CASE OF
STRICTURE OF THE COLON,
SUCCESSFULLY TREATED BY OPERATION,
WITH
AN ANALYSIS OF FORTY-FOUR CASES OF ARTIFICIAL ANUS.

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ON July 21st, 1851, I was asked to meet Dr. Seymour and Mr. Malton in consultation on the case of a lady, aged 44, who, although naturally delicate, had been long free from any illness, except that she had twice experienced, in the preceding year, an attack of pain in the abdomen, which had each time passed off in a day or two, under the use of a gentle aperient; the usual condition of her bowels being that of moderate but constant relaxation, which had not been less marked before the present illness than in the earlier part of her life.

It appeared that on the present occasion, the bowels had not acted since the 15th, six days before my visit; that on the 17th, she had taken some of her usual aperient without effect, but did not feel ill till the 18th, since which time she had twice taken calomel and colocynth, and once some castor oil, and on the preceding day some castor oil and colocynth, and Mr. Malton had also tried enemata, which were not retained. I found her on the 21st with a natural pulse of nearly 80, and without much distress, but suffering from occasional vomiting, with a good deal of distension of

the abdomen, though less than on the preceding day, and with some tenderness, especially in the centre between the umbilicus and pubes, where there was greater resistance and feeling of solidity than elsewhere. I may observe that this part continued, throughout her illness, more tender and less tympanitic than the rest of the abdomen, a circumstance which has been often observed in stricture of the upper part of the rectum, and is therefore of importance as being calculated to lead to error of diagnosis.

I ascertained, on examination, that there was a very capacious rectum, free from any disease as far as the finger could be made to reach, but becoming slightly narrower where it began to turn towards the sigmoid flexure, as if the folds were brought towards each other. The use of a tube or bougie was somewhat difficult, and always required the introduction of the finger, on which it could be directed, not only to lead it correctly into the upper opening among the loose folds of the bowel, but also to throw forwards the uterus, which was retroverted probably from the distended bowels above. Thus directed, the tube or bougie would pass onwards till firmly resisted by the obstruction about ten or eleven inches from the anus, or, allowing for the elongation of the lower part by the pressure, about seven inches from that part. The rectum allowed about three quarters of a pint of injection to enter, but beyond this quantity the liquid always ran out again, and none whatever was ever felt to pass into the bowel above the stricture. Owing to a great degree of lateral distortion of the spine, the space between the ribs and the ilium was too small to allow of the diagnostic sign of bulging of the descending colon; but the other local signs left no doubt in my mind, from the first examination, that there was stricture in the lower part of the sigmoid flexure of the colon.

Daily attempts were made to dilate the stricture by a bougie carefully introduced, and pressed upwards with as much force as I considered prudent; and the bougie was generally followed by a long tube, through which the injection was urged with force till it ran out. At first it seemed

that some little greater distance was gained by these means ; and on several occasions hopes were given by the appearance of a little faecal matter on the end of the bougie, and still more on the 25th, and several succeeding days, by some little pellets or powder of distinctly faecal substance in the enemata. Even this, however, altogether ceased ; and in the thirty days preceding the operation, the whole quantity of faeces which obtained a passage did not exceed two ounces.

On the 22d, a week after the last motion, all medicine was intermitted, and in consequence of this the vomiting wholly ceased till the 29th, when we agreed to give some small quantities of saline purgative, of which, however, only two doses were taken, as a return of sickness and distress, and loss of sleep, and acceleration of pulse, were the immediate result, and the tympanitic state of the abdomen was also obviously increased. After this small doses of opium were alone given, and she again became more comfortable, and took food with appetite ; her pulse fell to about 80, as it had been before the medicine.

On August 5th, Sir Benjamin Brodie met us in consultation ; but as the symptoms were not materially increased, and the relations supposed that an operation would probably not be consented to, nothing was yet said to the patient on the subject.

After this time the pulse became weaker, though seldom accelerated ; a little bilious fluid was now and then thrown up ; she could no longer take much food ; and the distension increased so much as to embarrass her breathing, though still without the least threatening of peritonitis. On the 7th, three grains of calomel with half a grain of opium were given every four or five hours, and continued till the 12th, when the gums becoming slightly affected, the opium was given alone.

During this last week, all traces of faecal substance having long ceased, the end of any instrument, introduced into the stricture, became covered with thick whitish mucus tinged with blood, and the injections brought away some white flocculent substance with mucus, which gave to each of us, as

well as to Sir Benjamin Brodie, who again met us on the 13th, a strong impression, I trust an erroneous one, that it resembled the discharge from a cancerous ulcer.

It now became evident that no further time could be safely allowed for ulceration, or mechanical means, to open the stricture, and therefore the operation was proposed, and readily consented to, for the following day, the thirtieth from the last action of the bowels.

On August 14th, chloroform being administered by Mr. Pollock, I opened the left lumbar colon, Sir Benjamin Brodie, Dr. Seymour, and Mr. Malton giving their assistance. The patient lying a little on her right side, the convexity of the lumbar vertebræ, towards the left side, usual in such cases of lateral distortion, became prominent, and the rotation of the vertebræ accompanying this curve made the transverse processes unnaturally prominent, and consequently the edge of the quadratus lumborum became unusually evident, while the long muscles commonly taken as a guide in the operation were wasted, and turned round out of sight with the spinous processes, towards the right side. It is probable that these alterations of position made the bowel itself approach somewhat nearer to the surface, so as to lessen the difficulty in reaching it, which the unnatural proximity of the ribs to the ilium might otherwise have materially increased beyond what is usual.

A transverse incision, fully three inches long in the usual place, about an inch above the spine of the ilium, readily exposed the bowel, the coats of which, instead of being of the greenish colour sometimes described, were thick and florid, with several large vessels within them. Having passed two ligatures into the coats of the bowel, and fastened them to the integuments above and below, I opened the bowel longitudinally, and consequently at right angles with the incision through the outer parts, for an inch, and slightly divided each lateral margin, upon which a stream of semifluid green fæces, having very little fætor, escaped, and soon filled a basin, and in the course of the next six hours, at least two quarts had come away, and the abdomen had become com-

paratively soft and flaccid. There was a little trouble from hæmorrhage an hour afterwards, though no bleeding took place during the operation, after which the patient was quiet, though weak, from being unable to take more than a very little fluid nourishment.

During the first three or four days some abdominal pain and tenderness accompanied the continual discharge of fæces, for which opium was required; and on the 16th, two days after the operation, much alarm was excited by a sudden attack of deadly faintness and nausea in the afternoon, followed by frequent vomiting from midnight till three in the morning; this took place for the same period on the two following nights; it required frequent stimulants in small quantities, and probably arose from the action of the bowels.

On the 21st, however, she was able to sit up for a short time, and the appetite became morbidly keen, after which little of importance occurred; her strength was gradually restored, till in about six weeks she became stouter and apparently in better health than before her long illness.

In the first two or three months a small quantity of fæces occasionally passed per anum for a few days, and then ceased; and in the fifth month a little came away in this manner almost every day, sometimes to the extent of a fourth of the daily evacuation, but the stricture remains nearly in the same state, a tube reaching an obstruction, when passed downwards, about three inches from the wound.

The artificial anus has shown the usual tendency to contraction, to obviate which I have had an ivory plug made of the requisite size and length, having found that one of India-rubber was soon destroyed by the liquids of the bowel, and was not sufficiently firm to resist the contraction of the cicatrix. The plug is attached to a small brass plate, which is enclosed in a larger one of India-rubber, which covers the adjacent parts, and is retained in its place by an elastic bandage or by plaster. This plug is generally withdrawn for an hour or an hour and a half in the morning, for the escape of the contents of the bowel, after which it is again introduced for the rest of the day; and with it the lady is

able to ride and walk out, and enter into society without inconvenience. The propulsive effort being probably less than in the natural situation, a gentle aperient is necessary about once in a fortnight, without which there would be more fullness of the abdomen than is consistent with comfort or safety.

POSTSCRIPT. Lady — has continued till the present time (July 14, 1852,) in tolerably good health, the evacuations passing only through the wound. On one occasion so much solid *fæces* had collected that they required to be broken down mechanically through the wound, in order to check the vomiting and diarrhoea, &c., occasioned by the stoppage.

It is remarkable that the operation of intentionally forming an artificial anus, in cases of irremediable obstruction of the bowel, was not practised by either of the surgeons who proposed the two chief methods of performing it in 1710 and 1796; and the proposals themselves met with so little favour, that when a modification of Callisen's operation was brought forward by Amussat in 1839 and 1841, in his first two Memoirs, his researches only enabled him to find six instances, three in France and three in England, in which the operation had been resorted to, to which number he added five cases of his own.

In 1844 an able writer in the 'British and Foreign Medical Review,' (vol. xviii,) added seven other operations, making at that time eighteen cases altogether; and in 1847 Mr. Phillips, in his excellent Paper on Intestinal Obstructions generally, enumerated seventeen cases of artificial anus, including some only of the two former tables, but adding two cases before unpublished.¹

¹ Mr. Phillips indeed ('Med.-Chir. Trans.,' vol. xxxi, p. 29,) enumerates nineteen cases; but in one of them the small intestine was opened "apparently unwittingly," and in the other the patient accidentally drove a stake into his abdomen and injured the bowel. (Related with Case 3.)

Scarcely any year has passed, however, since Amussat's first paper was published, in which the operation has not been performed, especially, I believe, by English surgeons; and four patients are now living, and in good health, in this metropolis, whose lives have doubtless been prolonged by the operation.

It appeared to me, therefore, probable that several important circumstances connected with the operation, hitherto uncertain, might be illustrated by the Tables, which I formed with some labour,¹ of Forty-four cases of the operation, of eight of which, including my own case, the particulars have not yet been published, and in seven of them have been very kindly furnished me by the operators themselves.²

¹ The difficulty is greatly increased by the false references and erroneous statements made by preceding writers, which are so numerous and so frequently repeated by others who follow them, that I can scarcely hope my own Tables are altogether free from error regarding the published cases.

² Four unpublished cases are added, in an appendix to the Second Table, but are not included in the results. Cases 17, 23, 36, and 40, were read at the 'Med. and Chir. Society,' Feb. 10, 1852, just before the author's Paper was read, the details being published in the present volume.

TABLE I.
Cases in which the Peritonæum was Opened.

No. of Case in 1st Table.	No. of Case in both Tables.	Name of Operator, with references to description of cases.	Date of Operation.	Age and Sex.	Disease for which the Operation was performed.	Part of Intestine opened, and mode of Operation.	Result.	Cause of Death, or state of patient after Operation.
1	1	M. Pillore. Case given by his son, in Amussat's 1st Memoir, p. 85; L'Experience, Jan. 30, 1840; Gazette Médicale, June, 1840.	1776	M. Adult.	Cancer of rectum, 8 or 9 inches in extent; constipation above a month.	Cæcum in right iliac region; oblique incision above Poupert's ligament.	Died, 28 days.	Obstruction in a fold of jejunum, from 2 lbs. of mercury previously given, a month before the operation,—the bad symptoms beginning nearly 20 days after the operation.
2	2	M. Fine. Odier's Manuel de Méd., ed. 2, 1811 (?) p. 275, quoted in Amussat's 1st Memoir, p. 108, from Annales de la Société de Méd. de Montpellier, t. vi.	1797, Oct. 12	F. 70, Amussat.	Cancer of rectum. <div style="border: 1px solid black; padding: 2px; display: inline-block;">Amussat, p. 109; 63 in British and Foreign Med. Review, 1844, vol. xviii, p. 462.</div>	Transverse colon, by incision in linea alba, between umbilicus and pubes. M. F. intended to have opened the small intestine.	Recovered. Died Feb. 1, 3½ months.	Dropsy. Very little feces passed per anum after operation.
3	3	M. Dugueceau. Read by Dr. Dufresne, at l'Académie de Médecine; Méd. Times, vol. x, 1844, p.	1811	M. Adult.	For the cure of fistule in ano, no obstruction being present.	Colon in left iliac region; by Littre's operation.	Recovered.	The artificial anus closed in two years, and then reopened spontaneously, but finally closed in two years more, the fistula being also cured.

4	446; Malgaigne's Journal de Chir., t. ii, p. 252; Bulletin de la Société de Chirurgie, t. ix, p. 1082.	1817	M. 47	Stricture of rectum.	Colon in left iliac region; Littre's operation.	Died, 8 days.	No post-mortem. Evacuations incomplete by wound; much liquid, like putrid blood, per anum. seven days after the operation.
5	Mr. Freer. London Medical and Physical Journal, vol. xlv, p. 9.	1820	F. 64	Stricture of rectum; 12 days' entire constipation.	Colon in left iliac region; Littre's operation.	Recovered. Alive six months afterwards.	No feces per anum. Apoplectic seizure four months after operation, but recovered from it to a great extent.
6	Mr. Martland. Edinb. Med. and Surgical Journal, vol. xxiv, p. 271.	1824	M. 44	Stricture of rectum; 25 days' constipation.	Colon in left iliac region.	Recovered. Living 17 years after.	Feces occasionally per anum in first two years, but probably none afterwards.
7	M. Reybard. Bulletin de l'Académie de Médecine, t. ix, p. 1031, report by Blandin, Berard, & Jobert; Phillips, in Med. Chir. Trans., vol. xxxi, p. 25.	1833, April 8	M. 28	Cancer of sigmoid flexure of colon.	Three inches of left colon cut out, and the ends sewn together; in left iliac fossa.	Recovered. Died in 12 months, March 16, 1834.	Feces per anum on 10th day; healed in 38 days. Tumour returned in six months in same place, and finally caused death.
8	M. Velpeau. Verbal account at the Academy, in Gaz. Médicale, 1839.	1839, Sept.	F. Aged	Stricture of rectum.	Colon in left iliac fossa. M. Velpeau, it is said, probably tried to open the	Died, 2 days.	Peritonitis, begun before operation.

CASES IN WHICH THE

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9	p. 638, quoted in Amussat's 1st Memoir, p. 161. M. Amussat. 2d Memoir, p. 43.	1840, May 8.	F. 47	Stricture at the junction of the transverse and ascending colon, with bone lodged in it; seat of obstruction unknown at time of operation; 33 days' constipation.	bowel without wounding the peritoneum, but completed the operation on Littré's plan. Cæcum.	Died, 24 hours.	Peritonitis.
10	M. Thierry. L'Expérience, Oct. 6, 1842, p. 209.	1840	M. 6	Cancer of rectum.	Ascending colon, closed to cæcum. M. Thierry intended to open the cæcum without wounding the peritonæum; but the colon, distended with mercury, came in the way, dislodged by the weight.	Died, 22 hours.	Peritonitis.
11	M. Monod. Archiv. Gén. de Méd., 3 ^{me} série, t. ii,	1838, June 5.	F. 25	Stricture of cæcum, only admitting a catheter; un-	Ileum; incision 3 in. long in right side of abdomen.	Died within 2 days.	—

12	12	Mr. Lake. Phillips, Med.-Chir. Trans., vol. xxxi, p. 26.	1838;	known before death, the apparent disease being a tumour in the right iliac fossa, following a blow a year before, which was found to consist of a scirrhous mass implicating the coats of the bowel.	Stricture of colon, 8 inches from anus, 5 inches long; completely impervious.	M. 41	Colon in left iliac fossa.	Died within 24 hours.	Peritonitis. Six inches of serous coat of transverse colon ruptured from distension.
13	13	Mr. Simon (with Dr. Todd). Phillips, Med.-Chir. Trans., vol. xxxi, p. 28.	1847	by band between mesentery and meso-colon; supposed before operation that the ascending colon was obstructed.	Ileum.	M. 26		Died, about 12 hours.	Exhausted before operations
14	14	Mr. Avery. Pathol. Society, 3d Report, p. 62.	1849	Stricture of sigmoid flexure of colon, non-malignant, 14 inches from anus, an inch long, only admitting catheter; supposed to be obstruction of small intestine.	Cæcum opened; incision 6 inches long in right groin. Intestines traced till the stricture was felt in the pelvis; left untouched.	F. 56		Died, 12 hours.	Collapse, with lymph from peritonitis, though not inflamed at the time of operation.

No. of Case in 1st Table.	Name of Operator, with references to descrip- tions of cases.	Date of Opera- tion.	Age and Sex.	Disease for which the Operation was per- formed.	Part of Intestine opened, and mode of Operation.	Result.	Cause of Death, or state of patient after Operation.
15 15	Mr. Avery. Report of Patho- logical Society, p. 222.	1850	M. 55	Obstruction of as- cending colon below the arch, by unnatural twist of colon and cæcum.	1st. Descending colon, external to perito- neum; only scybalæ found. 2d. Peritoneum opened in same wound, and another artificial anus established in ascending colon.	Died, 28 hours.	Internal coat of bowel ul- cerated and nearly perfo- rated.
16 16	Mr. Luke. Med.- Chr. Trans., vol. xxiv, p. 263.	1850, Dec. 23	M. 60	Stricture of sigmoid flexure of colon.	Colon in left iliac fossa.	Recovered. Seen by myself, in good health, Dec., 1851, and continues so, Feb., 1852. [Conti- nues in good health June, 1852, 18 mo.]	Fæces partly passed per anum four days after the opera- tion, and scarcely any now pass through the artificial anus, though it is freely open, having a flat truss to prevent prolapsus.
17 17	Mr. Adams. Un- published; details communicated by operator, pub- lished in this vo- lume, p. 59.	1851, July 21	F. 35	Tumour in upper part of rectum, believed to be malignant. [Found, post- mortem, to be hard scirrhus.]	Sigmoid flexure of colon in left iliac fossa.	No fæces have passed per anum, only bloody mucus, which is diminishing. [The opening, up to June, 1852, gave no trouble, and readily allowed the escape of fæces when not obstructed above the opening. The bladder was pushed into the right iliac fossa, where it formed a considerable tumour, full of urine. Liver studded with scirrhous tubercles.]	

TABLE II.
Cases Operated on without Injury to the Peritonæum.

No. of Case in 2d Table.	No. of Case in both Tables.	Name of Operator, with references to descriptions of cases.	Date of Operation.	Age and Sex.	Ascertained or supposed Cause of Obstruction.	Situation of the Artificial Anus, and mode of incision.	Result.	Cause of Death, or state of patient after Operation.
18	1	M. Amussat. 1st Memoir, p. 34, read Oct. 1, 1839, at the Académie Royale de Méd.; 2d Memoir, p. 32; discussion in Gaz. Médicale, 1839, pp. 585—630.	June 2, 1839	F. 48	Cancer of rectum; constipation 26 days.	Descending colon; by transverse incision.	Recovered. Died 5 months afterwards.	No evacuations per anum. Cause of death, peritonitis from cancer.
19	2	M. Amussat. 1st Memoir, p. 52; 2d ditto, p. 41.	July 14, 1839	M. 62	Cancer of rectum; constipation 8 days.	Descending colon; by transverse incision.	Recovered. Alive about 24 years, Feb., 1842. Med. Gaz., vol. xxx, p. 15; Gaz. des Hôp., 1842.	The cancer had not made much progress in February 1842, and feces sometimes passed per anum, after injection.
20	3	M. Amussat. 2d Memoir, p. 2.	July 3, 1841	F. 50	Cause of obstruction unknown; constipation 40 days.	Right ascending colon; by transverse incision.	Recovered. Seen by Dr. Parrott alive and in good health 8 months after the operation. Med. Gaz. vol. xxx, p. 15.	Injectons required to produce evacuations by the wound.
21	4	M. Amussat. 2d Memoir, p. 24.	Aug. 1841	F. 60	Cancer of rectum; constipation 45 to 50 days.	Right ascending colon; by transverse incision.	Died, 10 days.	Ulceration of the bowel. No peritonitis. Feces per anum for two days before death,

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22	5	M. Amussat. M. Vidal, in Gazette des Hôpitaux, March 26, 1842; Gazette Médicale, 1841, p. 588.	Nov. 1841	M. 57	Tumour in left iliac fossa, supposed to be cancer of omentum or sigmoid flexure of colon; constipation 33 days.	Right ascending colon by transverse incision.	Recovered, 75 days. In Amussat's Memoir. Seen by Dr. Parrott a few weeks after the operation; Med. Gaz., vol. xix, p. 15.	and the finger could pass through the stricture, which was impracticable before operation. Some feces per anum. Injections every other day by artificial anus.
23	6	Mr. Clement. Unpublished; communicated by the operator. [See present volume of Transactions, p. 209.]	Oct. 10, 1841	F. 47	Stricture of transverse colon, below which an immense quantity of plum-stones were lodged.	Right ascending colon by transverse incision (the first so operated on in Great Britain).	Recovered. Lived a little more than 3 years. Plum-stones discharged at various periods from the time of an illness arising from them six weeks after operation.	No feces; not even flatus per anum, at any time after the operation. Gradual emaciation. Post-mortem examination did not appear to explain the cause of death.
24	7	Mr. Teale. Provincial Medical and Surgical Journal, vol. iii, p. 486.	March, 1842	F. 54	Stricture of sigmoid flexure of colon, 18 inches from anus.	Left descending colon by transverse incision.	Died, 6 days.	Peritonitis. Cæcum burst, and feces escaped into the pelvis.
25	8	Mr. Jukes. Ibid., vol. iv, p. 330.	May, 1842	F. 30	Cancerous tumour of rectum, 4 in. long.	Left descending colon by transverse incision.	Died, 16 days.	Peritonitis. Old chronic adhesions, with some recent lymph, not more near the wound than elsewhere.

26	9	M. Baudens. Lecture by M. B. in Gazette des Hôpitaux, 1842, pp. 219 and 227.	1842	F. 55	Adhesion of rectum to uterus and vagina, after phlegmonous abscess.	Right ascending colon; by <i>oblique</i> incision.	Died, 5 days.	Peritonitis,—began before the operation.
27	10	Mr. Evans. Med. Chir. Trans., vol. xxviii, p. 95.	1844	M. 23	Stricture at the junction of the ascending and transverse colon; not malignant.	Right ascending colon; by transverse incision.	Recovered. Died, 3 months.	Diabetes and peritonitis, from the further progress of the disease.
28	11	M. Malgaigne. Journal de Chir., t. ii, p. 252; Lancet, 1844, vol. ii, p. 34.	1841	M. 57	Cancer of rectum.	Left descending colon; by transverse incision.	Died, 9 days.	Sudden,—while the bowel was reduced, after protruding from the wound. Death attributed to the cancer.
29	12	M. Amussat. Account by M. Amussat in Gaz. Médicale, 1844, p. 508; Medical Times, vol. x, 1844, p. 401, and vol. xi, 1845, p. 528, for the sequel of the case.	June, 1844	F. 53	Annular stricture of colon, and adhesion to uterus.	Left descending colon; by transverse incision.	Recovered. Died, Nov. 1844, 6 months and 10 days.	From the progress of the disease. Some feces passed per anum; but latterly the passage was obstructed, and peritonitis took place from this cause.
30	13	M. Baudeloque. Retrospect by Mr. Teale in the Trans. of Prov. Med. Ass., vol. xiv, p. 119, quoted as from Én. des Sciences Méd., Feb. 1845.	1845	—	I have been unable to procure the volume of the Encyclopédie to which reference is made; and I suspect the case may be that of	—	—	—

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31	14	M. Didot. Gazette Médicale, 1848, p. 235.	1846	M. 65	imperforate rectum in an infant, but I have not thought it right to erase it from the list. Cancer of rectum.	Left descending colon; by transverse incision.	Recovered, living 2 months.	Two months after operation in good health, and at his usual employment (October 29th to end of December), but the cancer making progress.
32	15	Mr. Field. Med. Chir. Trans., vol. xxxiii, p. 45.	1846	M. 33	Stricture of sigmoid flexure, 8 inches up, 4 inches long; blocked up by plug of lymph.	Left descending colon; by transverse incision.	Recovered. Died, 1 year and 9 months.	Fæces, by artificial anus; obstructed every two or three months, till the wound was dilated. Ascites: tapped. Chronic peritonitis, and adhesions.
33	16	Mr. Clarkson. Ibid., p. 57.	1846	F. 21	Stricture of upper part of rectum, cartilaginous, 6 inches up; canal obliterated for an inch.	Left descending colon; by transverse incision.	Recovered. Died, 1 year and 2 months.	Obstruction of artificial anus; occasioning chronic peritonitis and universal adhesions, with ulceration of bowel,—the most healthy part being some inches above and below the stricture.
34	17	Mr. Crompton. Medical Gazette,	1846	M. 36	Cord-like stricture of colon, 11 in.	Left descending colon; by transverse incision.	Died, 5 hours.	Sudden prostration from peritonitis just before the

35	18	new series, vol. ix, p. 107.	Dec., 1847	F. 30	from anus and 10 in. from artificial anus.	Cancerous stricture of sigmoid flexure of colon.	Left descending colon; by transverse incision.	Died, 14 days; unfavorable symptoms beginning on the 8th day.	operation, of which the patient was scarcely conscious.
36	19	Mr. Clement. Unpublished; communicated by the operator. [See present vol. of Trans., p. 218.]	June 21, 1847	M. 43	Cancerous growth entirely filling the rectum, and pressing on the bladder.	Left descending colon; by transverse incision.	Died, 35 days, much relieved.	No post-mortem examination. Morbid growth increased. Sloughing over sacrum, &c. was the chief cause of death.	Peritonitis from the cancer.
37	20	M. Maisonneuve. Bulletin de la Société de Chirurgie, t. i, p. 292. (Read July 18, 1849.)	1847 ^(c)	M. 33	Cancer of rectum.	Left descending colon; by transverse incision.	Recovered. 2 months.	Died.	Of phthisis. Rectum quite obliterated by the disease.
38	21	Mr. Hilton. Unpublished; communicated by the operator.	Jan., 1849	M. 23	Cancer of upper part of rectum.	Left descending colon; by Callisen's incision, parallel with edge of quadratus.	Died, 17 days.	Worn out by long-continued previous disease.	
39	22	Mr. Pennell. Medical Trans., vol. xxxiii, p. 255.	Nov., 1849	M. 50	Stricture of sigmoid flexure of colon, with stricture of urethra; faces and air passing by bladder and urethra, in which	Left descending colon; by Callisen's perpendicular incision.	Recovered. Living Oct. 1851, as I am informed by Mr. B. Phillips, in better health. [See supplemental note at end of this vol.]	Urine passed per anum, and by the artificial anus, in the first fortnight.	

No. of Case in 2d Table.	Name of Operator, with references to descriptions of cases.	Date of Operation.	Age and Sex.	Ascertained or supposed Cause of Obstruction.	Situation of the Artificial Anus, and mode of incision.	Result.	Cause of Death, or state of patient after Operation.
40	23 Mr. A. Baker. Unpublished; communicated by the operator. [See present vol. of Trans., p. 227.]	Jan. 23, 1850	F. 62	pieces of bone, &c. were often caught. Cancerous stricture of rectum, just felt by the finger. [Post-mortem: Narrow dense band, which completely occluded the canal; not examined minutely.]	Left descending colon; by Amussat's transverse incision.	Recovered. Alive Feb. 1852, but the health beginning to fail, with tumour felt in abdomen. [This patient died on the 11th Feb., the day after Mr. Baker's paper was read, and before the present paper was read. Mr. Baker has since favoured me with this information.]	Some fecal matter occasionally, per anum, in the first month, but only by the artificial anus since,—always free. [Post-mortem. Cerebriform and colloid cancer of both ovaries. Repeated peritonitis, with adhesions.]
41	24 Mr. Gay. 5th Report of Pathological Soc., p. 108.	1851	F. 52	Adhesion of rectum to scirrhous uterus, obstructing bougie, and adhesion of ileum to uterus, intercepting the passage of feces.	Left descending colon; by Amussat's transverse incision.	Died in less than 12 hours. Only scybala found in colon.	The obstacle to the passage of feces necessarily unrelieved by the operation.
42	25 Mr. Hilton. Unpublished; communicated by the operator.	April, 1851	F. 42	Stricture of left colon, not malignant; constipation 40 days.	Left descending colon; by Callisen's incision parallel with edge of quadratus.	Recovered, 10 months. Alive Feb. 1852, in good health, [and in June, 1852, still in good health.]	No feces per anum since the operation.

43	26 Mr. Paget. Unpublished; communicated by the operator.	July, 1851	F. 67	Annular carcinoma of rectum, about 5 inches from anus; constipation 9 or 11 days.	Left descending colon; by Callisen's vertical incision from the end of the last rib to the crest of the ilium.	Died, 36 hours. Great relief for 30 hours, from abundant fecal discharge; then rapid sinking.	Slight peritonitis, especially near the opening into the colon.
44	27 The Author.	Aug. 14 1851	F. 44	Stricture of sigmoid flexure; bougie obstructed about 10 inches from anus; 30 days' complete obstruction.	Left descending colon; by Amussat's transverse incision.	Recovered, 6 months. Alive and in good health Feb. 1852. [Well in Aug. 1852, one year after operation.]	Very little feces per anum in the first four months,—a little more in the fifth month,—scarcely any afterwards, except by wound.

APPENDIX.

No. of Case in 2d Table.	No. of Case in both Tables.	Name of Operator, with references to descriptions of cases.	Date of Operation.	Age and Sex.	Ascertained or supposed Cause of Obstruction.	Situation of the Artificial Anus, and mode of incision.	Result.	Cause of Death, or state of patient after Operation.
45	28	Mr. Teale. Unpublished; communicated by the operator, July 12, 1852.	Feb. 11, 1848	F. 57	Stricture of the lower part of the sigmoid flexure of colon, ascertained by the introduction of the hand into the rectum; obstruction 15 days.	Left descending colon; by transverse incision.	Died in 20 hours, unrelieved by operation.	No post-mortem allowed.
46	29	Dr. Keyworth. Unpublished; communicated by the	May 25, 1848	M. 53	Narrow circular stricture in the middle of the	Right ascending colon; by perpendicular incision, and trans-	Died in 26 hours, much relieved by escape of great	Post-mortem. Several red patches in the intestines, and in three or four places

No. of Case in both Tables	Name of Operator, with references to descriptions of cases.	Date of Operation.	Age and Sex.	Ascertained or supposed Cause of Obstruction.	Situation of the Artificial Anus, and mode of incision.	Result.	Cause of Death, or state of patient after Operation.
	operator, July 13, 1852.			descending part of the arch of the colon; no proper evacuation for a month.	verse incision prolonged forward from its centre. The psoas parvus got in the way, and the layers of the meso-colon required separation.	quantity of feces and gas.	the peritoneal coat of the great intestine was ruptured by distension. There was no effusion into the peritoneum.
47 30	Mr. Phillips. Unpublished; communicated by the operator, April 29, 1852; related West-also by Mr. Holm-thouse, at the Hospi-Pathol. Society.	June 20, 1850,	F. 46	Fibrous tumours of uterus, pressing the rectum against the sacrum, and obstructing the passage of urethral bougie; some softening and ulceration of rec-tum; constipa-tion 10 days.	Left descending colon; by $\perp$ shaped incision. The small intestine adhered to and discharged into the colon, in the situation of the wound.	Died, 18 days. Re-lieved at first.	A small quantity of liquid feces passed per anum, and different kinds of matter from the small and great intestine by the wound. Sloughing of wound was the cause of death.
48 31	Mr. Curling. Unpublished; communicated by the operator.	Feb. 26, 1852, two days after this paper was read.	M. 38	Ulceration of rec-tum into the bladder (as in 39); water passing per anum and feces per urethram; partial obstruction 9 days.	Left descending colon; by Amussat's trans-verse incision.	Recovered. No feces at first, but a gallon in 8 hours. Alive 3 months after-wards. [Died July 14, nearly 5 months after the operation.]	Weak and emaciated when he left town, May 28, 1852, (having a pint of almy pu-rulent discharge daily in March). Some feces per anum eight or ten days be-fore; some feces, on one or two occasions, by urethra, —generally all by wound.

Of these 44 cases of artificial anus, it is known that—

6	died within the first 24 hours,	(9, 12, 13, 14, 34, 41.)
11	„ 48 hours .	(8, 10, 11, 15, 43.)
13	„ 1 week .	(24, 26.)
17	„ a fortnight .	(4, 21, 28, 35.)
19	„ 3 weeks .	(25, 38.)
21	„ 5 weeks .	(1, 36.)

So that only 23 patients can be considered as having recovered from the operation; but as the operation in one case (3) was performed for the cure of fistulæ in ano, in which, therefore, the dangers of protracted constipation were absent, it will be more fair to state that there were 21 deaths and 22 recoveries.¹ But let us trace the 22 recoveries a little further; first we find that 5 died within six months, viz. :

1	in 2 months . .	(37.)
1	in 3 months . .	(27.)
1	in 3½ months . .	(2.)
1	in 5 months . .	(18.)
1	in 6 months and 10 days	(29.)

Eight are either alive or are left uncertain under a year, viz. :

1	reported for 2 months, cancer making progress?	(31)—Didot.
1	„ 2½ months, cancer of omentum or colon	(22)—Amussat.
1	„ 6 months. Operation 1820 (5)—Pring.	
1	„ 8 months „ 1841 (20)—Amussat.	
1	„ uncertain „ 1845 (30)—Bandelocque.	
1	alive at present, 6 months. Operation Aug. 14, 1851 (44)—Hawkins.	
1	„ 7 months „ July 21 „ (17)—Adams.	
1	„ 10 months „ April „ (42)—Hilton.	

And therefore only 9 survived for about one year or upwards, of whom,—

¹ The deaths and recoveries would be exactly equal if I could include in my Tables a case in which a surgeon in this country wounded the peritonæum, and opened the lumbar colon *below* the seat of obstruction; but my informant does not feel at liberty to communicate to me the name of the operator; nor was there any examination after death, to explain the nature of the obstructing cause.

1 died in rather less than a year	(7)—Reybaud.
1 „ in 14 months . . .	(33)—Clarkson.
1 „ in 21 months . . .	(32)—Field.
1 „ at the end of 3 years .	(23)—Clement.
1 was alive nearly 3 years, in 1842	(19)—Amussat.
1 is now alive, 14 months .	(16)—Luke.
2 are now alive, about 2 years	(39)—Pennell, (40)—Baker.
1 lived for 17 years . . .	(6)—Martland.

I must confess that I was not prepared, when I commenced this analysis of all the known cases of this operation, to find that only half the patients survived its performance; still less, perhaps, to ascertain that of those who did recover, so few received more than a brief prolongation of their lives, that only nine lived as much as one year, and that only one patient has hitherto lived beyond three years after the operation; and it became an interesting question to ascertain what were the circumstances which chiefly affected the success of the operation, so as to estimate the chances of life for the six patients who are known to be at this present time alive,¹ and determine how far it is hereafter to be looked on with favour as an established surgical operation.

1. Of 43 patients whose *sex* is recorded, 22 were females and 21 males; and of the 21 early deaths, 11 were females and 10 males; so that neither the frequency of the diseases for which the operation is required, nor the result of the operations, is influenced by the sex.

2. The *age* of 43 patients varied from 21 to 67 or 70, and it was,—

Between 20 and 30 years in 8 cases, of whom 5 died.								
„	30	„	40	„	4	„	1	„
„	40	„	50	„	11	„	4	„
„	50	„	60	„	10	„	7	„
„	60	„	70	„	7	„	2	„
reported as adult		in 2		„	1	„		
„	aged		„		1 case, which died.			

¹ Of these six patients, one (40) died February 11th, a few days before my Paper was read, two years and one month after the operation, and another (17) died July 13th, 1852, about one year after the operation.

Exactly half the cases whose age is recorded were, therefore, from 40 to 60 years old.

Of 8 cases, not exceeding 30, 5 died within five weeks, and none lived longer than fourteen months; of 7 cases, above 60 years of age, 5 recovered and only 2 died,—and of the 5 recoveries, 1 is now living, two years since the operation (40),¹ and another was reported as alive nearly three years after the operation (19); so that, at first sight, the advantage seems to be largely in favour of those advanced in life.

But if we examine a little further, we find that of 11 cases from 40 to 50, there were 7 recoveries to 4 deaths; while of the 10 cases from 50 to 60, there were only 3 recoveries, and not less than 7 deaths, in the first few days.

And if we take a further point of comparison, it is found that of 12 cases below 40 years of age, 6 died and 6 recovered; and of 17 cases above 50 years of age, 9 died and 8 recovered.

It would appear, therefore, on the whole, that age exerts less influence than might at first be anticipated, but that at least the age of 60 and upwards is no obstacle to success, since it has, so far, been more successful in the aged than in the young.

3. It might reasonably be expected that the *nature of the disease* for which the artificial anus is made would much affect the success of the operation. These diseases were,—

In 15 cases, stricture of rectum and sigmoid flexure of colon, believed to be not cancerous, (4, 5, 6, 8, 12, 14, 16, 24, 29, 32, 33, 34, 39, 42, 44.)
 „ 3 „ stricture of ascending or transverse colon, also believed to be non-malignant, (9, 23, 27.)
 „ 1 case, twist of colon at upper part of ascending colon, (15.)
 „ 1 „ adhesion of rectum to uterus from inflammation, (26.)
 „ 1 „ strangulation of ileum by a band, (13.)
 „ 1 „ fistulæ in ano, (3.)
 „ 1 „ adhesion of ileum and rectum to cancerous uterus, (41.)
 „ 17 cases, cancer of rectum and sigmoid flexure of colon, (1, 2, 7, 10, 17, 18, 19, 21, 25, 28, 31, 35, 36, 37, 38, 40, 43.)

¹ See the previous note of his death.

In 1 case, cancer of sigmoid flexure of colon, or of omentum, (22.)
 „ 1 „ stricture of cæcum, with scirrhus of its coats from injury, (11.)
 „ 2 cases, unknown, (20, 30.)

44

It thus appears that of 42 operations in which the nature of the disease was known, 19 were cancerous, *i. e.*, 45 per cent. Again, of the 21 cases which did not recover from the operation, 10 were cancerous, or above 47 per cent. It follows, therefore, that the operations for cancerous diseases were, to a certain degree, but not much, more fatal in the first five weeks.

We might have anticipated, *à priori*, that few who were operated on for cancer would have lived long after their recovery from the operation; and yet of the nine patients who alone lived for a year, three were cancerous; one of them, Mr. Baker's (40), is yet alive,¹ and another, M. Amussat's (19), was still alive about three years after the operation.

The little influence which cancer thus shows in increasing the mortality, may possibly arise from this circumstance, which I think I have observed, namely, that the more rapidly fatal cases of cancer of the intestinal canal are of the softer kind, in which obstruction is less likely to take place; and that the disease of the inner surface, frequently epithelial cancer, so often seen in the rectum, is less injurious to the general system, than the softer carcinomatous coats of the intestinal canal.

Last month, on January 12th, I met Mr. Chilver in the case of a lady whom I had frequently seen with him during the last three years, believing the disease to be cancerous when I first saw her. For some time before the six days' obstruction, for the relief of which I was now called, numerous abscesses and sinuses had formed, and the whole of the fæces had been for some weeks discharged by a large ulceration into the vagina. With some difficulty I broke through the oblite-

¹ See preceding note of his death.

rated anus, and nearly five inches of the rectum, filled with morbid growth, and some portion beyond the reach of the finger, through which I could not force a bougie, gave way four hours afterwards, so as to empty the distended bowel. Notwithstanding this extensive disease, of more than three years' duration, the health of this lady is at present perfectly unaffected, and the bowels have since continued more amenable to medicine than before I employed this violence to the new growths.

It appears, therefore, from the Table that an artificial anus, if required for cancer in the rectum or sigmoid flexure, affords nearly, though not quite, as much chance of immediate, success, and of subsequent prolongation of life, as when performed for all other obstructions not malignant.

It would be highly desirable to separate the diseases of the *rectum* from those of the *sigmoid flexure* of the colon, and to determine the relative frequency of simple stricture, and of cancerous stricture in the latter situation; but the terms upper part of the rectum, and lower part of the sigmoid flexure, are employed indefinitely by different operators for the space of from five to fourteen inches from the anus. Of the whole rectum and sigmoid flexure together, the Tables give the nearly equal number of 17 cancerous and 15 non-malignant obstructions, and 1 case in which Amussat doubted whether a tumour was cancer of the sigmoid flexure or of the omentum. I have heard a strong opinion given by experienced surgeons of the frequency of cancerous stricture in the sigmoid flexure, properly so called; but I venture to state my own opinion as decidedly contrary to this, from what I have seen in post-mortem examinations and in living patients; obstruction of the first five or six inches from the anus have, according to my observation, been most frequently cancerous, or contracted cicatrices of ulcers, but almost all strictures above this height, which could fairly be said to be in the sigmoid flexure, so as to be scarcely, if at all, felt by the finger, have been firm, hard, thickenings of all the coats of the bowel, generally of an annular shape, without evidence of carcinoma, even when more than one

generation has been affected, as I have seen in three instances.

4. Let us next examine the *causes of death*, and the state of those alive at the last report.

A. Of the 21 cases which did not recover from the operation, the *assigned causes of death* were :

In 1 case, 2 lbs. of mercury, given previously, dragging the ileum into the pelvis, (1, cancer—died in 28 days.)

„ 1 „ unrelieved, the obstruction being above the opening, (41, died in 12 hours.)

„ 1 „ fæcal evacuations incomplete, (4, died in 8 days.)

„ 5 „ exhausted by the disease, (13, died in 12 hours; 14, died in 12 hours; 43, died in 36 hours—cancer; 28, died in 9 days—cancer; 38, died in 17 days—cancer.)

„ 4 „ structural changes produced by the disease, viz.

a. Cæcum burst, and fæces escaped into pelvis, (24, died in 6 days.)

b. Ulceration of bowel, (15, died in 28 hours; 21, died in 10 days—cancer.)

c. Rupture of 6 inches of peritoneal coat from distension, (12, died in 24 hours.)

In 7 cases, Peritonitis.

a. Old as well as recent, (25, died in 16 days—cancer.)

b. From the operation, (9, died in 24 hours; 10, died in 28 hours.)

c. Begun before the operation, (34, died in 5 hours; 8, died in 2 days; 26, died in 5 days.)

d. From the cancerous ulcer, (35, died in 14 days.)

In 1 case, unknown, but cancerous, (11, died in 2 days.)

„ 1 „ chiefly sloughing of sacrum, (36, died in 35 days.)

B. The deaths of 9 patients, who recovered from the operation, have been recorded; of which—

4 cases were cancerous, (37, died in 2 months of phthisis; 2, died in 3½ months of the disease and dropsy; 18, died in 5 months of the disease; 7, died in 1 year of the disease.)

5 cases were stricture of colon or rectum not cancerous, (27, died in 3 months; 29, died in 6 months; 33, died in 14 months; 32, died in 21 months, all four of the disease; 23, died in three years, probably of the disease.)

c. There are now living, or were alive at last report, 13 cases, of which—

- 4 cases were cancerous, (31, 2 months—cancer making progress; 22, 2½ months—in good health; 40, 2 years—still alive;¹ 19, 3 years nearly—cancer not making much progress.)
- 7 cases were stricture of colon or rectum, not cancerous, (44, 6 months—in good health; 5, 6 months—apoplexy 4 months after operation; 17, 7 months—in good health;² 42, 10 months—in good health; 16, 1 year—in good health; 39, 2 years; 6, 17 years.)
- 2 cases, disease unknown, (20, 8 months—in good health; 30, time and state uncertain.

Thus, of 21 cases operated on unsuccessfully, there are only two (9, 10,) in which peritonitis is said to have followed the operation without having been excited by the previous disease, and there is scarcely one in which the death of the patient is directly assigned to the operation; and I am inclined to think that the histories of the cases fairly justify the operators in attributing the fatal result to the previous effects of the disease itself on the constitution of the patients, or to the physical changes in the bowel. Hence we derive a strong argument for as early a performance of the operation, as will be warranted by the immediate danger to life, either from the disease or from the operation, and by a fair estimate of the probable condition of the patient after recovery.

In September, 1850, I met Dr. Todd and Mr. R. J. Pollock, of Kensington, in consultation on the case of a gentleman, 76 years of age, who had suffered from dysentery in a tropical climate, which had probably produced contraction of the colon below the liver. At our second meeting, about the eleventh day of the obstruction, it was agreed that I should offer to open the right lumbar colon, which the patient declined. On the following day, I am informed by Mr. Pollock, acute pain came on suddenly on the right side of the abdomen, while it was being examined by the hand, followed by sudden prostration. There was no examination; but it is most probable that ulceration had taken place with fatal rupture and fæcal effusion, and that the refusal of the patient prevented my adding this case to the list of unsuccessful

¹ See preceeding note of his death.

² Died July 13, 1852, just a year after the operation.

operations, in consequence of the organic changes of the bowel produced by the disease.

But as the case in which I operated (44) was successful after thirty days' obstruction, and the Tables show similar success even after forty, and from forty-five to fifty days' constipation, (20, 21, 42,) while other patients have died, on whom the operation was performed, as early as the ninth or tenth day, (12, 43,) it is reasonable to infer that the length of time during which the *final* obstruction has existed, is not so much to be taken as a criterion of danger from delay, as the frequency and urgency of *previous* attacks, and the severity of the existing symptoms; a single collection of fæces, as in my own case, being far less likely to produce fatal mischief to the textures of the bowel, than repeated attacks of less complete obstruction.

Yet the surgeon is precluded from operating till as much time has been granted to the efforts of nature, as the symptoms in each case will warrant; because he is met by the fact, that of the 9 patients who recovered, and whose subsequent history is given to us, at least 7, and probably 8, died of the further progress of the complaint for which the operation was performed; 1 having died of phthisis.

Let not any one, however, from this apparently unsatisfactory result of the operation, immediate or remote, infer that it should be abandoned, for the Tables show most clearly that the 22 patients who recovered were saved, for various periods, solely by the operation, since Mr. Luke's case (16) is the only one in which the contents of the bowels have, for the most part, again passed naturally; even in Mr. Martland's case (6), which survived 17 years, no fæces whatever passed per anum after the first two years; in Mr. Clement's case, not even flatus passed per anum during the three years that the patient lived; and, in most cases, some difficulty has been experienced in procuring a free discharge from the artificial anus; and the reason why the further progress of the disease was so soon fatal, when the stricture was not cancerous, is obviously because the artificial anus

was insufficient, dilatation and incision having been required in several of the cases, (e. g. 27, 32, 33.)

5. The next points deserving attention are the *situation* in which the *bowel was opened*, and the *mode* in which the artificial anus was made.

A. Table of Operations through the Peritonæum. Total 17 cases.

In cæcum, 3 cases, (14, died in 12 hours; 9, died in 24 hours; 1, died in 28 days.)

„ small intestine, 2 cases, (13, died in 12 hours; 11, died within 2 days.)

„ right colon, 1 case, (10, died in 24 hours.)

„ transverse colon, 1 case, (2, died in 3½ months.)

„ left colon, 9 cases, (12, died in 12 hours; 8, died in 48 hours; 4, died in 8 days; 17, alive now, 7 months; 1 5, lived above 6 months; 7, died in 1 year; 16, alive now, 13 months; 3, alive above 4 years; 6, lived 17 years.)

„ both right and left colon, left external to, and right through the peritonæum, 1 case, (15, died in 28 hours.)

Total, 10 died—7 recovered.

M. Thierry (10) intended to have opened the cæcum behind the peritonæum in the right iliac fossa, but the colon, distended with mercury, came in his way; and in a discussion at the Academy of Medicine it was said that M. Velpeau (8) attempted to open the sigmoid flexure in the left iliac fossa without injuring the peritonæum, but failing to effect this, the operation was completed according to Littre's method. In one case (2) in which the transverse colon was opened, an incision was made between the umbilicus and pubes, with the intention of opening the small intestine. In one case (7) three inches of the sigmoid flexure were actually removed. In another (15) Amussat's operation was first performed on the left side, but the left colon being found empty, the peritonæum was opened, and a second artificial anus established in the right colon through the same wound. In the other cases the usual incision was made in the right or left inguinal regions.

¹ See preceding note of his death.

B. Table of Operations External to the Peritonæum. Total 27 cases.

In right colon, 6 cases, (26, died in 5 days; 21, died in 10 days; 22, alive 2½ months; 27, died in 3 months; 20, alive 8 months; 23, died in 3 years.)

„ left colon, 20 cases, (34, died in 5 hours; 41, died in 12 hours; 43, died in 36 hours; 24, died in 6 days; 28, died in 9 days; 35, died in 14 days; 25, died in 16 days; 38, died in 17 days; 36, died in 35 days. *Total* 9, in 5 weeks.—37, died in 2 months; 31, alive 2 months—cancer; 18, died in 5 months; 44, alive now, 6 months; 29, died in 6 months; 42, alive now, 8 months; 33, died in 14 months; 32, died in 21 months; 39, alive now, 2 years; 40;¹ 19, alive nearly 3 years. *Total* 11, lived above 5 weeks.)

Uncertain which side, 1 case, (30, recovered.)

Thus, of both sides there died, within 5 weeks, 11; recovered 16 = 27.

Of right colon, died 2; recovered 4 = 6.

„ left colon „ 9 „ 11 = 20.

In the performance of these lumbar operations the incision was made in 4 instances by Callisen's perpendicular incision on the outer border of the quadratus lumborum, of which 2 died (43, 38), and 2 recovered, (39, 42;) 1, which was fatal, was performed by means of an oblique incision from above downwards and outwards (26); in 21 other cases Amussat's transverse incision was chosen, of which 8 died early;—it is the method which appears to me to be the least likely to lead to difficulty in finding the colon, but the success is not otherwise influenced by the preference.

The two patients in whom the *small intestine* was opened (11, 13,) and three in whom the *cæcum* was opened, (1, 9, 14,) died at an early period;—that in which the *transverse colon* was opened (2) lived for three months and a half. In all six the peritonæum was opened.

Of 17 cases in which the artificial anus was made through the peritonæum, 10 died and 7 recovered from the operation; of 27 operations behind the peritonæum, 11 died within five weeks, and 16 recovered; but this comparison, at first sight favorable to the lumbar operation, contains many sources

¹ See preceding note of his death.

of error; and as the question is one of great importance it requires further examination.

In the first place, of the operations through the peritonæum the fistula case of Duguesceau (3) should be excluded, as being free from the dangers of detained fæces. Both the operations on the small intestine (11, 13,) admit of no operation external to the peritonæum, and should therefore be omitted. Mr. Avery's case of artificial anus in the right colon through a wound in the left lumbar region (15) must be omitted, as too complicated to be again met with; and the artificial anus in the transverse colon (2) must also be left out, as it was made unintentionally, and no surgeon is likely to adopt an operation on this part by choice; but the three cases of operation on the cæcum (1, 9, 14) must be retained in the list, because an abdominal incision on the right side would often oblige the operator to open this portion of the canal, although he might have intended to open the colon a little higher up. Again, of the 27 cases of operation behind the peritonæum, Mr. Gay's (41) must also be omitted at present, though it will require notice in reference to diagnosis, as the real obstruction was found to be in the ileum, and could not, therefore, have been relieved, if its nature had been known, by the lumbar operation.

There then remain only 12 cases of peritoneal section to compare with 26 cases of operation behind this membrane; and it is found that of the former 7 died and 5 recovered, while of the latter only 10 died and 16 recovered; the recoveries being, therefore, as 41 per cent. where the peritonæum is opened, to 61 per cent. where this membrane is uninjured.¹

The *right* colon and cæcum were opened through the peritonæum in 4 cases, all of which died, (1, 9, 10, 14;) and an artificial anus was made in the *right* colon behind the peritonæum in 6 cases, of which 2 died (21, 26,) and 4 recovered, (20, 22, 23, 27;) and, of the latter, 1 case (Mr. Clement's, 23.)

¹ One of these latter cases (37) died, however, in two months of phthisis; and the time which another (30) survived the period of alleged recovery is not stated in the Tables.

lived for as long a period as three years. As far as these numbers go, the preference on the right side is unquestionably due to the lumbar operation. This operation on the right side, though it happens not to have been performed since 1844, will also fully bear comparison with that on the left colon, as to immediate and ultimate success, although so much higher in the intestinal canal.

The *left colon* has been opened through the peritonæum in 8 cases, (exclusive of the fistula case, 3,) of which there died 3, (4, 8, 12,) and 5 recovered, including Reybaud's case of excision of the diseased part, (5, 6, 7, 16, 17;) and of 20 cases of lumbar operation on the *left colon*, 9 died (24, 25, 28, 34, 35, 36, 38, 41, 43,) and 11 recovered, (18, 19, 29, 31, 32, 33, 37, 39, 40, 42, 44;) the deaths in the abdominal section being $37\frac{1}{2}$ per cent., and in the lumbar operation 45 per cent.

While, then, a comparison of the whole number of operations, and also of those on the right side alone, is in favour of the operation external to the peritonæum, the comparison of the two methods of procedure on the left side is favorable to the peritoneal section, so far as so small a number, as 8 cases of the one compared with 20 of the other method, can be considered of value. The inequality of the numbers appears to me, however, to leave the question as to the descending colon still undecided; and that each operator, weighing the advantages and disadvantages of an artificial anus in front of the abdomen and of one in the lumbar region, is, as yet, fairly justified in selecting whichever situation he thinks best, on the left side of the body.

My own opinion is that the advantages of the abdominal artificial anus over that in the loins have been sometimes overrated, and the dangers of peritonitis undervalued. The only cases in which the death of the patient is exclusively attributed to peritonitis from the operation, were cases of abdominal section (9 and 10); and in another case of the same operation (14), it is expressly stated that no lymph was found at the time of the operation, but that, although the patient died in twelve hours, some lymph had been formed in

that space of time. When peritonitis has been found after the lumbar operation, it has been remarked (25) that it was not greater near the wound than elsewhere, or else that it had begun before the operation; indeed, in one case, (34,) the collapse from peritonitis already existed to such an extent that the patient was scarcely sensible of the operation, and died in five hours.

Supposing that the danger of the operation was not materially greater in the abdominal section, (which I think it is,) there are two reasons which might make it the most eligible on the left side, though not on the right. The first is the difficulty, and the consequent danger to the patient, which the Tables clearly show, in preserving a free passage through the artificial anus, and which is very probably somewhat greater in the firm texture of the loins, especially in a stout person, than in the softer parietes in front of the abdomen.

I think it not improbable, from my own case, that surgeons may not have sufficiently attended to the very different propulsive power possessed naturally by the rectum, and by any other part of the great intestine, making it almost impossible that actually hard and solid fæces should be expelled through the wound, unless broken down, as I was obliged to do for the lady on whom I operated, on the only occasion, perhaps, in which the evacuation was more solid than a pultaceous mass.

The second reason is that which has been particularly mentioned by Mr. Luke,¹ namely, the power which the surgeon thus obtains of extending his search, if his diagnosis of the seat of obstruction has proved incorrect, a point which next demands attention.

6. *Errors of diagnosis* are the last subject which I will endeavour to follow out from the Tables before us; and they may be of three kinds:—the exact situation of the stricture in the great intestine may be mistaken; or it may be supposed to be in the colon or rectum, when it in reality exists

¹ Med.-Chir. Trans., vol. xxxiv, p. 276.

in the small intestine,—in either case an opening formed below the obstruction necessarily leaves the patient unrelieved ; or, thirdly, the presence or supposed existence of a hernia may mislead the surgeon, and induce him to overlook the actual cause of obstruction.

1, *a*. Were it proved that it was difficult to detect the precise situation of an obstruction in the great intestine, it would certainly be right to adopt M. Baudens' rule of always opening the right colon ; and the preceding remarks have shown that it may be done with as much success as in a lower part of the bowel, if six cases are considered to determine such a question ; certainly, however, it is often quite easy to ascertain the point. In the rectum itself an obstruction is easily felt or seen ; nor is it unfrequently so detected in the lower part of the sigmoid flexure.

In September, 1845, I went from town to meet Mr. Thomson of Westerham, in the case of a gentleman, 65 years of age, whose father had died of stricture of the rectum, and who, after increasing constipation for six months, was suffering from obstruction of three weeks' duration ; the finger, pushed very high up, could just detect a circular hardness of the bowel, projecting into a healthy and capacious rectum, and having some faeces in the centre, of which a small portion continued to come down, though the abdomen was greatly distended with air. Dilatation was attempted ; and on his death, a week afterwards, a very narrow circular stricture was found high up in the rectum, just where the finger distinguished it during life.

b. In the upper part of the sigmoid flexure, as in my own case, the diagnosis is somewhat more difficult than in the two former situations, from the bougie being occasionally obstructed in its passage through this part of even a healthy bowel ; but out of 30 cases in which the left colon was opened, there is only one in which the obstruction was in a higher part of the great bowel than that selected for the operation. In this instance (15) the obstruction was believed, from the appearance of the abdomen, to be situated below the descending colon, but on opening this part in the left loin, it

was found flaccid; the peritonæum was then opened in the same wound, and a distended bowel, supposed to be the transverse colon, was opened. The patient died twenty-eight hours afterwards; and Mr. Avery, who operated, found that the ascending colon had been twisted on itself, after being obstructed by the mesentery, so as to turn the right colon and cæcum into the left side of the abdomen, and make the error of diagnosis perfectly excusable. In this case, then, had the wound been made in the right loin, neither colon nor cæcum would have been found, and an abdominal section would have probably been not more successful than this double artificial anus in one wound on the left side.

c. Stricture in the *transverse colon*, or near its junction with the ascending or descending portions, is doubtless the most difficult of diagnosis, but it is sometimes capable of being ascertained with tolerable certainty; sufficient at least to show that the opening must be made on the right side, and not on the left: fortunately it is rare, for the Tables only give three cases of stricture in this part of the bowel, (9, 23, 27.) I have already mentioned one case in which I offered to open the right colon, but there was no *post-mortem* examination.

In December, 1851, I met Mr. Langley in consultation on the case of a lady, about 70 years of age, in whom an obstruction had existed for nine days. It seemed quite clear to me that this did not arise from a tumour of the uterus, which Mr. Langley had detected, as the finger could readily displace the uterus and pass beyond it; the tube would pass without difficulty for eighteen inches, and large injections could be borne, and there was no sign of fulness of the left colon, while the whole abdomen was greatly distended. As the vomiting had ceased for some hours, after having been very troublesome for two days, and a good deal of fæcal substance was coming away with enemata, there seemed no reason for proposing immediate operation, which was spoken of as possibly necessary on the *right* side, if the stricture did not yield further. I did not see her a second time,

however, and another surgeon, called in by the friends, discountenanced an operation during the thirteen following days, in which I am informed by Mr. Langley she slowly declined, without signs of peritonitis. The stricture was found to be of a simple character, in a part of the transverse colon, without any disease elsewhere, except a fibrous tumour of the uterus, which was quite moveable, so that this was not an unfavorable case for operation, as the patient's health was very good.

Of the cases in the Tables, it appears that Mr. Clement detected a stricture in the transverse colon (23), and Mr. Evans one at the junction of the ascending and transverse colon (27), and therefore both these gentlemen opened the right side of this bowel. In one of M. Amussat's cases (9), the stricture was also situated at the junction of the ascending and transverse colon, but neither the cause nor the situation of the obstruction were detected till after death, and therefore the cæcum was opened by Littre's operation; in a second case (22), M. Amussat could not satisfy himself whether the obstruction arose from a stricture of the sigmoid flexure or from cancer of the omentum; and in a third case (20), the cause was quite unknown to him, and therefore in both cases he opened the right colon; in a fourth case (21), M. Amussat gives no reasons for his operating on the right side, in a case of cancer of the rectum, but as he felt the disease by his finger, there is no ground for supposing that there was an error in his diagnosis, although he seems to have selected the left side in other cases, when he was able to do so. Nor does any error appear in the diagnosis in three other cases, in which the cæcum and right colon were selected for the artificial anus, (1, 10, 26.)

There is, in fact, only one case of operation on the right side in which it is probable that the surgeon would have made an opening in the left colon, if he had formed a more correct diagnosis; and it illustrates the second error of diagnosis to which I intend to draw the attention of the

Society, namely, the difficulty of always distinguishing an obstruction, even in the lower part of the *colon*, from strangulation of the *small intestines*.

2, *a*. In this case (14), Mr. Avery, finding that a tube passed up nearly fourteen inches from the anus; that a pint and a quarter of injections could be retained; and that a large resonant prominence was perceived in the right side of the abdomen, on which side there had formerly been a femoral hernia, and that there had been no previous symptom of stricture, was led to believe that the termination of the ileum was probably strangulated by a band from the hernia. He therefore made an opening six inches long in the right side of the abdomen, and finding, after drawing the small intestines through the wound, that the great bowel was also distended, he proceeded to trace the colon from the distended cæcum down to a firm stricture of the pelvic portion of the sigmoid flexure. An artificial anus was made in the cæcum, but the patient died in twelve hours.

In this case the symptoms depending upon a stricture in the sigmoid flexure of the colon were believed to arise from an obstruction in the ileum. Perhaps regarded critically, after the event, it might be said that the vomiting never being distressing, the rejection of more than a pint and a quarter of the enemata, the tube only passing up nearly fourteen inches, and the great resonance of the swelling on the right side, should rather have led to the opinion that the retained fæces were more likely to be in the left colon, which was softer; but the femoral hernia on the right side naturally drew more attention to the swelling than it deserved.

In my own operation, the entire absence of any previous constipation, the early setting in of vomiting and distension of the whole abdomen, including the small intestines, and the greater tenderness and fulness and feeling of solidity between the umbilicus and pubes, might easily have led to the supposition of the small intestine being the seat of the obstruction; and both cases show the propriety of invariably

examining the rectum and colon in all cases of obstruction.

b. In the next cases the opposite error was incurred, and obstruction in the small intestines was believed to be situated in the sigmoid flexure of the colon.

In Dr. Todd's case (13) Mr. Simon, after seven days' illness, made an incision in the right side of the abdomen, in order to form an artificial anus in the right colon, in which an obstruction was supposed to exist; but instead of this the small intestine was found distended and was opened, and after the man's death, a few hours subsequently, it was found that the ileum had been strangulated by a band extending from the mesentery to the mesocolon. Continued attacks of pain in the abdomen, attended with constipation from the boyhood of the patient, not unnaturally led to the idea, other symptoms not contradicting it, that so permanent an obstructing a cause, affecting nutrition so little, was seated in the great intestine.

Mr. Luke has favoured me with the following particulars of a case which was under his care in the London Hospital in December last. On the ninth or tenth day of obstruction, in a man about 40 years of age, he performed Littre's operation in the left inguinal region, but, contrary to his expectation, the sigmoid flexure was found empty, and was therefore not opened, nor was the real cause of obstruction discovered by examination in the wound. The patient died four or five days afterwards, of exhaustion, with little peritonitis, and it was found that a band had strangulated the small intestine as high up as its middle portion.¹

Mr. Gay, (41,) on the twelfth day of obstruction, performed Amussat's operation in the left lumbar colon, but found that it contained only some hard scybala; the patient died in less than twelve hours, and the fatal obstruction was found to have arisen from adhesion of the ileum, eight inches from its termination, to a cancerous uterus.

¹ This case was described by Mr. Luke in a paper read at the Med. and Chir. Society, Feb. 10, 1852, and is published in the present volume, p. 243.

In all these three cases the symptoms were not sufficiently evident to prevent experienced surgeons from supposing that obstruction actually seated in the small intestines was situated about the sigmoid flexure—not even Mr. Luke, when the strangulated part was situated *four feet* above the cæcum ;—it should, however, be stated that it was almost impossible for Mr. Gay, in the uncertainty which these cases show there may be from want of knowledge of general symptoms, to have suspected the existence of a stricture in the ileum, since the rectum adhered also to the uterus, and was obstructed so as to prevent the introduction of a tube above this part, and probably to have caused a lodgment of the scybala found in the colon between the two obstructed parts, giving him, therefore, all the local signs of obstruction in the rectum, which would naturally conceal those of the higher stricture.¹

Still, although mistakes may occur, even in the hands of skilful surgeons, it is obvious from the Tables that they are very few in number, and appear to me by no means sufficient, on account of the obscurity of the symptoms, to justify the having recourse invariably to Littre's operation in preference to Amussat's, particularly as Mr. Luke's case, just mentioned, and another presently to be noticed, have shown, that even when opportunity has been afforded by such operation for search within the abdominal cavity, the real cause of obstruction has nevertheless escaped the observation of the operator. There is also, as yet, no known case of recovery after an artificial anus has been intentionally made in the small intestine, except when there has been the protrusion of a hernia, the circumstances of which, and the nature of the operation necessary for it, are essentially different from those of a direct incision into the abdominal

¹ Mr. Southam, of Salford, has obligingly forwarded to me an account of a case of obstruction produced by carcinoma of the duodenum, in which a tumour was formed by solid matter in a distended and displaced *stomach*, which I hope to see published on account of its interest in relation to the subject of diagnosis.

cavity to relieve a known or supposed cause of obstruction of the small intestine.

3. In the third place, as it bears important relation to the subject before the Society, the coincidence of a hernia with stricture of the rectum or colon must not be overlooked, as a source of error in diagnosis. It will be observed that in Mr. Avery's case, before narrated, (14,) the previous existence of a hernia so far influenced his judgment, as to induce him to open the abdomen, without, as it appears, having examined the rectum, in the junction of which with the sigmoid flexure a narrow stricture existed. In the 'Report of the Pathological Society' (the Fourth, p. 218,) is another case of exactly the same kind; in this instance, a man, 50 years of age, on the fifth day of his illness, supposed that a hernia had come down, after an interval of twenty years, and therefore Mr. Luke, thinking there might have been a reduction *en masse*, opened the abdomen at the upper and outer part of the inner ring on the left side, where the fulness had been felt; but the colon distended and hypertrophied above a very narrow stricture, situated twelve inches from the external sphincter, was not felt by the finger in the wound, and consequently the patient died, unrelieved, four days afterwards. As very little inflammation appears to have been present in either case, the formation of an artificial anus might perhaps have prolonged the lives of both patients.

A case resembling these occurred to myself; and although I did discover the stricture, I have since regretted that the operation for artificial anus was not performed. The case was that of a lady, about 45 years of age, a patient of Dr. Cursham, with whom I also met, at different times, in consultation, Drs. Seymour, Watson, and Blundell, and Mr. Stanley. I saw her first on August 8, 1845, on the fourth day of her illness, which presented the usual symptoms of strangulated bowel. She had worn a truss for a supposed femoral hernia on the right side for several years; but what appeared to be a small femoral hernia was now quite flaccid,

and without the least tenderness in the tumour or near it, and she only felt pain in the epigastrium from constant vomiting, with distension of the abdomen, and the tumour itself disappeared under the use of ice in two or three hours after my first visit. As the symptoms continued, however, I examined the rectum, and with difficulty passed beyond an enlarged and depressed fundus uteri, but neither injections nor bougies would go beyond five or six inches, during her illness. Between the 8th and 12th there was again a feeling of something like hernial sac, once or twice as if with bowel in it, though quite flaccid; and lest the symptoms should in any manner depend on this cause, it was thought right by Mr. Stanley, who now saw the patient, as well as by myself, the tumour having, however, again disappeared, that I should cut down on the hernia; but when this was done there seemed to be no trace whatever of any hernia, nor of any opening in the ring through which one was likely to have descended, so that it was clear that the symptoms solely depended on the stricture of the colon. The patient died on the 16th. There was a very tight narrow stricture of the sigmoid flexure, with slight ulcerations within, but no disease of the bowel above, and scarcely any inflammatory vascularity. The uterus was much enlarged, and the rectum, below the stricture, was united by firm adhesion to the back part of the uterus and vagina, so that a bougie was much obstructed from this cause, as it was during life, about six inches from the sphincter. A little fatty tumour and an absorbent gland appeared to have formed the tumour resembling a hernia, which dragged on the peritonæum, so as to form a kind of pouch, disappearing or coming down at intervals.

The opening of the left colon above the obstruction was talked of by Mr. Stanley and myself in consultation, and I much regret that neither of us felt at that time sufficient confidence in the published reports of the operation to propose its performance. I now think it very probable that this lady, as well as a gentleman, whose case I have pre-

viously mentioned, might have had their lives prolonged by the operation; and the former would very probably have consented to its performance, though not the latter, in consequence of the impression made on his mind by his father's death from the same disease.