CASES OF MESO-COLIC HERNIA.

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SYSTEMATIC writers, in enumerating the various causes of internal strangulation, usually refer to epiploic, mesenteric, and meso-colic Herniæ. The cases, however, which have been described under these names, have consisted most generally of strangulations of portions of the intestine through apertures in the epiploon, mesentery, or meso-colon.

Of affections of this description, a considerable number are on record. Among these may be mentioned—1. The case related by De Haen,¹ and made the subject of a graduation thesis by Knobloch,² in which a portion of ileum was strangulated in an aperture in the meso-colon of the sigmoid flexure. 2. The case of Saucerote,³ in which portions of the cæcum and colon had passed through an aperture in the mesentery. 3. The instance related by Monro,⁴ as having occurred to Dr. Rutherford, in which a portion of ileum was strangulated in an opening of the mesentery. 4. An example of internal Hernia, described by Rokitsansky,⁵ in which the cæcum was pushed from behind through an aperture in the mesentery of the lower part of the ileum. 5. A case referred to by Grosse,⁶ as published by Dr. Davis, in which a portion of colon was strangulated in an opening in the meso-colon of the sigmoid flexure. 6. The case recorded by Mr. Ranking,⁷ in which, part of the ileum having been torn from its mesenteric attachment, a loop of intestine became strangulated in the opening so produced. 7. That related by Dr. Hutton,⁸ in which a portion of the small intestine was strangulated in an opening on the mesentery; and lastly, a similar case described by Mr. Phillips.⁹ To these instances may be added one, probably of the same kind, related by Schroeder Van der Kolk,¹⁰ and it would not be difficult to collect others. The cases referred to by Baudelocque,¹¹ Callisen,¹² Arnaud,¹³ and Scarpa,¹⁴ in which loops of intestines were strangulated through apertures in portions of epiploon or mesentery contained in hernial sacs, are also analogous.¹⁵

Displacements of this description, in which the intestines are not protruded from the abdominal cavity, cannot, however, properly be re-

¹ Ratio Medendi, tom. iii, f. 359. Pars XI, cap. xv, s. II.

² De Entero-mesocolocele. Lugd. Bat.: 1797.

³ Hevin. Mem. de l'Académie de Chirurgie, t. iv, p. 239. Paris: 1784.

⁴ Observations on Crural Hernia, p. 12. Edin.: 1803.

⁵ Medicinische Jahrbucher des Cest. St. 1836, quoted in Brit. and For. Med. Rev., vol. iii, 1837, p. 500.

⁶ Path. Anat. 2nd edit., p. 596. Philadelphia: 1845.

⁷ Med. Gaz. 1838. Brit. and For. Med. Rev. vol. vii.

⁸ Trans. of Path. Soc. of Dublin. Dublin Journal, vol. xv, p. 204.

⁹ Med. Chir. Trans., vol. xxxi, p. 14.

¹⁰ Dissert. obs. varii argumenti. Groning.: 1793. Quoted by Ploucquet.

¹¹ L'art des Accouchements, t. i, p. 509.

¹² Acta Hafniensia, t. i, p. 164.

¹³ Mem. de Chir., t. ii, p. 587.

¹⁴ On Hernia, Wishart's Trans., p. 164, where the other three cases are also quoted. See also, Lawrence on Hernia, p. 630, 5th edition, 1838.

¹⁵ Very recently, my friend and colleague, Mr. Gay, has mentioned to me a case of strangulation of a portion of intestine contained in an Umbilical Hernia, through an aperture in the omentum.

garded as *Herniæ*; but, in the form of disease which I am about to describe, an aperture exists in one of the layers of peritonæum forming the mesentery or meso-colon, and the intestines entering this aperture, and separating the two folds of which the meso-colon and mesentery are composed, form true ruptures, situated in a sac external to the abdominal cavity, and formed by the layers of peritonæum. This form of disease would appear to be of very unfrequent occurrence; indeed I am only able to refer to two examples of the affection, besides those which it is the object of the present paper to place on record. The cases alluded to, which are related by Sir A. Cooper,¹ I shall quote in detail.

The first case is one of mesenteric Hernia, which, we are informed, was found by Mr. Pugh in the body of a man, sent for dissection to St. Thomas's Hospital. "The man had been a patient in Guy's Hospital, under Mr. Forster, and had suffered the operation of amputation. He appeared about 55 years of age. When the abdomen was opened for demonstration, and the omentum and colon were raised, the small intestines did not appear; but in their stead, in the middle of the abdomen, was found a tumour, situated upon the lumbar vertebræ and extending down to the basis of the sacrum. When this tumour was opened, it was found to be a sac, containing all the small intestines but the duodenum. Mr. Pugh was so obliging as to give me the body for further examination. I found that the sac was formed by the peritonæum, which completely surrounded the intestines, except at the posterior part, where there was a small hole, by which the intestines had entered. Tracing the intestine from the stomach towards the anus, the beginning of the jejunum was found passing into the sac at the posterior part; and, by the same opening, the ileum passed out on the right side, and descending to the right inguen, it entered the large intestine in the usual manner. What effect during life this unusual position of the intestines had produced, I could not ascertain. Every inquiry was made, but nothing had happened during the time the patient was in the hospital, that could lead to a suspicion of any disease having existed in the abdomen. However, from the confinement the intestines had suffered within the bag, I should naturally be inclined to conclude, that the peristaltic motions of the bowels had been less free than usual, and that, from this state of intestine, frequent constipation would have arisen; but, if this was the effect, it had never gone so far as to produce inflammation, as the intestines did not appear thickened, and had not contracted any adhesions, either to the sac or to each other."

The second case related by Sir A. Cooper, is one of meso-colic Hernia, and is described as follows:—"On opening the abdomen of a subject brought for dissection, the omentum and large intestines being turned aside, a large tumour was discovered on the left side of the abdomen, its upper part resting on the left kidney, whence it extended downwards to the brim of the pelvis, its lower part lying in the fold of the sigmoid flexure of the colon. The large intestines took their usual course in the abdomen, excepting that the cæcum and beginning of the colon were placed nearer to its centre. On the left side, the colon was placed

¹ *The Anatomy and Surgical Treatment of Abdominal Hernia*. 2nd Edition, by Key, pp. 73, 74. These cases are illustrated by plates.

between the tumour and the abdominal muscles, and the swelling reached from the termination of its great arch to its sigmoid flexure. The duodenum, a small part of the jejunum, and the termination of the ileum, were the only portions of the small intestines which were visible. Upon examination of the tumour, it was found to contain all the small intestines which were not seen on first opening the abdomen, and the orifice by which they had passed into the tumour was situated on its right side. The orifice was more than sufficiently large to permit the passage of two folds of the intestines, even in their most distended state, and through it all the small intestines were readily drawn from the bag. The sac in which they were contained was formed between the laminæ of the peritonæum of the meso-colon, in the anterior layer of which, on the right side, was placed the opening by which the intestines had entered. The bag was sufficiently large to be capable of containing all the small intestines in a half-distended state. Two-thirds of the orifice were formed of peritonæum only, and one third was covered by a branch of the inferior mesenteric artery. The peritonæum which formed the sac, was somewhat thicker than that which was contiguous to the abdominal muscles; but, upon the whole, it had undergone less alteration, in that respect, than the degree of pressure which it had sustained would have led me to expect. When the intestines were very much distended with air or food, the opening into the sac was sufficiently large to allow of the escape of a part of them into the abdomen."

Of both these cases the preparations, though in a very imperfect state, are deposited in the museum of St. Thomas's Hospital. Somewhat analogous to these cases is one of epiploic Hernia, referred to by Blandin¹ and Jobert,² in which the whole of the small intestines were found to have passed, through the foramen of Winslow, into the posterior cavity of the epiploon, whence a piece of intestine had been protruded through an aperture in the transverse meso-colon, and had become strangulated. Rokitsky³ also mentions having found a portion of intestine strangulated in the foramen of Winslow. These are all the cases, similar to those which I am about to relate, of which I have been able to obtain particulars. I shall now therefore describe the two examples of Meso-colic Hernia which have fallen under my own notice.

CASE I. Typhus Fever, with the characteristic eruption: death on the ninth day. Hernia of the whole of the small intestines, except the duodenum, between the layers of the meso-colon.

Henry Morgan, aged 30, was admitted into the Royal Free Hospital on the 25th of April, 1849. He was taken ill on the 21st, with difficulty of breathing and pain in the chest. At the time of admission the tongue was white and moist; the skin was moderately warm; the pulse quick and feeble. He had much tremor of the extremities, and complained of pain in the loins and of thirst. His bowels had been freely relaxed after a dose of calomel. His habits were stated to be regular; but his calling, that of a musician in the practice of playing at public-houses, rendered this very doubtful. He was directed to take one

¹ *Traité d'Anatomie Topographique*, p. 442. Paris: 1828.

² *Traité des Maladies du canal intestinal*, t. i, p. 522, Paris: 1829.

³ *Handbuch der Pathologischen Anatomie*.

ounce of the chlorate of potash mixture every three hours, and to have low diet.

26th. The pulse is quick and weak, and the skin warm and bathed with profuse perspiration; the tongue is covered with a thick brown-coloured, but moist fur; he is much excited, and talks rapidly; there is great tremor of the extremities; the bowels have not been relieved since yesterday. To add to each dose of the mixture, one drachm of the compound tincture of bark; to have beef tea and arrow-root.

27th. Last night he was extremely delirious, and to-day he continues very excited. There is great tremor of the limbs, and a very hurried manner of talking; the pulse is quick and feeble; the tongue is moist, but covered with a thick brown fur; the eyes are pale and glistening, and the pupils large and somewhat fixed. There is a copious eruption over the whole of the trunk, shoulders, arms, and thighs; it is not elevated above the surface, and generally fades on pressure, but there are a few spots, of a deep purple colour, which do not entirely fade. To have a blister on the back of the neck; the head to be shaved, and kept cool by the application of ice. To take a mixture containing five grains of the sesquicarbonate of ammonia and one drachm of the tincture of bark, in an ounce of infusion of serpentary, every two hours; to have four ounces of brandy during the day; a draught, containing half a drachm of the aromatic spirit of ammonia, the same quantity of the compound sulphuric ether, and half a grain of morphia, to be given at night, if the delirium continue.

28th. He slept at intervals last night, and was quieter and more collected when awake. To day there is less tremor, and he is also less excited. The pulse is 120, and feeble; the tongue is covered with a thick, dark brown-coloured fur, and dry; the conjunctivæ are somewhat injected, but the pupils act on the stimulus of light; there is some thrill in the temporal arteries; the bowels have been once relieved, and he makes water freely; the abdomen is flaccid and free from tenderness; the eruption is fully out and generally fades on pressure. The urine has a specific gravity of 1020, and is not albuminous. To continue the mixture and the brandy; to repeat the draught at night, and apply ice to the head.

29th. The tongue is dry, brown, and chapped; the pulse quick and weak. There is less tremor, but some torpor; he slept comfortably at intervals last night; altogether he seems better; the eruption is still out; the pupils are rather large, but act on the stimulus of light, though somewhat sluggishly; the bowels have been once naturally relieved. To continue the same treatment as before.

30th. Yesterday, a large patch of deep purple colour was noticed on the left buttock, and his symptoms changed for the worse. After the visit, he continued to get lower, became comatose during the night, and the skin was cool and bathed in profuse perspiration. The spot on the left buttock is surrounded by erysipelatous redness, and in places is quite black, and the integuments are there much loaded. The tongue is dry and brown, and the teeth covered with sordes; he breathes somewhat stertorously; the conjunctivæ are injected, and the pupils large and fixed, and he is in a state of extreme and general tremor. The bowels have not been relieved, but he has passed urine in bed; the eruption is

still out, and in part fades on pressure ; the pulse is rapid and vibratory. He died at 4 P.M. this afternoon, or on the ninth day of the disease.

On *post-mortem examination*, the body was found covered with dark ecchymosed spots, which were most conspicuous in the dependant parts. On raising the calvarium, there was found an extensive effusion of fluid beneath the arachnoid, which elevated that membrane above the level of the convolutions ; much fluid of a slightly opaque character was also found in the ventricles, and a large quantity escaped from the base of the brain and the spinal canal. The brain was somewhat soft, and the vessels, both of its substance and the membrane, contained much semi-fluid blood.

The Cerebrum weighed.....	53oz. 0 drachms, avoirdupois.
The Cerebellum	5 8
The Pons Varolii and Medulla Oblongata ..	1 0

Giving a total weight of..... 59 8

The lungs were free from adhesions ; the right lung was congested posteriorly, as was also the left to a greater degree. The bronchial mucous membrane was injected, and the tubes contained much spumous fluid of a sanguineous colour. The heart was large and flaccid, and the blood in its cavities was semi-fluid, and contained no coagula. The spleen was large, and so soft as to become pultaceous when handled. The kidneys were engorged. The liver was healthy, though somewhat congested. The mucous membrane of the stomach and duodenum was somewhat reddened. The small intestines were healthy, and the solitary glands and patches of Peyer in the lower part of the ileum were only detectable on careful examination, and presented no appearance of disease. The mesenteric glands were not enlarged.

The most interesting feature in this case was, however, the existence of a *meso-colic Hernia*.

On opening the abdomen, a portion of the liver, the stomach, and the transverse arch of the colon were exposed, but the small intestines were nowhere seen. There existed a small, but thick, band of adhesion between the commencement of the transverse colon and the right lobe of the liver, on the right side of the gall-bladder. At this point the colon made its turn to the left side, and thence passed down the middle of the abdomen to the brim of the pelvis, where it was suddenly deflected upwards, and passed to the usual situation of the commencement of the sigmoid flexure. The remainder of the canal pursued its natural course. None of the small intestines were visible on opening the abdominal cavity, but the portion of the colon, described as descending in the middle of the abdomen, was pushed forwards by a tumour situated behind it, which projected on each side (see fig. 1). This tumour was found to consist of a hernial sac, containing the small intestines, formed within the layers of the meso-colon. By drawing aside the descending portion of the colon, so as to expose the meso-colon, the tumour described was made to project on the right side of the intestine, and formed a mass the size of two large clenched fists. On tracing the colon from the caput cæcum downwards, a band of meso-colon was seen passing from near the termination of the ileum towards the middle of the meso-colon of the transverse arch ; this band formed the right boundary of the

tumour, while its left side was bounded by the descending portion of the transverse arch of the colon. Below, the sac overhung the margin of the pelvis, and above, it was bounded by the transverse colon. On drawing the tumour from the caput cæcum, the portion of ileum passing out of the sac was brought into view. The point at which the intestine escaped was about two inches above the cæcum; the ileum was there firmly adherent on the under side, by old attachments, to the margin of the aperture; above, there was an opening with a concentric edge, through which the finger could be freely passed into the sac. From the upper side of the ileum, the mesentery was reflected into the meso-colon of the ascending portion and caput cæcum. Externally, the sac was somewhat opaque and much thickened, especially below, where it was adherent by several dense bands to the peritoneal lining of the brim of the pelvis; while, on the inside, it was smooth and glistening, though opaque. The whole of the small intestines, except the duodenum, were contained in the hernia; and on their being removed, the jejunum was found entering the sac at its upper and posterior side, while the ileum escaped from it at its lower and right margin. The sac was covered in most places by a moderate deposit of fat, through which the convolutions of the intestines could be seen. The omentum and mesentery were healthy, and the intestines presented no appearance of having been the seat of disease. At the distance of about eighteen inches above the termination of the ileum, there was a small diverticulum, about

FIG. 1. 1. The sac of the Hernia situated between the folds of the meso colon.
 2. The lower portion of the ileum passing out of the hernial sac.
 3. The caput cæcum coli. 4. The displaced portion of the transverse colon.

two inches in length, and of about one-fourth the diameter of the intestine.

In this instance, the symptoms during life, and the morbid appearances detected in the body after death, corresponded with the ordinary features of cases of typhus. The peculiar displacement of the small intestines was not productive of any symptoms of abdominal obstruction while the patient was under observation in the hospital; nor did it appear by inquiry after death, that he had previously suffered from any indisposition which could be ascribed to the Hernia.

In the following case the patient presented symptoms of ileus, and the small intestine, at its point of exit from the hernial sac, not only presented a considerable diminution of its calibre, evidently of long duration, but was the seat of active inflammation, which had proceeded to incipient gangrene.

CASE II. Symptoms of Ileus, fatal in forty-one hours: meso-colic Hernia, containing nearly the whole of the small intestine: acute inflammation and gangrene, commencing above a contraction at the point of escape of the intestine from the sac.

Bryce Reid, aged 27, a carter, was seized, after returning to work from his breakfast on the 10th April, 1843, with severe pain in the stomach, and vomiting. He applied to a medical man in the neighbourhood, who gave him some medicine, and ordered an enema to be administered. He was admitted into the Royal Infirmary of Edinburgh the same evening, at about five o'clock; he then stated that his bowels had not been relieved since two o'clock on the preceding afternoon; he complained of pain in the stomach, and the abdomen was tender and tympanitic; he vomited all the ingesta, and also had cramps in the muscles of the lower extremities. Appropriate medicines were prescribed, and he was directed to have an enema. On the following morning he had obtained no relief to his sufferings; the bowels had not been acted upon, and he had urgent vomiting, the matters discharged being sometimes merely the food or drink which he had taken, and having, at other periods, a yellow colour and very fetid odour, like fæculent matter. The muscles of the lower extremities and the abdominal muscles were in a continued state of spasm, and the abdomen was extremely tender and tympanitic; his face was pale, and the expression of countenance anxious; the extremities were cool, and the pulse quick and weak. These symptoms continued throughout the day, and in the night he had two convulsive attacks, during which he was stated to have been insensible. He continued to vomit almost incessantly up to the period of his death, and had no evacuation from the bowels throughout his illness. He died at two o'clock on the morning of the 12th, forty-one hours after the commencement of the symptoms.

The *post-mortem examination* took place on the 14th.

On opening the abdominal cavity, the descending colon was found lying in front of the cæcum and ascending portion, while the whole of the front and left side of the abdominal cavity was occupied by a large tumour, through the thin walls of which the small intestines were observed, in a state of great distension, and of a deep purple colour. On close examination, this tumour was found to consist of a Hernia of the small intestines, within the folds of the left meso-colon. On dividing

the anterior layer of the sac, the whole of the small intestine, except the duodenum, was found to be contained in it (see fig 2). The jejunum entered above, then escaped again, and after forming a short loop, re-entered, and continued to occupy the sac, till the ileum passed out about two inches above the cæcum. The jejunum and upper portion of the ileum were only slightly reddened externally, though throughout much inflated; but, near the point at which the ileum made its escape from the sac, the coats of the intestine were intensely inflamed, livid, and almost gangrenous; and the mucous membrane in the corresponding situation was perfectly black. On drawing the small intestine from the sac, a constricted portion was exposed, situated about two inches above the ileo-cæcal valve; and the coats of the intestine at this point were much thickened. The inflamed portion commenced immediately above the seat of constriction, and corresponded to a sharp

FIG. 11. 1, 1. The sac of the Hernia laid open and drawn back so as to expose the distended small intestines contained in it.
 2. The portion of the ileum which was permanently contracted from the pressure of the crescentic edge of the opening into the sac.
 3, 3, 3. The cæcum and colon. 4. The stomach.

margin formed by the edge of the meso-colon, beneath which the intestines had become herniated. The aperture into the sac was of sufficient extent, after removing the intestine, to admit the four fingers on the same plane; and its lower edge was thick, and apparently in part formed by one of the meso-colic arteries. The rupture was evidently of long standing, as shown by the existence of cellular adhesions between the crescentic edge and the jejunum above and the ileum below, and also by the permanent contraction of the ileum where it had escaped from the sac. On removing the whole of the small intestines, the form of their containing sac was very distinctly displayed: in front it was bounded by the expanded portion of the posterior fold of the left meso-colon; the pancreas and duodenum crossed its upper side; its right margin was formed by the descending colon and its anterior fold of meso-colon; and on the left side and below, it was continued into the peritonæum lining the abdominal muscles, and passing into the pelvis. The sac, as before stated, was thin and transparent, and presented the usual meso-colic vessels; but, where it became continuous with the peritonæum lining of the abdominal parietes, it was thickened, and in places opaque. From the period during which the hernia had existed, the posterior fold of the meso-colon, which was that chiefly implicated, had been sufficiently expanded to form the anterior portion of the sac, and the colon had been entirely displaced to the right side.

REMARKS. In order to understand the mechanism of the form of Hernia of which the cases related afford examples, it must be remembered that, at the point at which the small intestine passes beneath the superior mesenteric artery and assumes the name of jejunum, it acquires a covering of peritonæum, derived from the most posterior of the two layers, reflected backwards from the omentum, and forming the lower layer of the meso-colon. If, therefore, at this point there be any deficiency in the peritonæum near the spine, so that an aperture be left in the anterior layer of the meso-colon, the small intestine, entering by such aperture, may gradually separate the two folds of peritonæum, of which the meso-colon consists, and may ultimately come to be entirely lodged in a sac so produced. A true hernia will thus be formed, inasmuch as the intestine has entirely escaped from its natural cavity, and is contained in a sac formed by the peritonæum. This seems to be the mode in which the cases of Meso-colic Hernia are produced.

The question, however, arises—How is the aperture, supposed to exist in the anterior layer of meso-colon, formed? Sir A. Cooper, after suggesting that it may be due, either to rupture from a blow received on the abdomen, or to an originally imperfect formation of the meso-colon, concluded in favour of the latter, as the most probable; and an attentive consideration of the subject has led me to adopt the same view. The peritonæum, both from its texture and its seat, is but little liable to be affected by external injury; and, were it so injured, it is scarcely probable that one of its layers should be ruptured while the other remained entire; still less does it seem likely that such an accident should not leave behind it obvious traces of its occurrence, in the form of adhesions or thickening of the membranes. In the four cases which have been related, there existed nothing to warrant the supposition that

the abdominal organs had ever been the seat of serious inflammation. The degree of alteration in the different layers and reflexions of peritonæum, and in the intestines themselves, was, indeed, only such as would necessarily ensue from the long continued pressure of the displaced parts. It is difficult, therefore, to suppose that any material injury of the abdomen could have been sustained; and it seems most probable that the meso-colon must have been originally formed imperfectly. This inference is corroborated by the existence of a small diverticulum¹ in connexion with the lower part of the ileum, found in the first of my own cases. The process of reasoning here adopted is further confirmed by the comparatively frequent occurrence of apertures extending entirely through the mesentery, as in the cases at first referred to in the paper. These are doubtless due to violent and irregular peristaltic action of the intestines, occasioning lacerations of both layers of their mesenteric attachment; and are so frequently found, that, did the same cause give rise to rupture of one only of the layers of peritonæum, the true Meso-colic or Mesenteric Herniæ should more commonly occur.

Sir A. Cooper has remarked, that this form of Hernia is little likely to be productive of strangulation. The displaced intestines not being subjected to such severe or unequal pressure as to produce much thickening or contraction of the orifice of the sac, the connexion between the Hernia and abdominal cavity will consequently remain free, and the intestines can pass into or out of the sac, according to their varying amount of distension. The second of the cases which I have just related is somewhat opposed to this view, as, though the orifice remained wide, its crescentic edge had nevertheless exercised such pressure as to give rise to a very decided contraction of the calibre of the intestine, evidently of long duration, and which must have interfered with the free action of the bowels, and had probably previously given rise to serious indisposition. Unfortunately, however, the history of the state of the patient before his last seizure could not be obtained. In the first case related, however, there is no reason to believe that the displacement of the intestines had been productive of any material inconvenience, though it is probable, that the peristaltic action of the bowels, in the sac, was less free than if they had occupied their natural position in the abdominal cavity. Sir A. Cooper suggests, that, from the same cause, in the case of Mesenteric Hernia which he has related, there had probably been a state of habitual constipation; but in the Meso-colic Hernia, he thought that the displacement could have exerted no material influence on the functions of the bowels.

¹ The diverticula, found so frequently within twelve or eighteen inches of the termination of the ileum, are, it is believed, now generally admitted to be the remains of the canal leading to the vesicula umbilicalis, in an early period of fetal life. Were there any doubt on the subject, the cases related by Meckel, Wilkinson King, and others, in which, after birth, such diverticula were found opening at the umbilicus, must decide the question. Though diverticula are found in other parts of the alimentary canal than the ileum, it is certainly very rarely; and, when they occur in such situations, they may safely be regarded as originating in other causes.