CASE
OF
INTERNAL STRANGULATION OF
INTESTINE

RELIEVED BY OPERATION.

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THE following case will, I hope, be regarded as possessing some claims to the notice of the profession, as it affords a well-marked example of a class of cases as distressing and serious as any which can possibly fall under the care of the physician or surgeon. Recorded experience is almost barren in information regarding the results of attempts made to relieve insuperable constipation, when depending upon internal strangulation, by surgical interference. It is indeed a question in the minds of many, whether such interference is justifiable at all; but I think this question could hardly be raised if our diagnosis of the nature and seat of destruction in such cases could be rendered more satisfactory. The following case will not be regarded by some as holding out very flattering prospects of success, inasmuch as it ended fatally; still I do think that it is important, from its showing that a diagnosis of the nature and seat of obstruction is not always impossible: and I think that had the proposed operation been acceded to earlier, and not deferred until the strangulation

had continued fifteen days, the patient's recovery might have been fairly hoped for.

Dec. 21st, 1846.—I was called to Bocking in Essex, to meet Messrs. Harrison and Holmstead, of Braintree, in the case of Mr. C——, who was said to be labouring under insuperable constipation. I found a young gentleman, twenty years of age, of spare, but rather muscular frame, lying in bed on his left side, with his knees drawn up, and his countenance expressive of great anxiety. The face was flushed, the eyes bright and lustrous; the surface cool; pulse between 80 and 90, rather weak. His immediate history was as follows:—Eight days previously, Mr. C—— was as well as usual, having merely had (as was common with him) the bowels constipated for a couple of days. In the morning, whilst in bed, he became sensible of a *slight dragging, or sense of giving way, on the right side of the abdomen*, about two inches from the umbilicus towards the spine of the ilium; this sensation did not last long, and was soon replaced by a sense of soreness and tenderness. So little impression, however, was made on his mind by these symptoms, that they were only elicited by careful cross-examination. During the following six days nothing passed from the bowels excepting with the aid of a copious enema (nearly three quarts), injected by means of O'Beirne's tube, by which the large intestines appear to have been completely emptied of their contents. In spite of the most assiduous treatment of his medical attendants, all efforts failed to attain any further relief from the bowels. All purgatives given by the mouth, including croton oil and calomel, were quite inert, and a tobacco enema proved equally valueless. On the day preceding my visit, a small portion of feculent matter had, however, escaped from the anus. Three days previously, being five from the commencement of the attack, sickness commenced, everything taken into the stomach being rejected almost as soon as swallowed. Soon after, the vomited matters presented all the characters of the contents of the small intestines. On examining the abdomen, the patient did not complain of positive pain on pres-

sure in any part; a mere sense of uneasiness and distress being produced by firm pressure on the spot where the dragging was first felt, to the right of the umbilicus, as well as on a corresponding spot to the left of that region. There was no appearance of hernial protrusion. The abdomen was flat and collapsed; its walls thin and by no means irritable; so that the whole region admitted of minute tactile examination. The cæcum and colon appeared to be empty, and no resonance was elicited by percussion over the track of either of these intestines. No tumour nor any other abnormal condition could be discovered. I fancied, however, that an abrupt ridge could be made out by careful palpation about two inches along a line drawn from the umbilicus to the anterior and superior spinous process of the right ilium. The patient denied having, throughout his whole illness, suffered anything amounting to acute pain; the only thing approaching to this of which he complained, was from spasm, relieved almost immediately by eructations of air from the mouth. He had never suffered from hernia, nor ever had hæmorrhage from the bowels; and he had never been in any way exposed to the influence of lead. There was nothing in his pursuits (those of a private gentleman) which threw any light upon the etiology of the disease. As there could be no doubt of the existence of some mechanical obstruction to the passage of the contents of the intestine, I examined carefully the previous history of the patient, in the hope of discovering some clue to the nature of the obstruction. It appeared that when a child of about three years of age, he had been the subject of mesenteric disease, and had for some time suffered from a distended abdomen, from which he very slowly, and with difficulty, recovered. Some years afterwards he suffered from some ailment of which he did not give a very clear account, but which, from what he recollected of its symptoms, appears to have been peritonitis; and about four years ago he had a similar illness, under which he laboured for three weeks. During the whole of his life, from the period of his having been the subject of mesenteric disease, he had always suffered

from habitual constipation, almost always having recourse to aperient drugs, and frequently to medical assistance. So far as he recollected, however, he had rarely permitted two days, and still less frequently three or four, to elapse without obtaining relief from the bowels. Such was the history of the case from which a diagnosis was to be drawn. The absence of hernia, as well as of any previous hæmorrhage from the intestines, or of exposure to the influence of lead, the improbability of the presence of malignant disease, proved the non-existence of some of the most ordinary causes of insuperable constipation. Taking all the circumstances of the case into consideration, recollecting the dragging sensations experienced by the patient, and the previous existence of peritonitis, I ventured to give an opinion that the mechanical obstruction depended upon a knuckle of intestine becoming strangulated in some manner under a band of false membrane. There was of course more difficulty in determining the portion of intestine strangulated. The character of the vomited matters, and the empty state of the cæcum and colon, at once referred the seat of the obstruction to the small intestines. On making minute inquiries respecting the secretion of urine, we found it, notwithstanding the distressing vomiting, to exceed 30 ounces in twenty-four hours. It was hence obvious that the absorbing surface of the small intestines could not have been very considerably interfered with, and induced me to express my belief, that the seat of strangulation was not many inches from the ileo-cæcal valve. Coupling this with the seat of the previous dragging sensation, it was rendered highly probable that the stricture would be found in the right iliac region. This opinion, as well as the probably fatal termination of the case, was frankly communicated to the patient and his friends. In conversing with the patient (of whom I must take this opportunity to remark that I never met with a young man of greater calmness of manner and higher moral courage) I canvassed the chances offered by an operation. Having had a scientific education and possessing a general knowledge of anatomy, he fully appreciated his con-

dition, and talked as calmly of submitting to an operation as if it had merely concerned a third person. He was merely anxious, in deference to the wishes of his anxious relatives, to protract it to the latest possible period. As to medical treatment, I merely strictly interdicted all purgatives, and directed an enema, containing ʒj. Tinct. Opii (which had been previously twice used with great benefit), should be repeated each night. Small quantities of bland nutriment were ordered to be frequently administered. I also suggested making a trial of metallic mercury, with the hope rather than the expectation that it might by possibility aid in disentangling the intestine. The patient was anxious to take it, and fourteen ounces by weight, warmed to 90°, were administered.

I was favoured with a report from Mr. Harrison twenty-four hours after my visit. From this it appeared that the patient had remained in but little suffering, and had ceased to vomit since taking the mercury. Two more doses of the metal were administered, so that about 2½ to 3 pounds were altogether swallowed. On the following day some little hope was excited by the passage of a small quantity of *fæculent* matter, but unmixed with mercury. No important change occurred until Friday afternoon, Dec. 25th, the fourth day from my visit, when vomiting again occurred with violence, with a return of all the distress I had found him labouring under.

On the following day, Dec. 26th, being again requested to go to Bocking, I met Messrs. Harrison and Holmstead at 10 P.M. We found the patient with a more anxious look, but still not suffering any amount of pain; his skin was soft and cool; pulse 90, small, weak, threadlike; tongue moist, white in the middle, red at the tip and edges, but scarcely furred. He had just vomited about a pint and a half of matter from the small intestines. The abdomen was rather more distended than at my first visit, but in all other respects the same, with the exception of the muscular parietes being very irritable, and contracting spasmodically in a curious manner after palpation, but without any pain to the patient.

The question of the propriety of an operation was once

more entertained ; the patient completely understanding that it would merely give him a chance in favour of recovery, as I did not think it justifiable to hold out much hope of success from an operation concerning which we have really no experience. On taking my leave, I begged, in the event of the operation being acceded to, that care should be taken to provide a room heated to 88° or 90°.

Mr. C—— remained much in the same condition until Monday, Dec. 28th, when I received another summons to Bocking, and to take with me a surgeon, with a view to the performance of an operation. I therefore requested the assistance of my friend and colleague, Mr. Hilton, and we arrived at the patient's house at 9 o'clock P.M., just fifteen days from the commencement of the illness.

The patient was comparatively cheerful and very calm ; the abdomen was scarcely more distended than on my first visit, excepting on the left side, which was more prominent than the right ; the muscles were much more irritable, easily assuming a state of spasmodic contraction on the slightest manipulation. No considerable amount of pain or even uneasiness was experienced on pressing the abdomen. Pulse 90 ; skin soft and cool ; tongue moist, scarcely furred. The patient fully understood his perilous condition ; and it was with the full understanding of this on the part of his friends, and with the concurrence of his local medical attendants, that I gave my sanction to the operation. A room had been most admirably arranged by Messrs. Harrison and Holmstead, by heating it by means of two of Dr. Arnott's stoves ; all unpleasant dryness of the air being removed by allowing a small current of steam to enter the room. By these precautions, a steady temperature of 88° to 90° was maintained in the apartment into which the patient was conveyed. The further account of the case will be given by Mr. Hilton.

In the evening of Dec. 28, I accompanied Dr. Bird to see the case which he has just described. I found the patient presenting the symptoms of some obstruction to

the intestinal canal, and after a careful interrogation and minute external examination, I could arrive at no other conclusion than that which had been already expressed by Dr. Bird and Messrs. Harrison and Holmstead. Before commencing the operation, I explained to my professional colleagues the whole of the intended abdominal section and exploration, and the means to be employed to detect the position of the stricture, referring especially to our using the completely empty small intestines as our guide to the position of the obstruction. Some laudanum was given to the patient about half an hour before his removal to the room in which the operation took place.

The patient being placed recumbent on a narrow French bed, and the urinary bladder emptied by the introduction of a catheter, an incision was made in the median line of the abdominal parietes, extending from the umbilicus downwards to within an inch of the pubic symphysis, through the skin and areolar tissue. The edges of the divided skin became widely separated, to the extent of at least an inch, by which the linea alba and adjacent cellular tissue were exposed. A small incision was then carefully made through the linea alba tendon, immediately below the umbilicus, so as to perforate the peritoneum, without wounding the intestine. A small quantity, about $\frac{3}{4}$ i., of serous fluid coloured with blood escaped through the wound. A broad flat director was then introduced into the peritoneum, and so directed downwards, in very close contact with the abdominal wall, as to allow the lower portion of the median tendons of the abdominal muscles to be divided upon it with a scalpel. In making this incision, the edge of the left rectus abdominis muscle was exposed, and a small branch of an artery was divided upon which a ligature was placed: only a very small quantity of blood, gathered by sponging, was lost by the patient: a little more bloody serum flowed from the abdomen at the lower part of the incision. Several convolutions of small intestine, rounded, much distended and their parietes congested to a light claret colour, presented themselves at the opening, pressing for-

wards, and urging their escape from the abdomen. No solid effusion of lymph was noticed upon the intestines. I passed my hand into the abdomen, towards the right side, in the direction of the seat of the first painful dragging sensation experienced by the patient, that I might ascertain whether there were any adhesions to the abdominal parietes: not anything unusual could be detected by this examination, nor did the same kind of manipulation discover anything wrong on the left side. The distended intestines so completely blocked up the opening already made, that it was impossible to extend the exploration without enlarging the abdominal section: this was done from below upwards, upon the broad director, to about an inch and a half above the umbilicus, passing to its left side. More space having been thus obtained, the convolutions of the intestines were now somewhat separated from each other, with as little manipulation as possible and with all due gentleness, first on the right side, without noticing any cause of obstruction, or any empty intestine. The same kind of examination was then made towards the left side; and in the left iliac fossa, over the sigmoid colon, two portions of small intestine were seen firmly adherent to each other by a band of old solid cellular tissue, about half an inch wide and about an inch in length; this band appeared to be constricting very much one of the portions of the intestine thus held together. It was divided with a scalpel, and the two portions of intestine were liberated, but the duplicature seemed to be firmly held in the pelvis; no force was used to raise it. Tortion was used to a very small bleeding artery divided in this band, but not arresting the blood satisfactorily, a fine ligature was applied upon it, and subsequently cut short at the knot. I expressed my decided belief that this adhesion had not been the cause of the patient's symptoms. On turning aside this convolution of intestine, I recognized the sigmoid flexure of the colon, deeply placed, of a light, healthy colour, very small and to all appearance quite empty. I then determined to make a complete exploration towards the right iliac fossa. To do this, it was necessary to displace the

distended ilium, and to raise the abdominal parietes. A portion of ilium, about six or seven inches long and more fixed than the surrounding convolutions, was then seen, presenting the appearance of strangulated intestine, being of a darker colour and less elastic than the adjacent coils. This portion of intestine being elevated and brought forwards, the cæcum was exposed, collapsed, empty and very small, with its appendix contorted, and fixed by old adhesions; a portion of small intestine, exceedingly contracted, not bigger than the end of the little finger, and quite pale in colour, was at the same time brought into view. It was now obvious we were near the cause of obstruction, having distended and empty small intestine close to each other. After a careful examination of the parts, I ascertained that the six or seven inches of darker ilium, before referred to, had passed through an annular opening, formed in part by another portion of the same small intestine, and in part by some old membranous adhesions to the brim of the pelvis over the external iliac blood-vessels. I endeavoured, by well-directed pressure, to return the distended intestine through the opening, but could not accomplish my intention, although the intestine became somewhat reduced in size. Gentle traction was then made on the strangulated intestine at the opposite side of the opening through which it had passed, and after a little perseverance I succeeded in liberating it from its incarcerated position, and immediately the contracted and empty portion of ilium, between the constriction and the cæcum, began to be distended, indicating clearly the removal of the obstructing cause. The intestines were now replaced, but with some difficulty, in the abdomen. A continued suture was used to approximate the edges of the wound from above to below. A thin pad of lint was placed on the wound; and over it a few straps of strong adhesive plaster, about an inch and a half wide, were extended transversely from one lumbar region to the other.

During the operation, which lasted about an hour from beginning to end, the patient made but little complaint of pain, and did not feel either faint or sick, though he had one or two

slight hiccoughs : after the operation he was somewhat collapsed, perspiring, and having a pulse of more than 100 in a minute, small and feeble : there was no marked anxiety of countenance. The exposed intestines were kept warm by sponges, as well as by the high temperature of the room : the great omentum was not seen during the operation, nor were any recent adhesions of the intestines, to each other or to the abdominal parietes, visible.

About an hour afterwards, Dr. Bird saw the patient, and reported him as quite comfortable ; and, not wishing him to be disturbed a second time, I did not see him again. Forty drops of Battley's solution of opium were given to the patient soon after the operation ; he was then left in the care of his medical attendant, who reports as follows :—

“ When I saw Mr. C——, at twenty minutes past one on the Tuesday morning, he had rallied from the effects of the operation very much ; he was calm and tranquil, said he felt very hot, and that his abdomen was very stiff, but he did not complain of pain, and there was neither vomiting nor hiccough ; desiring to pass his urine, he did so in the bed. I gave him Cal. gr. iii. and Opii. gr. i. and a little water—he was quiet for half an hour ; he continued very still and quiet till four o'clock, taking a little ice occasionally, to relieve his thirst. He was frequently still for twenty or thirty minutes, and I thought he had been asleep, but he assured me that he had not lost himself. The pulse was small, about 120 : he had a second dose of Calomel and Opium at four. About five o'clock he had some conversation with his mother and sister, and gave them very explicit directions how to arrange the stoves, to keep up the temperature of the room : soon afterwards, he complained of dizziness and a sense of burning heat in his head, and at half-past five he became restless, and then delirious, calling out to be raised, or pulled out straight, throwing his arms about, and making efforts to get out of bed. A person on each side held his hands and soothed him : he was again quiet about half-past six. Very soon after that time, a death-like change came over his countenance, and it was evident that

he was dying. At a quarter to seven he was in articulo mortis, though he lasted till twenty minutes past seven. There was not any opportunity of giving brandy, for almost immediately after the delirious excitement subsided, the above-mentioned change took place, when he was no longer able to swallow."

Dec. 30th.—I examined the body at nine, P.M., about thirty-eight hours after death, with the assistance of Messrs. Harrison and Holmstead.

On removing the plaster and lint from the abdomen, which presented but little distention, all the part covered by the lint, including the wound and the adjacent skin for about an inch on each side, looked nearly white, and the rest of the skin in contact with the plaster was of a very dark hue, probably the result of the lead in the plaster having been decomposed by the sulphuretted hydrogen of putrefaction: a small quantity of bloody fluid had oozed from the wound at its lower angle. The suture retaining the edges of the wound in apposition being divided, a feeble adhesion between them, by recently-effused lymph, was noticed, and the same condition existed, by which some of the convolutions of the intestines were united to each other and to the abdominal walls. By elongating upwards the incision made during life, and by making an additional transverse cut through the abdominal walls from one lumbar region to the other, the convolutions of the intestines were exposed. They presented nothing remarkable in their grouping, all appearing to have found their right places, although they had been so much disturbed at the operation. The small intestines looked much less red than during life; indeed, at some parts they were rather pale. The cæcum was projecting and much distended, and the same distended condition existed along the whole length of the colon. The omentum was lying upon the intestines, just above the umbilicus: the liver was closely fastened to the diaphragm and abdominal parietes, by very old cellular adhesions. On attempting (for the purpose of examination) freely to displace the convolutions of the small intestines from each other, numerous old cellular adhesions were found

amongst them, causing some difficulty in tracing the continuity of the intestinal canal. The stomach and duodenum were both empty: neither of these parts presented any evidence of inflammation. The parietes of the jejunum were more vascular than natural, and the same may be said of the whole of the ilium above the strictured portion. Continuing to trace the ilium towards the cæcum, we arrived at that part where the band had been divided at the operation; and about two inches lower down there existed, between the same two convolutions, another strong cellular adhesion; and about three inches below this second band, occupying the lowest curve of the intestine and resting deep in the pelvis, was found the mercury, which had been administered at intervals, and which had not reached within two or three feet of the obstruction. Proceeding to follow the intestinal canal, we discovered about seven inches of ilium, somewhat darkly discoloured, larger than the adjacent intestine, not uniform in configuration, with some shreds of lymph upon it, and bounded at each end by a well-marked constriction; this was obviously the strictured portion of intestine which had been released from its fixed position at the operation, and close by it was recognized the abnormal opening, the cause of the obstruction, formed by almost a circle of small intestine (nearer to the large intestine than the part which had been incarcerated), maintained in that form by old adhesions, bounding, and so completing an annular opening, less than one inch in diameter, and fixed by other adhesions to the brim of the pelvis, close over the external iliac blood-vessels: through this opening, the subsequently strangulated intestine had passed, and through it likewise it had been repassed by traction, at the operation. This abnormal opening was about fourteen inches from the lower termination of the ilium. All this portion of the ilium, between the seat of constriction and the cæcum, was exceedingly contorted and very much fixed to the surrounding parts by strong adhesions.

A view, from the right side, of the strangulated intestine, which has been drawn forwards, so as to expose the boundary of the opening through which it had passed.

It was very satisfactory to notice that there were not any local indication of bruises or ecchymoses on the intestines.

The cæcum was distended by pultaceous fæculent matter, well coloured with bile—the same distended condition by fæculent matter was found through the whole length of the colon to the upper part of the rectum. Some of the mesenteric glands were much enlarged.

The kidneys, liver and spleen were examined by numerous incisions being made into them: they did not present anything worthy of remark, in reference to the immediate cause of death, except their pale condition: the mucous membrane of the lower parts of the jejunum and ilium was excessively congested, especially at the edges of the valvulæ conniventes—not any exudation of blood had occurred, nor was any ulceration of the mucous membrane detected in the portions of intestine examined. About half an ounce of

serum highly-coloured with blood was found in the pelvis, but no clot of blood.

The urinary bladder was nearly empty.

The heart was small, flabby, pale, and almost emptied of blood; but this latter condition may be in part attributed to the pressure to which the heart was subjected in removing it from the thorax by an opening through the diaphragm; all the valves were healthy; the two coronary arteries arose close to each other, above one of the aortic semilunar valves; there were no adhesions of the heart to the pericardium. Both lungs were sound; there were some few old pleuritic adhesions towards the base of the right lung.

Having thus detailed, without comment, all the essential circumstances of the surgical portion of this interesting and, I think, important case, it is necessary I should append one or two observations.

On visiting the patient I had no difficulty in agreeing with the opinion already entertained and expressed by Dr. Bird, as to the cause of his symptoms, and the probable seat of that cause; and knowing from my own experience in many similar (or, at least, believed to be similar) cases, the fatal issue which was then immediately impending unless some additional medical or surgical aid could be obtained, I did not hesitate to acquiesce in the suggestion of an operation, nor did I hesitate to undertake what, after due consideration, I felt I was justified in recommending, although quite alive to the extreme danger of such a proceeding, and, at the same time, not unmindful of the associated responsibilities of acting without the authority of precedent, and against the strongly-urged opinions and arguments of some surgeons in relation to two points in the case—viz. the possible failure in any attempts to find the obstruction, and even if found, the probable inability to relieve the constriction. These two latter reflections, not being in accordance with the conclusions at which I had arrived by *post-mortem* examinations in like cases, did not contribute, in my mind, any

urgent objection to the propriety of the trial; nor did they portend, in my opinion, any insurmountable difficulty: and I think the circumstances connected with the progress of the operation in this case substantiated the correctness of such a conclusion.

I regard the direct results of the operation as very satisfactory: the hiccough subsided—the vomiting ceased—the intestinal obstruction was relieved—the contents of the small intestines began to pass towards the large intestines, immediately the incarcerated portion was liberated and replaced in its natural position, as evidenced by the distention and vermicular motion observed in that part of the ilium situated between the constriction and the cæcum, which portion had been previously noticed perfectly contracted and quiescent.

At the *post-mortem* examination, the small intestines were nearly empty, and the large intestines filled with fæculent matter as far as the upper part of the rectum; indeed, I have little doubt, if this patient had survived another hour or may be a shorter period, that his bowels would have been most freely relieved. The *post-mortem* examination demonstrates the complete inutility of the mercury in this instance, as a mechanical agent, in overcoming the obstruction. It was administered at intervals, during life, and nearly the whole of it was found collected at the most depending parts of two adherent convolutions, far removed from the true seat of the obstruction, and with no impediment to its progress except that of gravitation.

The class of cases to which the subject of this communication belongs is well known, and is acknowledged by the Profession as offering very considerable difficulty in diagnosis, and, when satisfactorily recognised, as necessarily fatal if not relieved by mechanical assistance; and such must inevitably have been the result in this instance had not the operation been resorted to; for although the obstructed intestine was in my hand, I could not, by safe pressure, return it to its natural position; but was compelled, as stated, to

use traction on the stomach side of the stricture, indicating pretty clearly, that not any other means, except that employed, could have been of any material service or aid.

Looking at the case in all its aspects, I think it offered as much obscurity, in most respects, as any one of its kind can present; nevertheless, there was no very great difficulty in discovering the seat of the disease, nor in acquiring the suggestions as to the method of reduction—viz. by traction.

Although we may perhaps, oftentimes, as in the case before the Society, judge by the patient's sensations and other concomitant circumstances or symptoms, of the probable position of the obstruction, it must be admitted that experience has not yet pointed out with sufficient certainty the extent of reliance which ought to be placed in the indications as to its precise locality: so long as any doubt remains in reference to the whereabouts in the abdomen, we are to look for the obstructing cause, I think it must be the safer plan to adopt the median section of the abdominal parietes; the section in the linea alba may be made amply sufficient (at least so I conclude from all I have seen) to examine, with due care, every necessary part of the abdomen; it has the advantage of not implicating muscular fibres, which would retract and leave such portions of the abdominal parietes very thin, and so induce a constant disposition to ventral hernia; and further, it avoids the risk of hæmorrhage from wounding any considerable artery or vein, except there should happen to be an abnormal distribution of blood-vessels in the course of the incision.

In cases of external hernia, an early operation contributes much towards a successful issue; and we may fairly suppose a corresponding advantage might have been obtained had this operation been performed soon after the obstruction occurred, and before the intestines had become so excessively congested or inflamed, and before the patient's powers of constitutional reaction had been so much reduced by medicine, by vomiting, and by defective nutrition.

Reflecting on all the concurrent circumstances of this case, I cannot but conclude that they fully justify the proceeding which was adopted; and, I may add, encouraged by this case, notwithstanding its fatal termination, I shall not doubt the propriety of advising and pursuing the same plan in any other similar case, provided the indications be as clearly expressed. I believe this to be the first recorded instance of any surgeon in this country having succeeded in his attempts to relieve an internal strangulation of intestine, by such an operation as was completed in this patient; I trust it will be considered by the Profession, as a step in the right direction, and as an additional resource in our art, which may be conscientiously and honestly employed with the intention of prolonging human life.