A CASE OF TYPHOID FEVER COMPLICATED WITH CHOLECYSTITIS.

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A CASE of typhoid fever complicated with cholecystitis recorded in the JOURNAL of January 20th, 1912, by Dr. John McMillan, in which the complication arose at the end of the eighth week, makes me think that the following case of a somewhat similar nature, occurring just at the time of publication of Dr. McMillan's case, would be of interest:

On January 18th a married woman, who had had three children, had felt unwell for a few days; suddenly she felt cold and shivery; at the same time "everything went black." Seen on the morning of January 19th her temperature was 101°, and the pulse 112. She ached generally, and her mental condition was one of marked lethargy. As the symptoms had come on so suddenly and many cases of influenza had been under treatment, she was treated for the next few days as if suffering from this, though the evening temperature was always 103° or slightly over, necessitating tepid sponging; the morning temperature was never below 101°, and the mental hebetude, with deep and inexplicable sighing, made one fear that the illness from which the patient was suffering might be other than influenza. At 3.30 on the morning of January 24th the patient awoke from a short sleep, marked insomnia having been a prominent symptom so far, with a rigor. This occurred again at the same time on January 25th. The temperature on the evening previously had mounted to 104°. Shortly after the rigor the temperature was 98.4°, and when I saw the patient at 9 a.m. some definite typhoid spots were to be seen on the abdomen.

From January 25th to 31st the patient seemed to be having a mild attack, as the temperature began to subside on January 28th, until on January 31st it was never higher than 99°, the pulse-rate falling proportionately, though the hebetude persisted very markedly; there was obstinate constipation necessitating enemata, and the mouth was very foul, with tender though furred tongue, and thirst very troublesome. Widal's reaction was markedly positive.

On February 1st, after a full soap and water enema, which was retained, the patient complained of a sudden and acute pain below the costal arch on the right side, causing the temperature to run up to 102.6°, pulse 120, with much prostration and profuse sweating. Pain of any kind so far had been conspicuous by its absence. Hot fomentations not relieving the patient to any appreciable degree, on the suggestion of my partner, Mr. W. H. Jalland, a full enema of oil was administered with a long tube; some was returned without any faecal matter, but the major portion was retained.

The pain returned in the early hours of February 2nd, and was confined to the right side of the abdomen as before. A large, sausage-shaped tumour was easily to be felt, very hard and exquisitely tender at its lower end, pointing to the probability of cholecystitis.

Operation.

As the patient's condition was grave, and operative interference deemed necessary, Mr. H. Littlewood of Leeds operated at noon on February 2nd, assisted by Mr. W. H. Jalland and Mr. Coupland, the anaesthetic (ether) being administered by me. The abdomen was opened by an incision about 4 in. in length, just to the left of the middle line, extending 1 in. below the level of the umbilicus. An enlarged gall bladder was at once seen, adherent by recent adhesions to the omentum, colon, and duodenum, which were easily separated. The gall bladder was aspirated, about an ounce of pus being removed. It was then opened, and five large gall stones removed, one being the size and shape of the distal phalanx of an average man's thumb. The mucous membrane of the gall bladder was thickened and infiltrated with pus, and as much of it as possible was removed. The patient being too ill for cholecystectomy, a drainage tube was inserted into the gall bladder, and the abdomen closed.

After-History.

For forty-eight hours after the operation the patient's condition was critical, needing frequent rectal salines and hypodermics of strychnine. The temperature was practically normal on and after February 9th. Bile flowed freely from the tube until its removal on February 15th. The wound closed on February 22nd, and the patient was allowed up on February 28th, her convalescence being uninterrupted and complete.

Cultures made from the pus from the gall bladder yielded a pure growth of the *Bacillus typhosus*. The original cultures were made on Grünbaum-Hume medium, and the precise nature of the organism determined subsequently by the sugar reaction.

The points of interest in this case are:

1. The total absence of any pain whatsoever at any time during the life of the patient pointing to the presence of gall stones until the sudden and violent attack on February 1st.

2. The absolute constipation throughout the illness, a condition more often met with nowadays in enteric fever than not.

3. The presence of the *Bacillus typhosus* in the pure cultures made from the lining of the gall bladder.

GREEN URINE DUE TO A PROPRIETARY PILL.

By

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DURING the latter half of March and in April six patients who passed light greenish-blue urine came under our notice. At first it was thought possible that the cause was sucking an aniline pencil or eating sweets, and absorption of methylene blue. In another patient the presence of a considerable quantity of indican in the urine suggested that its transformation into indigo blue might have taken place; and that this apparent excess of indican might have a definite bearing on the epileptic fits which he had after the urine was noticed to be coloured. Inquiry, however, showed that the patients had recently taken one or more of De Witt's "Kidney and Bladder" pills, which in many instances had been presented as samples. A prospectus accompanying the pills contains the "Important Notice." If after taking these pills the urine becomes a bluish or greenish color, according to the condition of the urine, you need not be alarmed. This shows that one of the ingredients, which is an excellent antiseptic, is acting properly. That the pills were the cause of the greenish-blue urine seemed certain before we saw this notice, for one patient, a man aged 21 years, who had been in the hospital on many occasions, returned passing greenish urine and bringing some pills with him; after his urine had become normal in colour he took another pill and his urine became greenish again.

Secret Remedies does not contain any reference to these pills, which have probably been recently put on the market, but a note about these pills, with an analysis, appeared in this JOURNAL on April 27th, p. 973.

Analysis of the pills by one of us (F. L. G.) showed that each contained approximately 8 mg. of methylene blue, which would appear to be the commercial variety, as zinc was found in it. The feebly antiseptic power of methylene-blue probably accounts for its inclusion in the pill. Methylene blue, which was formerly employed to test the permeability of the kidney, and is sometimes given for neuralgia and malaria, is atoxic in the small quantities contained in the pills. Kowalewsky,¹ indeed, injected considerable amounts intravenously into a dog without bad effects; but F. J. Smith's² case of a woman who swallowed 3 oz. of marking ink proved fatal.

None of the patients had any symptoms referable to the greenish urine passed, but a few words may be said about the patient already mentioned who afterwards had epileptic fits. He was a male, aged 50, subject for years to epileptic fits, who took two pills for constipation, and next day was unable to micturate and had general malaise; towards evening he passed bluish urine. Next day he was admitted to St. George's Hospital under one of us (F. L. G.) in a muddled and confused state, and passed bluish-green urine. On the next four days he had general epileptic fits; the urine became normal in colour on the second day after admission to the hospital. The retention of urine in this case was probably a precursor to a bout of epileptic fits, a very rare but recognized phenomenon. As already mentioned, the bluish-green colour of the urine at first aroused a suspicion that an excess of indican in the urine had been transformed into indigo blue; this, however, does not occur except in urines allowed to decompose. Three calculi of indigo, however, have been recorded (Emerson),³ one of which W. M. Ord⁴ found in the renal pelvis of a woman. According to Weber,⁵ methylene blue explains practically all the blue and green urines. In some recent experiments by Kauffmann⁶ on the metabolism of indoxyl, large amounts—namely, 3 to 4 grams—were given by the mouth without causing the appearance of any indigo blue

in the urine. The urine in the epileptic patient was at first thought to contain indigo blue, because the chemical differentiation of methylene blue from indigo blue is a matter of some difficulty when the two bodies are only present in very small amounts in dilute solution. The spectrums are practically identical, and reducing agents have the same bleaching effect on both bodies. Both bodies were readily extracted by chloroform. The following tests, which appear most reliable, were carried out by one of us (F. L. G.). The methylene blue of the urine was first separated by shaking with CHCl_3 , evaporated and taken up in water.

Distinguishing Tests.	Methylene Blue.	Indigo Sulphate.	Pills.	Urine.
I. Evaporate aqueous solution to dryness and heat gently	Readily clears and gives a faint greenish sublimate	Characteristic purple sublimate	Same as methylene blue	Faint methylene blue reaction.
II. To solution add solution of KOH	No effect	Colour discharged reappears on adding acid	No effect	? Pink on one occasion.
III. To solution add strong nitric acid	Not altered	Decolourized	Not altered	? Not altered.
IV. Tested for zinc	Found in the commercial variety	Absent	Faint	Faint.

The first and last tests were the most definite. The action of KOH in HNO_3 gave indefinite results with the urinary solution. Possibly the methylene blue had been affected by bacterial changes.

REFERENCES.

- ¹ Kowalewsky, *Centralbl. f. d. med. Wissensch.*, Berlin, 1898, xxxvi.
² F. J. Smith, *Lancet*, London, 1894, i, 89. ³ Emerson, *Clinical Diagnosis*, p. 272, 1906. ⁴ W. M. Ord, *Trans. Path. Soc.*, London, 1878, xxix.
⁵ F. P. Weber, *Lancet*, London, 1901, ii. ⁶ Max Kaufmann, *Zeitschrift f. physiologische Chemie*, 1911, Bd. 71, p. 48.

The Arris and Gale Lectures

ON

THE MECHANISM AND TREATMENT OF SHOCK.

DELIVERED AT THE ROYAL COLLEGE OF SURGEONS,
MARCH 20TH, 1912.

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(Continued from page 1008.)

LECTURE II.—PART I.

THE ABDOMEN AND GENITO-URINARY SYSTEM.

1. The Abdomen.

The variations in blood pressure associated with surgical interference with the viscera are so varied, and open to such different interpretations, that this branch of our study is quite as complex and difficult as in any region of the body.

In the first place, all manipulations must be carried out carefully, so that pressure on the abdominal wall is eliminated; otherwise false interpretations may result. Pressure on the abdominal wall is well shown, in animals under spinal anaesthesia, to cause a proportionate and mechanical rise of blood pressure, and a prolonged mechanical inspiration from the compression of the viscera against the diaphragm and lower thoracic wall.

Chart 36 also illustrates this phenomenon to some degree. It represents exploration in the region of the appendix in a case of abdominal tubercle in a child of 10 years. A to B represents the blood-pressure variations accompanying the induction of chloroform anaesthesia, the constant depth of which is evidenced by the extreme regularity of the respiratory tracings throughout. The rise c c' d' d occurred during the preparation of the patient and the cleansing of the operation area; some considerable pressure on the abdominal wall results when soap and water are employed for this purpose, and the curve c c' d' d must be attributed to this agency.

Chart 36.— CHCl_3 . Exploration of caecum and appendix.

The curve from e to f represents the incision and separation of muscle; the peritoneum is reached at f. At f the peritoneum was opened under deep anaesthesia, and the separation of tough tuberculous adhesions commenced. These manœuvres are signalized by a marked excursion of the blood pressure lever, but the most startling change is noticed at f'. At this point the finger was introduced deeply, and adhesions in the neighbourhood of the posterior wall of the abdominal cavity were freed, in order to present the caecum and examine the appendix.

It is worthy of note that the most marked rise in pressure (to f'') was induced from manipulations of the posterior peritoneal wall; and that directly these ceased, on presentation of the bowel (f'''), the blood pressure rapidly sank to g, only to rise again in step-ladder fashion on the continuation of similar manipulations nearer the surface. The outstanding features here are: (1) The marked pressor effect induced by a stimulus to the parietal peritoneum; and (2) the similar more pronounced effect from manipulations of the posterior wall of the peritoneal sac. Corresponding to this rise of pressure, the chart shows a definite acceleration of the pulse-rate during the deeper manœuvres within the abdomen, and also on opening the peritoneal sac. The constant depth of anaesthesia accounts for an absence of variation on the respiratory curve. The markedly pressor type of curve obtained in this operation, particularly during the invasion of the posterior wall of the peritoneum, would seem to suggest a low shock value to surgical interference in these regions. This, however, is clinically incorrect,

hence the degree to which such variations are attributable to centripetal impulses, or to other agencies, must be investigated.

Chart 37 represents the closure of a faecal fistula into the upper part of the sigmoid in a child of about 3 years. The child's condition was not good, and the

Chart 37.—Ether. Faecal fistula.

operation was performed under ether anaesthesia administered by the open method. No tracing was obtained in the early stages of the operation. A small rise of pressure, at A,