Two ligatures were however passed in this way—the one from the inner, and the other from the outer side. The spleen was then quickly removed, and it was found that the ligature had secured most of the vessels. Some smaller ones were tied with thick silk and Tait's clamp applied to that part of the pedicle formed by the gastro-splenic omentum. The large vessels were tied with whipcord, by means of a double-threaded aneurism needle. There was a considerable amount of hæmorrhage at the commencement of the operation, for while endeavouring to lift the spleen from its bed some vessels on its under surface were ruptured, but after these had been secured there was no great hæmorrhage throughout the operation.

After the clamp had been applied, all hæmorrhage appeared to have ceased. A small lateral incision was made in order that the clamp might be brought to the surface, and secured without any tension on the pedicle. The whole wound was then closed by means of silk sutures, the clamp lying over the left rectus in a vertical direction.

The spray (*sanitas*) was playing over the patient before the operation, but was discontinued when the incision had been made. The wound was dressed antiseptically.

During the removal of the spleen, the bowels were prevented from protruding as far as possible by means of warm chamois leather and sponge cloths.

The pulse was good after and during the operation. The patient was removed to the bed, which was at the side of the operation table, and an enema of brandy and milk given. She soon rallied, and was able to describe her symptoms; she said she felt sick, but had very little pain. The retching was troublesome, but otherwise everything appeared to be going on favourably. The pulse remained good.

At about 9.20 p.m. she became suddenly worse, and the nurse noticed her colour change, and the breathing became "gaspings." When seen by the house surgeon a few minutes afterwards the pulse had nearly disappeared, and from the dusky appearance of the countenance, and the character of the breathing, internal hæmorrhage was diagnosed.

A consultation was held with Mr. Spanton by means of telephone, but under the circumstances it was not thought advisable to re-open the wound.

Death occurred at 9.50 p.m. Weight of spleen 8 lbs. 3 ounces (after draining); measurements 14 in. by 8 in. by 5½ in., greatest thickness. Structure, simple hypertrophic.

At the *post-mortem* examination, eighteen hours after death, *rigor mortis* was well marked. The abdominal cavity contained about a pint and a-half of blood, chiefly clotted; a large silk ligature was found lying loose on the blood clot, but the mouth of a large vessel could not be

detected. The kidneys were normal. Heart normal. Liver enlarged, but otherwise healthy. The lungs had the character of bronchitis, which were more marked on the right side, and at bases. The brain was not examined.

Remarks.—The fatal result in this instance was clearly due to hæmorrhage, although at the time of closing the wound everything seemed secure. The pedicle was very large, and the vessels in it enormous, and this led me to leave on it the clamp as a safeguard. The bleeding probably occurred in this, as in some other recorded cases, from a vessel not included in the main pedicle, and the loose ligature pointed to this, although no open mouth was apparent. In the light of more experience, I think that if the suspensory ligament had been dealt with first, the result might have been different. The tumour was very large, very friable, and the pedicle was comparatively short—all of which tended to make excision more difficult, especially in one's first operation of the kind.

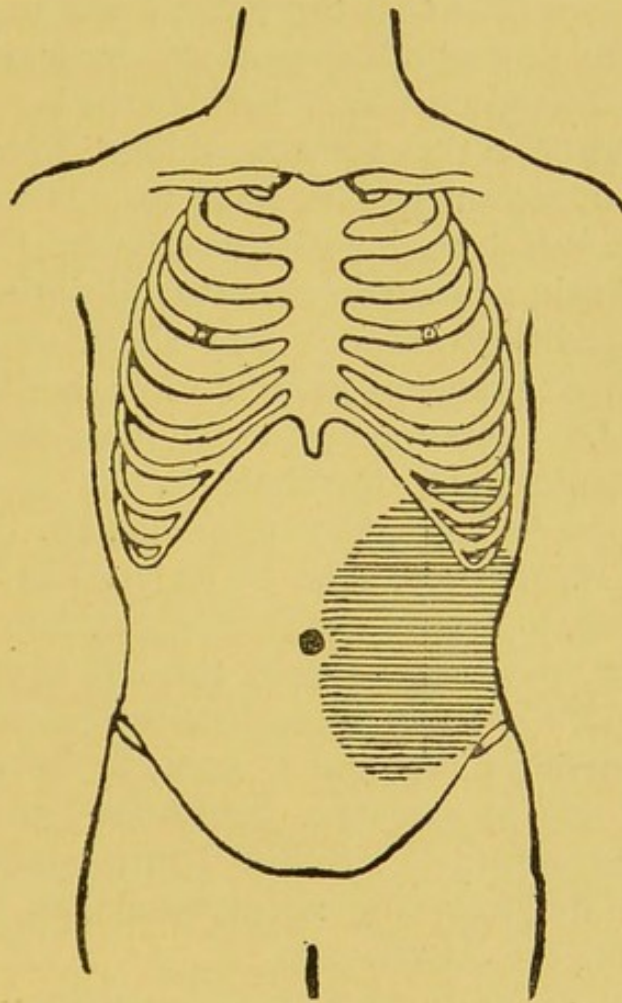
CASE II.—Mrs. M., aged 52, married; admitted North Staffordshire Infirmary, Jan. 20, 1891, for enlarged spleen. Patient says she was quite well until eighteen months before, when she had typhoid fever and was never well after. She had, however, been subject to epileptic attacks for some years. About a year before admission she first noticed a lump in the abdomen, which was then about the size of an orange, and steadily increased. Latterly she had become much paler, and suffered from severe attacks of sickness.

In autumn of 1890 she was a patient in the medical wards for anæmia; has become much weaker since then—for the last month had been confined to bed, and was unable to stand without help.

On admission she was pale, emaciated and feeble. Had frequent attacks of severe vomiting, accompanied by diarrhœa and dyspnœa. Systolic murmur at base. Chest signs negative.

Abdomen: a large firm tumour felt occupying left hypochondriac, iliac and umbilical regions, extending to the

middle line and downwards to a point two and a-half inches below umbilicus. A very distinct notch could be felt just above the level of the umbilicus ; it was freely movable, and caused pain of a dragging character. The blood showed an excess of white corpuscles relatively to red. Urine was normal. After consultation it was decided to perform splenectomy, as the patient was steadily and rapidly losing ground after a full trial of medical and general treatment.



Operation, February 3, 1891.—Chloroform. An incision ten inches in length was made in the left linea semilunaris, and the spleen readily exposed. There were no adhesions, and the tumour was withdrawn without difficulty. The pedicle was transfixed and tied with five interlocking silk ligatures and divided ; the bleeding was slight ; wound closed with silk sutures ; no drainage. Alarming symptoms

of collapse occurred when the tumour was being drawn out of the abdomen, but passed off after it was separated. The patient, however, never thoroughly rallied from the shock, and died eleven hours afterwards. The tumour weighed five and a-half pounds, and appeared to be simply hypertrophic.

Post-mortem.—A considerable quantity of blood clot was found in the peritoneal cavity, but no open vessel nor loose ligature were seen.

Remarks.—In this case the patient was in a wretched state of health, although there was no very marked leucocythæmia. In fact she remained florid to the last, but became much emaciated, so that she was confined to bed for some time before operation was resorted to. There was some hæmorrhage, it is true, but the death was, I think, attributable to shock, which was almost fatal during the operation. The pedicle was wide and short, so that it was difficult to avoid dragging upon it while the ligatures were being applied. I think, too, it would have been better had ether been employed as an anæsthetic.

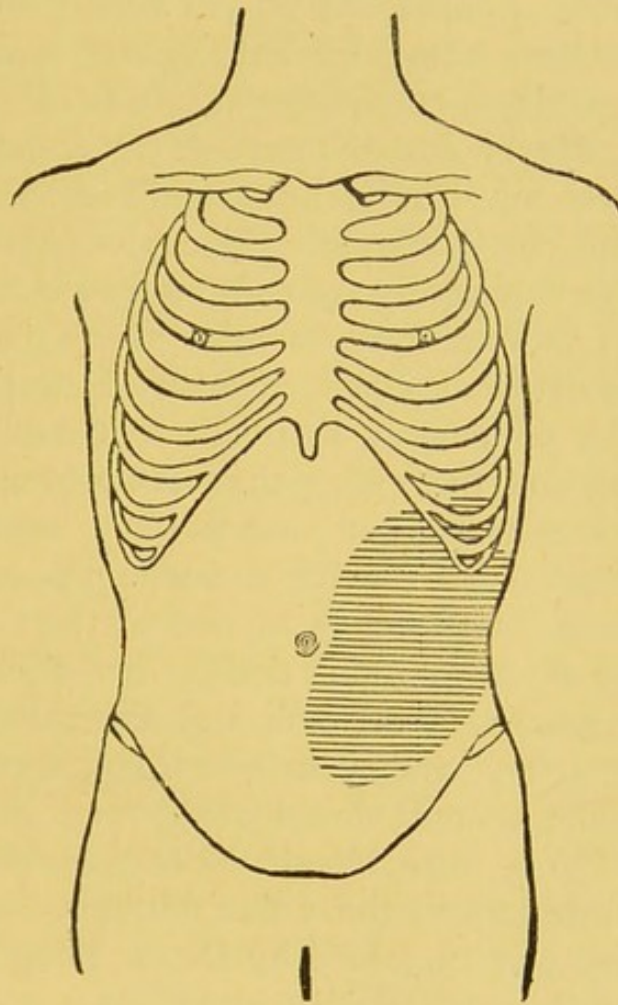
CASE III.—I was asked by my friend, Dr. Coulson Bull, to see Mrs. E., married, aged 38, on account of an abdominal swelling, to which the patient's attention had been drawn owing to severe pain in the left hypochondrium, which Dr. Bull attributed to localised peritonitis. She was then suffering much, and we came to the decision that the tumour was splenic and demanded operation. She was therefore admitted into the North Staffordshire Infirmary, and the following notes were then made by the house-surgeon, Mr. Sawers :—

“Admitted February 27, 1895, complaining of a swelling of abdomen on the left side, and pain of a dragging character.

History.—For the last four years patient has had a heavy dragging pain in left hypochondrium, worse when moving about. Since Christmas, 1894, she noticed that she was getting larger, and that there was a tumour in the left side of abdomen, which had become rapidly larger during the

last few weeks. She had lost flesh, and been subject to profuse perspirations.

Present state.—A rather spare woman, with little subcutaneous fat; lips a good colour; skin somewhat sallow; cheeks flushed; tongue clean, dry. Abdomen distinctly fuller on left side. There is a readily felt tumour occupying the left hypochondriac, lumbar and umbilical regions;



the anterior border reaches from the tip of the left ninth rib to about two inches below umbilicus, and at its lowest point touches the middle line. The border is rounded and firm; no definite notch can be made out. The lower border runs somewhat upwards and outwards; the tumour does not completely fill up the loin, there being felt a posterior border which runs vertically upwards from about

one inch behind the anterior superior spine of the ilium to the margin of the ribs. The tumour is everywhere firm to the feel, is somewhat tender, especially posteriorly, and moves on respiration. Percussion note dull all over tumour, and dulness extends upwards to the level of the eighth rib in the mid-axillary line. Measurements— anterior border, six inches; greatest breadth, seven inches; length of absolute dulness, nine and a-half inches. Blood corpuscles were counted, red 80 per cent.; no increase of white corpuscles; urine normal; heart normal; chest normal, except slight crepitation at left base.

Operation, March 11.—Ether. An incision about six inches long was made in left linea semilunaris, commencing just below the costal margin. The spleen then came into view, and was partially brought forward through the wound. A few adhesions between the surface and the abdominal wall were ligatured in two places, and cut through. The suspensory ligament was double ligatured and separated, and the spleen then easily brought outside. The pedicle was transfixed with a blunt needle, and tied in two portions, one of which included the splenic artery before its division—the ends of one of the threads being carried round the whole and tied. Strong silk was used. The pedicle was then divided, and the spleen removed. The splenic artery and vein were ligatured separately afterwards; the wound closed with deep and superficial silk sutures. Very little blood was lost during the operation, which lasted about thirty-five minutes.

The tumour was examined by Dr. S. King Alcock, who reported as follows: "Weight was 6 lbs. 4 oz.; the structure is practically normal throughout, and there is no excess of fibrous tissue, the capsule being exceptionally delicate."

Patient bore the operation well. For the first two hours she was somewhat collapsed. After that time the temperature rose rapidly, and at 6 p.m. was 103° F.; pulse 130; perspiring very freely, complaining of severe pain in the region of the spleen; no vomiting. At 9 p.m., tem-

perature 100° F., pulse 124. A hypodermic injection of morphia was given.

March 12.—Passed a good night, slept about four hours; still much pain; passed flatus and urine; temperature 98·4° F.; pulse 108; much thirst. Ordered enema of warm water.

March 13.—Still much pain; cough troublesome; perspires freely; temperature 99° F., pulse 116; wound looking healthy and dry.

March 14.—Less pain; taking food well.

March 17.—Very comfortable, hungry; had simple enema, which acted well; pulse 106, temperature 98·4° F.; still perspiring freely.

19th.—Sutures removed; wound quite healed; patient comfortable and cheerful; temperature 98° F., pulse 100.

22nd.—Evening temperature rose to 103°, and complained of pain in left hypochondrium; no cause could be found; tongue clean and appetite good.

23rd.—Temperature again normal, and pain gone.

31st.—Since last note the temperature has risen each evening, ranging from 101·8° to 103·6° F., and with this has always been associated pain over the site of the pedicle. From this date the temperature came down to normal and remained so. She rapidly gained strength and flesh, and returned home quite well on April 23.

The patient is now quite active, and says she feels better than she has felt for several years.

Remarks.—In this instance the patient had suffered more from actual pain than either of the others—owing to the peritonitis, no doubt—and it is of interest to note that this in no way interfered with a satisfactory result. The signs of shock which came on suddenly as soon as I made an attempt to lift up the spleen, led me to consider how to free it without dragging on the pedicle, and finding that it was held principally by the suspensory ligament, I decided to deal with this first. After the division I was gratified to find that one could lift up the spleen without inducing any further signs of collapse; and it was then

possible to reach the splenic vessels without difficulty before their sub-division, as already described. From a physiological point of view it is interesting to mention that a small splenculus was found in the gastro-splenic omentum, which was of course left untouched.

One feature very marked in this case was also observed in the other two—the existence of very profuse perspirations before operation, which disappeared afterwards. In the absence of any signs of suppuration, and of any marked rigor, this is interesting. I cannot explain it. The rise of temperature occurring about the eleventh day after operation which has been observed in some other recorded cases was curious, lasting several days, but was no doubt caused by some inflammatory changes in the neighbourhood of the stump of the pedicle—some localised phlebitis, most probably. But this is only what might be expected, when one considers how largely the venous element is concerned in it. It serves to enforce the necessity of securing every vessel if possible, a point on which all operators are agreed. This patient is now (July, 1895) perfectly well, and leading a more active life than she has been able to do for the last four years.

Splenectomy has now been performed in this country sufficiently often to enable us to draw some conclusions as to the range of its usefulness. I have endeavoured to tabulate all the recorded cases up to the present time including many which have already been published in the tables of Collier, Thornton, Wright, and elsewhere. Mr. T. T. Cockill has traced out for me, as far as possible, every case which appears in the table. No doubt many operations have been performed which have not been put on record, both successful and unsuccessful, and these must necessarily be left out of calculation.

We have, however, one hundred cases, and some interesting data can be deduced from them. We find among the leucocythæmic cases, out of twenty-five only one recovered. It is now generally acknowledged that splenectomy in such cases is attended with too great a risk to be justifiable.

This is not due to any greater difficulty in the operation, but to the gravity of the disease itself, which seems to render any surgical procedure most unsafe. So that we may, I think, accept the dictum laid down in the recent text books, that in all cases in which leucocythæmia is present, splenectomy ought not to be performed.

Among forty-nine cases of hypertrophy we find twenty-six deaths after operation. These are the cases which present themselves to the surgeon as causing most discomfort, and seem most to demand surgical interference. The solid mass dragging on the stomach and causing pressure on adjacent organs renders life intolerable, and in many of them some form of local peritonitis is set up which adds to the pain and danger.

It will be observed that in all my cases the spleen was of considerable size—much larger than the majority of those I find recorded. In Case III. it is much the largest among those who recovered.

It is curious how a solid tumour of this kind, of even moderate dimensions, will cause a much larger amount of discomfort proportionately to a fluid tumour of the same weight. In my third case this was especially marked, as the patient became very ill and emaciated from the constant dragging and distress caused by what proved to be a simple enlargement; as soon as this was removed, her general health at once began to improve, and she rapidly gained flesh. This affords a strong reason for removal of the organ which may be diverting material which ought to be utilised elsewhere.

Of the remaining other conditions for which splenectomy was undertaken, we find wandering and rotated spleens; lymphosarcoma; cysts, including hydatid; injury, and abscess. Taking the last three decades, we have this remarkable result:—

During the first, 1866-75, a mortality of 75 per cent.

„ second, 1876-85, „ „ 59·25 per cent.

„ third, 1886-95, „ „ 16·21 per cent.

For “wandering spleen” it would seem quite feasible to

adopt splenorrhaphy as we do in cases of wandering and movable kidney. I have not met with any instance which caused sufficient discomfort to warrant this procedure, though I would certainly be disposed to adopt it in a suitable case in preference to the great risk of splenectomy.

With regard to the operation itself, the chief risks appear to be shock and hæmorrhage. In a very large proportion of the fatal cases, one or both of these conditions have been the cause of failure, so that our chief aim must be in the direction of averting shock, and security against subsequent hæmorrhage. With regard to shock, it is easy to understand why it should be formidable from the intimate connexion of the spleen with the large solar plexus, but in most of the recorded cases I find it was first noticed when an attempt was made to remove the organ from the abdomen. In my own cases, this was most marked the moment the spleen was pulled upon in the slightest degree, and in my last case I was so struck by this that it occurred to me that it might be caused as much by the dragging upon the diaphragm as by any interference with the gastro—splenic pedicle. Acting on this hint, I decided to begin by dividing the suspensory ligament. This was transfixed, ligatured, and set free, and the moment this was done all signs of collapse or shock passed off. I think that this is an important point, for if we can in this way avert the first tendency to shock, and at the same time set free the pedicle proper, one of our chief difficulties is overcome. I found it quite easy to deal with the vessels in the pedicle, and it seemed to simplify the subsequent proceedings wonderfully. It may not be possible to adopt this course in some cases, but I feel sure that when it can be done, it will greatly simplify the operation and enable the vessels to be secured more readily and certainly.

I find in almost all the published records, the suspensory ligament has been dealt with last (as in my own first two cases), and I desire therefore to draw special attention to this matter. Then, as to the best mode of securing the vessels, I think no rule can be laid down. When the

splenic artery and vein can be ligatured separately it is a great gain, but more often the vessel divides far before it reaches the spleen, and, as in my first case, a very broad pedicle with many vessels is what we must deal with.

If a double ligature will suffice, that is probably the best, taking care after dividing the pedicle to put a separate silk ligature on each open mouth.

Some of the deaths from hæmorrhage have been attributed to a "small" vessel slipping from the main pedicle ligature, and the course I suggest will entirely frustrate the danger; at the same time it is very essential to ligature every bleeding point in any adhesions, for everything in this neighbourhood is usually very vascular. In my successful case every care was taken to tie any vessels and make everything secure, and yet the operation was completed in a little over half an hour. This too is important—not to keep the patient longer than is absolutely necessary under operation and it is better to make a large incision so that the tumour may be easily removed and there may be ample room for dealing with the pedicle with as little dragging and disturbance as possible.

When we consider that during the last thirty years, as shown by the table, the mortality with a larger number of cases has been reduced from 75 per cent. to 16·21 per cent. on the published cases, we may, I think, fairly say that splenectomy has a grand future before it, though the cases in which it must be demanded are few and far between, and it ought not, in my opinion, to be resorted to unless the patient's condition is such a miserable one as to demand it. Every other resource must be well tried first, though up to the present time the results of medical treatment in cases of true hypertrophy seem to have been most unsatisfactory.

The operation will probably be necessitated only in the case of injury and large tumours, non-malignant, whether solid or cystic, and I can hardly imagine its justifiability with the present rate of mortality, in any cases of small or simple movable spleens.

NOTES ON SPLENECTOMY, DERIVED
FROM THE TABLES.

(1) TABLE I.—*Leucocythæmia*. 25 cases (5 males, 20 females). 24 died. Death rate 96 *per cent*.

The case that recovered (a woman) is considered by Knowsley Thornton to have been one of simple hypertrophy.

(2) TABLE II.—*Non-leucocythæmic cases*. 75 cases (8 males and 67 females). 47 recovered, 28 died. Death rate 37·3 *per cent*.

The following are the details of the Table:—

(1) Hypertrophy	49 cases, 23 recovered, 26 died
(2) Wandering	14 " 13 " 1 "
(3) Rotated	2 " 2 " 0 "
(4) Lymphosarcoma	2 " 2 " 0 "
(5) Cystic (including hydatid)... ..	4 " 4 " 0 "
(6) Other cases (including injury)	4 " 3 " 1 "

DEATH RATE FOR EACH OF THE LAST THREE
DECADES (EXCLUSIVE OF LEUCOCYTHÆMIA).

	NUMBER OF CASES.	DEATHS.	DEATH RATE.
1866-75	4 ...	3 ...	75 per cent.
1876-85	27 ...	16 ...	59·25 "
1886-95	37 ...	6 ...	16·21 "

CASES OF SPLENECTOMY WITH RESULTS.

TABLE I.—LEUCOCYTHÆMIC CASES.

No.	Date.	Surgeon.	Place.	Sex.	Age.	Nature of Disease.	Result of Operation.	Weight of Spleen.	Post-mortem Notes.	Remarks.
1	1866	Bryant	England	M.	20	Leucocythæmia	Death from hæmorrhage in 90 minutes	4 lbs. 7 ozs.	14 lbs. of blood in abdominal cavity	Severe hæmorrhage at operation
2	1867	Koerberlé	Strasbourg	F.	42	"	almost immediately	17 lbs. 8 ozs.		
3	1868	Bryant	England	F.	40	"	from hæmorrhage in 15 minutes	10 lbs. 6 ozs.	1 pint of blood in region of spleen	Severe hæmorrhage at operation
4	1873	Watson	Edinburgh	M.	7	"	" and shock	12 lbs.		
5		Spencer Wells	England	F.	42	"	peritonitis on 3rd day	16 lbs. 3 ozs.		
6	1876	"	"	F.	47	"	hæmorrhage in a few hours	Over 11 lbs.		
7	1877	Billroth	Vienna	F.	25	"	" in 4 hours	6 lbs. 9 ozs.	One ligature found loose	Severe hæmorrhage from adhesions at the time of operation
8	"	"	"	F.	31	"	" in 1 hour	11 lbs. 11 ozs.		
9	"	L. Browne	England	M.	20	"	" in 5 hours	18 lbs. 8 ozs.		
10	"	Fuchs	Behar	F.	40	"	" in 18 "	12 lbs. 13 ozs.		
11	"	Simmons	Sacramento	M.	43	"	" in 21 "	7 lbs. 8 ozs.		
12	1878	Urbanato	Cesana	F.	7	"	shock in 48 hours	?		
13	"	Geissel	Essen	F.	39	"	hæmorrhage in 16 hours	9 lbs. 15 ozs.		
14	"	Cerny	Heidelberg	F.	24	"	" in 4 "	11½ ozs.		
15	"	Amison	England	F.	37	"	" in 5 "	7 lbs. 13 ozs.		
16	1879	Miner	"	F.	40	"	? cause	?		
17	"	Poncel	Marseilles	M.	39	"	from shock in 28 hours	?		
18	1881	Franzolini	Udine	F.	22	(incipient)	Recovery	3 lbs. 13 ozs.		
19	"	Haward	England	F.	49	"	Death from shock in 6 hours	7 lbs. 8 ozs.		Knowsley Thornton classes [this under hypertrophy]
20	1884	Terrier	"	F.	43	"	" in 12 hours	11 lbs.		
21	"	Rydygier	Culm	F.	31	"	from hæmorrhage in 24 hours	6 lbs.		
22	1888	Fritsch	Germany	F.	26	"	" in 5 hours	?		
23	"	Rowell Park	"	F.	7	"	"	?		
24	1891	Tricomi	Padua	F.	26	"	shock in 75 minutes	?	Bleeding from diaphragm	
25	1892	Lawson Tait	Birmingham	F.	36	"	hæmorrhage in 44 hours	13 lbs.		

CASES OF SPLENECTOMY WITH RESULTS.

TABLE II.—NON-LEUCOCYTHÆMIC CASES.

No.	Date.	Surgeon.	Place.	Sex.	Age.	Nature of Disease.	Result of Operation.	Weight of Spleen.	Post-mortem Notes.	Remarks.
1	1549	Zaccharelli	Naples	F.	24	Hypertrophy	Recovery	2 lbs. 15 ozs.		
2	1711	Feirerias	St. Carnigan	F.	30	Spleen in peritoneal abscess	Death from hæmorrhage in 6 hours	5 lbs. 8 ozs.		
3	1826	Wittenbaum	Rostock	F.	22	Hypertrophy	Recovery	?		
4	1855	Schultz	Darmstadt	?	?	Spleen protruding from wound	Death from hæmorrhage in 2 hours	3 lbs. 5 ozs.		
5	"	Küchler	"	M.	36	Hypertrophy	Recovery	?		
6	"	Volnay d'Orsay	America	M.	?	"	Death from ? thrombosis on 7th day	6 lbs. 15 ozs.		First English case.
7	1865	Spencer Wells	England	F.	34	"	Recovery	?		
8	1866	Baker Brown	London	M.	7	"	Death at the operation	?		
9	1867	Péan	Paris	F.	20	Cystic spleen	Recovery	2 lbs. 8 ozs.		
10	1873	Urbanato	Cesana	F.	?	Hypertrophied, wandering spleen	Death from peritonitis on 3rd day	2 lbs. 14 ozs.		
11	"	Koerberlé	Strasbourg	F.	27	Hypertrophy, hydatid ?	shock in 17 hours	2 lbs. 8½ ozs.		
12	1876	Péan	Paris	F.	24	"	Recovery	2 lbs. 7½ ozs.		
13	1877	Pollak	"	?	?	Death ? Cause.	?			
14	"	Martin	Berlin	F.	31	Wandering spleen	Recovery	Slightly increased in weight.		
15	1878	Aonzo	Savona	F.	24	Hypertrophy	Death in 5 hours	8 lbs. 12½ ozs.		
16	"	Houzo	"	F.	24	"	Death from shock.			
17	"	Volnay d'Orsay	America	?	?	"	Death.			
18	"	Fischer	Breslau	F.	44	"	Died.			
19	"	Cerny	Heidelberg	?	30	Wandering spleen	Recovery.			
20	"	Langenbach	Berlin	F.	16	Hypertrophy	Died.			
21	1881	Crédé	Dresden	M.	44	Cystic spleen	Recovery	2 lbs. 10 ozs.		
22	"	Celso Bonaer	Urbino	F.	53	Hypertrophy	Death from hæmorrhage in 3 hours	7 lbs. 3½ ozs.	Bleeding from diaphragm.	
23	"	Charleoni	Mailand	F.	32	"	" in 2 hours	6 lbs. 5½ ozs.		
24	1884	Gussenbauer	Prague	F.	17	"	Death in 3 hours	2 lbs. 7 ozs.		
25	1881	Spanton	Hanley	F.	47	"	Death from hæmorrhage in 7 hours	8 lbs. 3 ozs.		
26	"	Von Bergmann	Berlin	F.	63	"	Died in 32 hours.			
27	1884	Billroth	Vienna	F.	43	Lymphosarcoma	Recovery			
28	"	Knowsley Thornton	England	F.	25	Hypertrophy	Death from hæmorrhage in 5½ hours.	2 lbs. 13½ ozs.		
29	"	"	"	F.	19	Cystic spleen	Recovery			
30	"	Koerberlé	Strasbourg	F.	46	Hypertrophy	Death in 20 hours	1 lb. 11 ozs.		
31	"	Younker	St. Louis	F.	32	Dislocation	Recovery	17 lbs.		
32	"	Alessio Giovanni	"	F.	43	Chronic hypertrophy	Well 72 hours after.	" 3 times natural size."		
33	"	Derselbe	"	F.	25	Hypertrophy	Died in 5 hours.			
34	1835	Roddick	Montreal	M.	?	Ruptured spleen	Died in 6 hours.			
35	"	Olovsky	Russia	F.	26	Hypertrophy	Death from hæmorrhage on 4th day		Bleeding from diaphragm.	
36	"	Alibert	Vienna	F.	34	"	Recovery	5 lbs. 2½ ozs.		
37	"	Prechovnik	"	F.	?	"	"			
38	"	Donat	Odessa	F.	25	"	"			
39	1886	Cecil	Genoa	F.	17	Wandering hypertrophied spleen	"	4 lbs. 13 ozs.		
40	"	Nilsen	New York	M.	10	Hypertrophy	"	Nearly 2 lbs.		
41	"	Bergmann	Berlin	F.	38	"	Death ? Cause.			
42	"	Ribrez	Russia	F.	36	Hypertrophy	Recovery	3 lbs. 7 ozs.		
43	"	Ribera	Madrid	M.	10	"	Death in 24 hours from shock.			Died 1 month after from nephritis.
44	"	McCann	Pittsburg	F.	29	Wandering hypertrophied spleen	Recovery	14 ozs.		
45	1887	Casini	Italy	F.	22	Hypertrophy	"	6 lbs. 12 ozs.		
46	"	Leibman	Trieste	F.	28	Wandering hypertrophied spleen	"	2 lbs.		
47	"	Spencer Wells	England	F.	24	Hypertrophy	"	1 lb. 14 ozs.		
48	"	Polk	New York	F.	7	Wandering spleen	"			
49	"	Meyers	Indiana	F.	?	Hypertrophy	"			
50	"	Leonard	"	F.	?	"	"			
51	"	Severeanu	"	F.	?	"	"			
52	1888	Fritsch	Budapest	F.	40	Wandering spleen	"			
53	"	Spencer Wells	England	F.	31	Lymphosarcoma	"			
54	"	Hatch	Bombay	M.	30	Wandering spleen	"			
55	"	Max	Valencia	?	?	Hypertrophy	Death from shock same day.			
56	"	Wright	Manchester	M.	31	Hydatid	Recovery.			
57	1890	Mrs. Garrett Anderson	London	F.	?	Hypertrophy	Death from hæmorrhage in 36 hours	1 lb. 8 ozs.	Bleeding from diaphragm.	
58	1891	Spanton	Hanley	F.	52	"	Death from peritonitis	3½ lbs.		
59	"	Tricomi	Padua	F.	?	Wandering hypertrophied spleen	Death in 11 hours from shock.	5½ lbs.		
60	1892	Bland Sutton	London	F.	22	Wandering and rotated spleen	Recovery	1 lb. 8 ozs.		
61	"	Tricomi	Padua	F.	32	Hypertrophy	"	1 lb.		
62	"	Lindfors	Christianstad	F.	20	Wandering spleen	"	2 lbs. 3 ozs.		
63	"	Treub	Leiden	?	?	Hypertrophy	"			
64	1893	Reigner	Berlin	M.	14	Injury	"			
65	"	Cecil	Genoa	F.	16	Hypertrophy	"			
66	"	"	"	M.	13	"	"	3 lbs. 11½ ozs.		
67	"	Richelot	France	F.	7	"	"			
68	"	Hartmann	Germany	F.	18	"	"	?		
69	1894	Murphy	Sunderland	F.	38	Abscess and hypertrophy	"	4½ lbs.		
70	"	Malins	Birmingham	F.	30	Enlarged rotated spleen	"	1 lb. 8 ozs.		
71	1895	Spanton	Hanley	F.	38	Hypertrophy	"	2 lbs. 5 ozs.		
72	"	Runge	Germany	F.	7	Wandering	"	6 lbs. 4 ozs.		
73	"	Bland Sutton	London	F.	5	Hypertrophy	"	?		
74	"	"	"	F.	17	"	"	10 ozs.		
75	"	"	"	F.	32	Wandering	"	2½ lbs.		

