

should be used, both internally and by the bath, for one or two seasons; those of Vichy, Carlsbad, and Marienbad are the best.

The great preponderance of biliary colic amongst females, as compared with males, has been remarked by most writers on the subject. Of the seven examples which I have given, the patients were females in five instances, and the great majority of the other cases which have come under my notice belonged likewise to the female sex. Furthermore, in every instance except Case V., the female patients were of the better classes. It is not unreasonable to conclude that the sedentary habits of ladies, and their highly artificial dietary, are, in a great measure, chargeable with this result.

Gall-stones are mainly composed of cholesterine and inspissated bile, with mucus, and salts of lime. These now presented to the Society exhibit this constitution. In addition to the calculi obtained from the patients whose cases I have just reported, I beg to submit for comparison a number of others procured in the dissecting-room, and from the gall-bladder of the ox.

It will be observed that in this paper, which is of a purely clinical character, I have eschewed the pathology and the chemistry of gall-stones. The subject in its general bearings is much too large for a brief memoir. It has been adequately and ably treated by Fauconneau Dufresne, Frerichs, Trousseau, Prout, Budd, Murchison, and quite recently by Dr. Hilton Fagge—all of whose writings may be profitably consulted.

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ART. XVI.—*A Case of Intestinal Obstruction, in which the Abdomen was several times Punctured.*\* By ARTHUR WYNNE FOOT, M.D., T.C.D.; Senior Physician, Meath Hospital; Fellow and Censor, King and Queen's College of Physicians, &c.

THE following very troublesome case of intestinal obstruction seems to me to present several features of clinical interest and practical importance. During its course I considered it necessary to puncture the intestines several times; this procedure was attended with immediate relief of the most urgent symptoms, and, in all probability, mainly contributed to the complete recovery of the patient.

The subject of this case was a boy, thirteen years of age, who,

\* Read before the Dublin Biological Club.

after an indiscreet indulgence in cakes and sweets, was attacked with symptoms of intestinal obstruction. He was a delicate, much indulged, and only child; he suffered from great irregularity of the bowels, and had been twice previously under my care for attacks of jaundice, the result of over-eating. The foundation of the present attack was probably laid during the Christmas week, as he began to look unusually ill at that time. A children's party on New Year's Day aggravated his indigestion. On 8th January, 1876, he became seriously ill with sudden constipation, accompanied with pain and swelling in the cæcal region. He was kept in bed, and poultices and stupes diligently applied to the abdomen. Enemata of various kinds were constantly and carefully employed, without producing any satisfactory motions from the bowels. Purgatives of different sorts were given by the mouth, including castor-oil, scammony, calomel, and croton-oil. These were, after a while, invariably vomited; the discharges from the stomach, after the administration of seven grains of calomel, were notably bilious. The stomach retained broths, wine, and tea, but milk was always rejected in curds.

The distension of the abdomen became daily greater; increase of pain was not commensurate with the distension; although the pulse became small and rapid, averaging 125, the temperature did not become high. Urine was freely secreted all through, an indication that the seat of obstruction was in the large intestine. As soon as active purgatives had failed to overcome the obstruction, they were discontinued, and five minims of the liquid extract of opium were given by the mouth every fourth hour. Notwithstanding the constant use of the opiate, he became totally unable to sleep, moaning and frequently shifting his position all night; his expression became pinched and haggard. On the 14th January he had several convulsive attacks. Fresh efforts were made to move the bowels with scammony and enemata without success. Poultices, fomentations, hot dry flannels, and hand-rubbing of the abdomen with warm oil, had been constantly persevered in. On the 16th the abdomen, which had been daily increasing in size, was distended like a drum, raising his bed-clothes in a heap; it was tense, elastic, and universally resonant in the highest pitch; the xiphoid cartilage was bent forwards, the thoracic viscera displaced upwards; he could hardly breathe, and was harassed with ineffectual attempts to vomit; the pulse was small, rapid, and flickering; he had been long without sleep, and was extremely weak.

Feeling sure that, tenacious as children are of life, this delicate boy could not hold out much longer, and that the only means of restoring the contractility of the intestine was to remove the cause of its paralyzing distension, I proposed to puncture the abdomen. The suggestion was at once agreed to, as the condition of the boy begging for relief was most torturing to his parents. On the afternoon of the 16th January I made three punctures in the supra-umbilical region of the abdomen with the finest trocar and cannula of Dieulafoy's aspirator. Upon the first puncture gas hissed out rapidly through the cannula immediately on the withdrawal of the trocar; when the air had ceased hissing out the syringe was attached, and more gas was pumped out until thin ochreous fæces appeared in the glass receiver; the cannula was then quickly withdrawn with a rotatory movement. In the second puncture, aimed at an adjacent coil of intestine, I did not penetrate the bowel, the trocar probably pushing the bowel before it, or passing between two coils of intestine; no gas or liquid could be withdrawn through the cannula, plunged in as far as its length admitted of. A third puncture was made midway between the umbilicus and xiphoid cartilage, and gave exit to a quantity of gas, which filled the room with the characteristic odour of intestinal flatus, and was followed by a marked, though partial, subsidence of the epigastric prominence, and a decided relaxation of the abdomen. Almost immediately afterwards he fell asleep, and slept for three-quarters of an hour; he had not had ten minutes sleep at a time for many days and nights previously. When he wakened he said at once the operation had cured him. Fearing the re-accumulation of the gas, I did not venture to share in the hopes which his great relief had excited. Not a trace of blood appeared externally at the seats of puncture; they gave him no pain at the time. He did not say a word during the insertions of the trocar, though he was quite conscious, and not at all narcotised by the opium which he had been taking daily. No preliminary incision of the skin was made, as I thought it would have split or cracked, it was so tightly stretched. The proceedings occupied about five minutes. No adhesive plaster was put upon the punctures, which were hardly visible; a large but light and soft linseed meal poultice was laid all over the abdomen, and secured with a binder. The punctures were made on the afternoon of the 16th January; on the 18th he had a sensation as if the bowels were going to move, but there was no evacuation, even of wind. No new pain or symptom of inflam-

mation had occurred subsequent to the punctures; on the contrary, he said he felt much better; the distressing efforts to vomit had ceased; he slept a great deal in lengths of three-quarters and a hour at a time, taking wine and beef-tea when he wakened, and going to sleep at once again. The distension of the abdomen, though still very great, remained much less than it had been; the expression of his face was much less anxious, the skin continued cool, and urine was freely excreted. The pulse remained between 120 and 130. The liquid extract of opium had been continued in doses of five minims about every fourth hour, but the pupils were not contracted, and the head quite unaffected.

On the 19th January, thinking the induced current might assist muscular contraction, now that the over-distension had been somewhat relieved, I employed it carefully and patiently for half an hour in various ways. A piece of a wax candle was put into one of the brass cylinders of Gaiffe's induction apparatus, the projecting piece of candle scraped to a point, and the whole, oiled and warmed, was inserted completely into the rectum; with the other conductor a large sponge wetted with warm salt water was applied over different parts of the abdominal parietes. Encouraging borborygni were heard, and movements of the abdominal muscles and of the intestines seen. A bougie, traversed by a copper wire and ending in a copper knob, was then introduced into the rectum to a higher point than the cylinder had reached, and the circuit completed on the abdomen as before. Both conductors were then applied externally to opposite sides of the abdomen; and the current was also passed from the spine to the umbilical region. In each of these ways as strong currents as he could bear were used. Three hours after the Faradisation he vomited about six ounces of a thick, ochreous, sour, and semi-fæcal-smelling matter, similar to the ordinary contents of the jejunum and upper part of the ileum; I feared that the Faradisation had excited an inverse peristalsis, but in the afternoon of the following day (20th June), twenty-four hours after the use of the electricity, he passed, by the rectum, one large hard grey lump, followed by a copious fluid stool of ochreous fæces, and got rid of a large quantity of wind both up and down. After these discharges he was able to lie on one side, the right, for the first time since he had been ill; and this change of position relieved him very much. He had mild delirium this evening, and the opium was stopped. During the night (of 20th) he was restless and delirious, seeing imaginary people about his

bed, and calling out to them. The following morning (21st Jan.) the bowels moved at 8½, and twice again before noon—orange-coloured, pasty, and pultaceous discharges. The expression of the face was much improved, and there was some re-appearance of colour in his cheeks. The abdomen, which was still kept covered alternately with linseed meal poultices and warm dry flannels, had by no means been satisfactorily reduced in size, though the urgent distress caused by tympanites had been relieved, and the skin was getting tender from the frequent applications. The bowels acted many times by day and night on the 21st and 22nd January, but there was also great secretion of gas, which produced loud borborygmi and much colicky spasm. The gas exhibited more tendency to escape upwards than downwards, and the boy invented a way of relieving himself by pushing a feather down his throat. This did not induce vomiting, as the irritability of the stomach had subsided, but enabled him to get rid of great quantities of wind. It was almost amusing to watch the eagerness with which he called for the large goose-quill he used for the purpose, and the readiness with which he pushed it half way down his neck, rooting about with it till the wind belched loudly up. He would not let anyone do this but himself; and was quite impatient if the feather was not beside him the moment he wished for it. On the 23rd January, to get rid of some of this flatulence, he was given *Ol. Ric.* ʒss., *tr. rhei.* ʒi., *Es. menth. pip.* ʒss., in hot brandy and water; this produced five or six motions more gray than yellow, which they had hitherto been. However, during the night, after the administration of the oil, there appeared a great re-accumulation of gas, the distension of the abdomen increased, colicky pain became severe, the borborygmi became loud and frequent, and the bowels stopped acting. On the following day (24th January) the tympanites had returned in its most severe form, and he earnestly entreated relief; he said, "You must let out the wind again." I punctured the abdomen in the middle line of the epigastrium, half way between the umbilicus and xiphoid cartilage, with the same trocar as on the previous occasions. The trocar was inserted obliquely inwards and downwards; he was well elevated in bed; resistance was distinctly felt before the trocar pierced the intestine; it required very strong pressure, probably from tight claspings of the instrument by the tissues of the abdominal wall. Immediately on the withdrawal of the trocar much gas fizzed out through the cannula, then air and liquid spluttered from its orifice; the syringe was then attached, and twice filled with thin

grayish liquid; more could not be withdrawn; probably from the fluid being too thick to come through the small cannula. The manœuvre was tried of forcing back some of the contents of the syringe, so as to free the distal end of the cannula, but it was not effectual. As sufficient gas had escaped to relieve the distension, no more punctures were made; the wound was treated as before. He expressed himself as greatly relieved, and had a very good night. On the following day he exhibited a desire for milk, which he had refused for a long time on account of his always vomiting it in curds, but it was returned as usual soon after it had been swallowed, and the act of vomiting produced smart local pain at the seat of the recent puncture. He was put again on the opium mixture; whenever he changed his position the wind and water were heard rolling about in him as in an empty barrel. The same evening he passed a hard lump from the bowels, and afterwards a long cylindroid mass of pasty fæces. Next day he drew my attention to the fact that the rumblings began in the left iliac fossa, and ran round the abdomen in the tract of the colon. On the 27th January he was decidedly better, and for the first time the general condition of the belly was softer and less swollen, but the subsidence of the tympany revealed evidences, in dulness and vibration, of some fluid in the inferior region of the peritoneal cavity. He eat an egg and some bread and butter this morning, and was passing evacuations of the colour and consistence of putty, with wind both up and down. Enemata of warm water were used, but seemed to provoke vomiting of matter similar to the usual contents of the small intestine. He soon began to recover rapidly, passing from five to ten motions from the bowels in the twenty-four hours, the abdomen gradually returning to its natural form and size.

On the 1st February the pulse for the first time was under 120; on the 3rd he was up for two hours in the evening; on the 14th was able to walk about his room, and on the following day was out in the garden for a short time. 19th February he was ordered as a tonic mixture—Liq. ext. cinch. flav. ꝑiii., ac. mur. dil. ʒiss., syr. lim. ʒi., inf. caryophyl., ad ʒviii. ʒss. t. d. Since then he has as quickly as possible regained his usual health and spirits.

In the foregoing case the object desired in puncturing the intestine was of a curative nature. By relieving the muscular tissue from the excessive strain caused by over-distension, its contractile power would be restored, and the removal of a temporary obstruction thereby promoted. This object may be defeated clearly when the

amount of gas evacuated is insufficient to procure relief, or when the gas re-accumulates so rapidly that the benefit of its removal is too transient to be of practical use. Demarquay has been obliged to repeat the puncture eleven times, owing to rapid re-accumulation of the gas. As a palliative proceeding in cases of insuperable obstruction, its simplicity has much to recommend it. The puncture of the intestine for the relief of tympanites is by no means modern. According to Sprengler, in his "*Histoire de la Médecine*," Vol. IX., p. 181, François de Paule Combalusier was the first who successfully employed the trocar in tympanites. A French translation of Combalusier's work, "*Pneumatopathologia*," appeared in 1754. M. Fossangrives communicated to the French Academy of Medicine, in August, 1871, a paper in which he quotes eighty-four cases in which puncture of the intestines has been practised for tympanites. Acute inflammation does not seem to have added any risk to the operation. M. Depaul communicated to the Surgical Society of Paris, on May 3rd and 10th, 1871, a case in which successive punctures of the transverse colon, in a case of acute puerperal peritonitis, with vomiting and considerable tympanites, gave great relief, the patient ultimately recovering. There are other reports of its performance in midwifery practice by Dr. Braxton Hicks in the *Obstetrical Transactions* for 1869. In chronic peritonitis, supposed to be tubercular, and in a boy aged three, great and immediate relief followed the puncture, and again when re-accumulation made it advisable to repeat it, and the patient recovered. In tympanites, connected with dysentery, the puncture has succeeded in saving life, and in such cases, from the nature of the lesions, one might naturally hesitate to puncture.

My colleague, Mr. Smyly, has kindly referred me to the following case in his father's manuscripts:—"Mrs. E. was almost at the point of death from obstruction and flatulent distension of the bowels, when Sir Philip Crampton was called in to see her; Sir H. Marsh and Mr. Cusack had tried every means ineffectually. Sir P. Crampton proposed to puncture the colon through the abdominal parietes with a small trocar and cannula, which was acceded to, and a large explosion of gas took place, attended with immediate relief, and followed by free evacuation of the accumulated fæces. Sir Philip Crampton's idea was that the colon was bent upon itself, and that unless the gas was evacuated no passage could be obtained for the pent-up contents of the bowels."

From the frequency with which the large intestine has been

operated on, the proceeding is frequently described in the periodicals as colo-puncture. I believe it was the small intestine which was punctured in my case, but the stomach may be the part of the alimentary tube requiring relief. Olivier reports the cases of twenty persons who suffered from symptoms of extreme distension of the stomach, producing death by suffocation. The cause of the disease appeared to have been overloading of the stomach with half-cooked vegetable food, and drinking a badly-fermented liquor, called chicha, prepared from maize. The cases occurred in Bolivia, in South America. He operated on twenty persons, of whom eight recovered completely in three weeks; the paracentesis of the stomach gave exit to a great quantity of most offensive gas and fermenting chyme. It was thought the others died from not having been submitted to treatment till too late.<sup>a</sup>

In connexion with the subject of puncturing the intestine, mention is frequently made of the performance of abdominal puncture upon domestic animals. The conditions are not quite similar, as has been pointed out by Mr. M'Bride, Lecturer on Veterinary Medicine and Surgery in the Royal Agricultural College, Cirencester.<sup>b</sup> In the ox it is not the intestine which is punctured, but the rumen or first stomach, which does not appear to be very liable to inflammation. It is customary with veterinary practitioners not only to puncture it, but to incise it to the extent of seven or eight inches, and remove its contents by the hand (occasionally removing about 112 lbs. in weight), and then introduce medicinal agents, at times using a flour-dredger to dredge the internal surface of the stomach with powdered nux vomica, &c. Puncture of the colon for tympanites has been performed on the horse, though with very little success. The intestines of herbivorous animals contain a large quantity of fluid, which during the very violent struggles of the animal is nearly certain to pass into the peritoneal sac. He thinks the operation much more likely to be useful in men than in the lower animals.

The two risks which would appear to attend on puncture of the intestine—fæcal extravasation and a wound of the peritoneum, perhaps already inflamed—do not seem to be practical drawbacks. The puncture with a proper instrument is closed by muscular contraction, or by the protrusion of mucous membrane, as shown by Travers; and the inflammation of the peritoneum

<sup>a</sup> Year Book. Syd. Soc. 1861. 213.

<sup>b</sup> Brit. Med. Journ. 4th Nov., 1871. P. 527.



seems to have no influence on the success of the operation. In a case of Mr. Teale's, in which the patient succumbed to double pneumonia, no traces of the punctures could be discovered but on the outside of the body. In the case above related I believe it was the small intestine I punctured. The obstruction seemed to have originated in the cæcum; the secretion of urine was abundant and regular; vomiting was neither an early nor a very urgent symptom; the pain was less acute, and the course more gradual than in obstruction of the small intestine; the distension of the abdomen was uniform, and there was no special tympanites in the colon regions. In making the punctures the boy was half sitting up in bed, so as to facilitate the puncture being made in the highest part of the bowel from above downwards, and avoid the spluttering which would result from introducing the cannula below the level of the fluid contents of the bowel. The force required is much greater than one would expect.

In connexion with the subject of puncture of the intestine, the following reflections suggest themselves:—The puncture may be curative or palliative; necessity for even its frequent repetition is very likely to arise; that it is a very old proceeding, and has frequently been employed; that neither acute nor chronic peritonitis is necessarily a contra-indication; that it seems to be more successful than the somewhat analogous operation in oxen and horses; that the risks of fæcal extravasation or peritonitis appear to be very small; and that the part of the canal to be operated on does not materially influence the performance or the success of the operation as a palliative or curative proceeding.

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ART. XVII.—*On the Antiseptic Power of Salicylic Acid and certain of its Compounds, compared with other Antiseptics, therapeutically considered.*<sup>a</sup> By EDWIN LAPPER, F.C.S., L.K.Q.C.P.I.

THIS substance has lately attracted a considerable amount of interest, both as a triumph of inductive chemical research and as a reputed therapeutic agent of high value. A great diversity of opinion exists with regard to its antiseptic power, as the following few extracts from writers on the subject will demonstrate:—

Kolbe, the discoverer of the beautiful synthetical process by which it is obtained, by treating a mixture of phenol and sodium

<sup>a</sup> Read before the Medical Society of the College of Physicians, Wednesday, March 8, 1876. [For discussion on this paper, see p. 362.]