THESIS
for
M.D. DEGREE
1892
by
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I hereby declare, on soul and conscience, that the enclosed thesis was composed entirely by myself and that the cases therein described came under my own personal observation.

Newton Stewart N.13. M. W. A.
25th April 1892
Spurious Biliary Colic

The term "Spurious Biliary Colic" is one that I use, for want of a better, to describe a type of colic three examples of which have come under my notice during the last five years. My reasons for coining this name for these cases are that in every case a diagnosis of Biliary Colic due to Gall Stone had been made in the first instance; and that the Gall Bladder is unaffected and gives rise to a prominent symptom. The term "Duodenal Biliary Colic", as shall be seen, would probably be the most accurate that could be used to characterize the cases; but I adhere to the first mentioned as perhaps the most desirable clinical description.

Let us, in the first place, take a glance at the three cases individually before proceeding to look at the complaint from a general point of
view. I shall run over the cases
rapidly, dwelling only on the points
necessary for future discussion.

Case I. John McTie (my father)
Retired Fleet Engineer, Royal Navy,
Age (in Nov. 1886) 65 years. Family
history good. Has had Typhus, Yellow
and Malarial Fevers. One attack of
Acute Rheumatism. Accidents, fracture
of Humerus when a boy. Toots' fracture
in prime of life. Severe scalp wound
with injury to outer table of skull in
1873. The last was received in a
railway accident at Wigan. Suffered
from Psoriasis for more than ten years
for which various treatments were used
with but little success, it however
left him a few years before the attacks
of colic came on. Excluding the
acute diseases and the accidents, he
has always been a healthy vigorous
man, led a busy life, and when
in the Royal Navy was almost
Constantly on active service. He has
always been temperate in the consumption
of alcohol and tobacco, and since 1842 has ceased to indulge in their use. His appetite is always good, the bowels act once a day.

In March 1887 he was seized one evening with a violent pain in the right side, passing gradually towards the umbilicus and accompanied by vomiting. It lasted several hours and ceased rather suddenly. The family practitioner diagnosed it as Biliary Colic due to the passage of a gall stone, gave a sedative mixture, ordered hot applications. The latter was the only thing that gave any relief.

In April I saw the patient in his third or fourth attack. It was preceded by a feeling of depression with coldness of the feet, and the actual attack came on about seven p.m. and lasted five hours. There was vomiting and retching and evidently agonizing pain. The pain shot from the region of the gall bladder, which could be found distended, towards the umbilicus where it seemed to concentrate. The sedative mixture did no good (I
found afterwards that the doses were too small) and hot fomentations with hotalkaline drinks were the main treatment. The pain seemed to reach a crisis and suddenly ceased allowing the esteemed patient to fall asleep. After the attack the distention of the gall bladder disappeared. In a day or two another came on. It was controlled by Morphia and Belladonna; but unfortunately next morning the bladder was found to be paralysed necessitating catheterism. In all subsequent attacks chloroform was used and the patient came to administer it himself on a little inhale made of flannel stretched on a wire frame.

During April 1884 I fully believed the attacks of colic to be due to the passage of gall stones. No stones however were found in the feces. I wrote out a restricted diet and prescribed Ammonium Chloride. This seemed to do good for a time. In August and September 1884 I was again at home and during that time there were several attacks. I noted
that they always came on in the evening, that there never was any trace of jaundice, and that frequently next day there was diarrhoea. Tannic-acidate of Soda was prescribed in full, why it is difficult to say, probably because I knew cholesterol is soluble in bile salts. The attacks ceased under this treatment and I thought myself the discoverer of a cure for gall-stones; but they came back in March 1888 although the pills had been constantly taken during the interval. The treatment was continued after the return of the colic, but it was evidently of no use.

I was again at home in February, March, and April 1889 and during that time the attacks were very frequent. They came on several times a week and rendered the patient's life a misery to him. This was the longest time that he was under my observation, and it was at this time I was convinced that the attacks were not due to gall stones. Although there was pain shooting from a distended gall
bladder and reflex vomiting; yet that pain was entirely abdominal in every instance, there never was a trace of jaundice, the attacks were worst in spring and autumn, they invariably came on in the evening and lasted a definite time, no gall stones ever were found in the stools.

I then thought that the mischief was due to an alteration in the biliary secretions, yet on thinking the matter out I could not arrive definitely at that conclusion. The meals were, Breakfast 8:30 a.m. Dinner 1 p.m. Tea 5 p.m. and sometimes a light supper, often porridge and milk, at 9 p.m. The period of attacks began between 6 4/9 p.m. and lasted, on average, five hours. I could not see why it should come on after the least important meal of the day were the attacks due to some fault in the composition of the biliary secretions. Exercise or the want of it did not seem to influence the onset of the attacks.

In May 1889 the patient went to Edinburgh and consulted Professor
Greenfield, to whom I wrote an account of the case. Professor Greenfield's diagnosis was, "either one large gall stone which cannot pass into the cystic duct, or a peculiar form of colic of which I have seen similar cases described." (Quoted from memory, the letter written to me on the subject having been destroyed.) He determined to treat for colic. The treatment was,—Diet: abstain from potatoes, new bread, fat, sugar and tea. Medicinal. A saline draught during an attack and the following pill to follow. Acid. Carbonic. Cryst. g. x x
Condr. Nuxia Vom. g. x v
Condr. Gentian. g. s. 4 f. H. m. divide in pil. 60. Si 6. One to be taken at meal time.

The treatment was carried out faithfully. In a short time the attacks disappeared and there have been none since, the patient continuing to take the pills up to this date. He is now over seventy and is in excellent health.
Case II. J. G., age 55. Horse keeper in an
ironstone mine in Cleveland, Yorkshire.
First seen in the autumn of 1889, and
was under observation a little over twelve
months. Has always been a healthy
and hard working man capable of eating like
a Yorkshireman as he is, but never
took alcohol to excess. But an injury
to the head ten years ago and although
he soon recovered and has been able
to do his work as before he has, to
use his own expression, "never been the
same man since". There are two
diversioned scars on the left side of the
head towards the posterior part of the
sinuval lumence. Two years previous
to his coming under my care he began
to have attacks of severe pain in the
abdomen, most frequently in spring
and autumn. My predecessors diagnosed
Biliary Colic due to the passage of gall
stones. I was called to see him
for one of these attacks in August 1889.
He was evidently suffering acutely, so
that somantements were applied and
Morphine with Belladonna given internally, which relieved the agonising pain. He leaves work at 3 p.m. and after he has reached home and has had a "wash up" he takes his "tea". The pain always comes on in the evening about 6 p.m. The gall bladder is always found distended when the attack is progressing, the pain shoots towards the umbilicus and the attack usually lasts till about 11 or 12 at night when it ceases as a rule suddenly. There is reflex vomiting. There never was any jaundice. The heart and lungs are normal, the appetite good although the patient is afraid to eat his fill, the bowels constipated, the liver dulness is normal. The gall bladder cannot be palpated except during an attack, and although the stools have been repeatedly examined for gall stones none ever were found.

Case I was at that time prominently before my mind, and I was getting reports weekly with regard to the
success of Professor Greenfield's treatment; the critical line of autumn was crossing without any return of the attacks. I considered this to be a similar case and determined on the following line of treatment. Potatoes, new bread, lard, sugar and tea were eliminated from the diet. Alcohol had not been used since the attacks came on. Tobacco was restricted to one pipe in the evening. Being out-door assistant in a "club" practice, fifine was not at my immediate command, so it was left out, and, taking the constipation into consideration, I prescribed

R. Ferri Perchlor.

Sig. Stroech. Hydrochlor. ad N V

Sat. Sol. Magnes. Sulph. ad 3/7 #

Sig. To be taken in hot water every morning, fasting, half the quantity on return from work in the afternoon. Under this treatment, the attacks left line entirely until the spring of 1890 when a renewal of the attacks ward off his usual attacks at that period.
Case III. Mrs N. age 50. Widow. VI para
Two abortions, one died in infancy, two
sons and one daughter alive and healthy.
Her husband died in an asylum two
years ago. She keeps a small shop.
Has always been healthy, never in bed
a day except at childbirth, until three
years ago when she began to have
attacks of severe abdominal pain.
They were said to be due to the
passing of gall stones, but none ever
were found although searched for.
There never was any jaundice. The
attacks took place only in the spring
time and always came on in the
evening. She takes “tea” between 4 and 5 p.m.
A year ago I was called to see her
for one of her attacks of pain. The
pain radiated from the region of the
gall bladder, which was distended, to
the umbilicus, there was retching and
vomiting of watery mucus. The tongue
was clean, bowels regular, heart and
lungs normal, liver dulness normal.
After the attack the gall bladder could
not be made out by palpation, although the abdominal walls were tense and firm.
I diagnosed the case as "Suspicious Bilious Colic" and treated her as follows:
Tea, sugar, new bread, potatoes and fat were cut off, and the following mixture prescribed:
Tinct. Acid. Hydrochlor. dil. f. iij
T. Belladonnae f. iij
T. Nuxi Vomicae f. iij
Sig. Pappici f. iij
Aquae ad f. iij
Sig. Zps. ad ag. ter in die partibus
Under this treatment, there were no more attacks at the time, and she held free from them until March of this year.
On this occasion the tongue was thickly coated and the bowels constipated.
I ordered a dose of castor oil, milk diet, and
Sulph. Picard. a d f. iij
T. L. nigricant. f. iij
Ag. Camphorae ad f. iij
The tongue cleaned in two days,
the original prescription was renewed and there have been no more attacks. No gall stones were found in the stools after these two attacks. The three years 1888-90 saw her have numerous attacks each spring involving untold suffering and anxiety. She is very thankful to be relieved from a condition she had been taught to consider incurable.

Now let us take a general view of the cases.
First, let us look at the points of resemblance between them.
1. All the patients were over fifty years of age when first seized with the complaint.
2. All considered themselves healthy and led active lives, in none of them was there ever obesity.
3. The attacks in every case were most frequent in the spring time, in Cases I and II autumn was the season next in point of frequency.
14. No attack developed until after 6 p.m. and then lasted from four to six hours.
5. The gall bladder was distended in all and could be easily palpated during an attack, but collapsed and was not to be made out after the pain ceased.
In Case III, where the hand could be swept over the under surface of the liver owing to the thin and lax abdominal walls, no permanent swelling could be made out.
6. No gall stones ever were found.
8. Reflex vomiting andretching.
9. Appetite good, but afraid to eat a heavily meal. Bowels regular in I V.
10. Urine normal in quantity and quality.
11. No round worms ever learned.
12. All had been diagnosed as Biliary Colic due to the passage of Gall Stones.
13. All improved under treatment.
14. Lastly, time is the important point that, at the time of the first onset, each patient suffered from serious mental worry over affairs in their own families.
details of which I do not think it necessary to give.

Next, wherein do the cases differ.
1. Cases I and II had severe head injuries and are men.
2. Case III never had any injury to the head and is a woman.
3. Case II suffered from constipation.
4. The social status of each is different.
5. Case I has served abroad, and has had malariac fever.

Let us now turn to the Diagnosis of these cases.

It has been already stated that in each individual case a diagnosis of Bilious Colic due to Gall Stones was made, and that by a different practitioner in each instance.

At first sight one would be very apt to make that diagnosis, for in time not intense pain in the region of the gall bladder shooting towards the umbilicus, the gall bladder is distended and tender, there is reflex vomiting, the jaun.
generally suddenly ceases, as if a gall stone had passed from the cystic duct into the ductus communis or from the latter into the duodenum; but, as has been mentioned in the description of Case I, I was led to believe, after watching the symptoms for some time, that the pain was not due to the passage of a gall stone along the ducts.

In the two subsequent cases my diagnosis was arrived at more readily. My reasons for saying that the symptoms were not due to the passage of gall stones are as follows:—

I. The situation of the pain in true Biliary Colic is somewhat different. There certainly is pain and tenderness in the region of the gall bladder, which may be distended with fluid; but is not invariably so, as in the cases before us. The pain shoots towards the umbilicus; but also in other directions, into the thorax, particularly.

A frequent complaint is made of a pain which begins between the...
shoulders and as it were bores its way through to the front.

In an article on Gall Stones, in Fowler's Dictionary of Practical Medicine, Doctor Robert S. Sandby says, "It is noteworthy that the pain of biliary colic is mainly thoracic."

In the few cases of true biliary colic that I have seen, where it has been proved that they were due to gallstones by finding the stones, there has always been this thoracic pain at one time or another; but in the cases before us the pain was always entirely abdominal. Curiously enough, while attending Case III early last month, I was called to see a case of true biliary colic. The patient was alcoholic, sedentary and obese and had several times passed gallstones. An opportunity was thus given me to compare the two.

I have never been any faintness.

I am perfectly aware that faintness is not a necessary accompaniment of true biliary colic, yet four cases have
many attacks without showing some yellowness of the conjunctivae or exhibiting a biliious look; but I never noticed a trace of any such sign in any of the three patients, and yet Case I during February, March, and April 1889 had many attacks, three in two weeks on an average.

III. No gallstones were ever found in the stools.

IV. The peculiar periodicity both as regards the time of day and the season of the year.

V. All three patients always led active, busy lives, were never obese and never abused alcohol.

If these cases were not Biliary Colic, what were they?

Professor Greenfield's diagnosis has already been given in the description of Case I, shortly it was this—

Except a single large gallstone or a peculiar case of colic. He treated it as a colic, successfully. His diagnosis and successful treatment explained away any doubts about—
Case I, and of course gave the clue to Cases II and III.
The strong personal interest that I have in Case I, and the fact that my first steps in Clinical Medicine were taken in Professor Greenfield's wards, have been my reasons for making those three cases the subject of my thesis; I have given them the title "Severe Acute Colic," and shall now analyze what I consider to be their true nature.

We have now to consider, I: The seat of the Colic.
The gall bladder and cystic duct with the duodenum communis are without doubt implicated, the former of these can be felt as an egg-shaped tumour during the attacks, tense and evidently contracting powerfully; the latter we may accept as also in a state of spasm; but although the distended gall bladder figures prominently as a sign in such cases, yet the duodenum is also the seat of spasm and in

* Common duct - no muscular wall but -

see page 21.
my opinion is the starting point of the whole train of symptoms. As I have already stated, when one is called into such a case and finds violent abdominal pain, reflex vomiting, and a distended and tender gall-bladder, a diagnosis of gall-stone colic is apt to be made and few more questions are asked; but when the hypothetical gall stones get dissolved gradually by doubts regarding your diagnosis, other questions come to be asked of the patient and an exact wounding out of the seat of pain is demanded of you. When any one of the cases described were asked to do this they traced with startling exactness the line of the duodenum, in the same way as the victim of an ordinary colic has his fingers over the line of the large intestine. I believe that the seat of pain is originally in the duodenum. Its walls are thrown into a state of spasm and in that way practically
obliterate the ductus communicis in its oblique course through the second part. At the time the attacks come on the gall bladder is distended with bile ready to pour it into the duodenum, the same stimulus that causes the cramps in the muscular wall of the duodenum makes it contract on its contents; but the ductus communicis is for the time sealed, the contents of the bladder cannot escape, its muscular fibres contract more powerfully and soon lean, with those in the wall of the cystic duct, into a state of painful spasm. Such a sequence of events agrees with the symptoms observed and will be rendered more clear when we come to consider the causes.

II The causes.

Is it due to an altered secretion of bile? One can scarcely believe this to be so. Certainly the attacks come on just when the bile is
entering the duodenum, but it is difficult to imagine that the bile found out during the digestion of the evening meal should be the cause of the attack. If this secretion be at fault, how does it come to be so only in the evening and not after breakfast or dinner? I consider the cause of the attack to be, in the first place, a faulty condition of the Chytric. The evening meal in all the cases consisted of carbohydrate and tea.

In Cases I, II, and III breakfast, second of various kinds, always newly baked, butter, jam, sugar, and tea. Case I, for example, always was in the habit of taking two full breakfast-Cups, whether he felt in need of liquid or not, the last one being composed of a second infusion made by adding boiling water after the first was drawn off. In Case II Yorkshire leaing of substantial construction took the place of the Scotch scores. In all cases, if anything "extra" was taken, bacon was generally used.
During the gastric digestion of this exclusively carbohydrate meal lactic acid would be formed in excess and probably also butyric acid, and when fats were present in quantity the condition of affairs would not be improved. Like this with tea and tannin and an irritating compound is obtained sufficient, one would think, to set up spasm in any duodenum. Fortunately for most of us the first part of the intestine is a tolerant portion of our economy or cases of Slurmious Biliary Colic would be more common than they are. This leads us to consider, in the next place, if there was anything in the previous history of these cases likely to render the duodenum more sensitive to any irritation that might be added to it.

In all cases there were several causes sufficient to induce a general lowering of nerve tone.
1. All were advanced in years.
2. All had had to work hard. Cases II and III up to date of illness.
had over twenty-five years active service in the Royal Navy, the greater part of it abroad.


4. The use of tea in quantities which may be considered excessive when the other circumstances are taken into consideration.

5. All three, at the time the attacks first began, were the victims of mental worry owing to troubles of a private nature, (e.g. in Case II the insanity of her husband) a most fruitful source of all manifestations of neurasthenia.

6. Once started, the nature of the complaint itself kept up the mental irritation.

All these conditions would tend to put the nerve control into a state of unstable equilibrium, and any irritation intermittently applied to any part of the body would easily induce the lower nerve centres of that part to throw
aside this weakened authority and indulge in a lowering of unstrained action. In the cases before us we have a series of conditions which are known to induce a low nerve tone, and we have the irritant in the form of a faulty chyme. That time should be produced, every now and then, an exhibition of nerve force from the ganglia which control the nerve supply of the untroubled muscles of the duodenum and bile expelling mechanism, inducing spasm of these muscles and consequent colic, is quite conceivable under the circumstances.

There remains to be considered a peculiar feature in the cases, and that is the time of onset as regards the season of the year. All came on in the early spring and were invariably worse at that season. Cases I and II had a series of attacks in the autumn also. That any person in this country, and more especially anyone over
fifty, is likely to be more readily attacked by disease after having passed through the rigours of a winter season and then exposed to the severities of our usual March weather is evident to every body, whether members of the medical profession or not; but although this is almost a sufficient reason why such cases should be worse in spring, yet the autumn exacerbations of cases I and II have to be accounted for. This would be explained if a malarial tendency were found. We have this in Case I, who suffered from malarial fever on the West Coast of Africa and also in West Coast many years ago. Ever since he frequently has, in winter and autumn, what he calls "an afebrile feeling." The permanent mark that malaria leaves on the spleen, and the way that it unexpectedly shows up in after years, are well known. Case II never had ague; but four years his daily work has been done
underground, he constantly comes home wet to the skin, and he lives in a damp brick house.

Case III lives in a damp small cottage, built on marshy soil. Never had gue.

(I saw a case early this year, in the same neighbourhood and living under similar circumstances, that, during convalescence from an acute illness, suffered from ague-like fits.)

Although the last two never had malarial fever, yet they have lived and worked for many years under conditions that might readily give them a malarial tendency.

Let us now compare the treatment adopted in each case.

In all, carbohydrate foods were limited in quantity and tea was cut off.

In Case II, who smoked, tobacco was reduced to a minimum.

Each had a different recipe prescribed. I give these again side by side.
Case I  Case II  Case III

P. Pelusin. forte 3iy  P. dei Roterol. Acid. Hydrochl. 4iy
Ent. Nucis Vom. gr. 3iy  Sal. sol. Magn. Sols. P. Nucis Vom. 3iy
Ent. Gentian. q.s.  ad 3iy  Liqu. Pellet. 3iy
Divide in part, 50 Ar. hastis, Aquam ad 3iy

On comparing these it will be seen that there is one similar ingredient in all of them, namely, Nucis Vomica or Strycnina.
Case I took 3iy gr.  Text. Nucis Vom.,
Case II 4iy gr.  Liqu. Strycn., Hydrochlor.,
Case III 3iy gr.  P. Nucis Vomicae,
in the day.
All the cases improved and got rid of their attacks while they continued the treatment. We may reasonably infer that this improvement was due to the Strycnina given, as it was the only constant factor in the treatment apart from the regulation of the diet.
The reason that Strycnina has in giving tone in an unstable nervous
system is established, and the fact that the cases recovered under its exhibition, in conjunction with the regulation of the diet, goes a long way to prove that my theory as to the cause of the symptoms is a correct one.

In conclusion, let me point out the importance of trying some such treatment in cases of suffocated True Biliary Colic, unless they can be definitely proved to be so by the finding of gall stones in the faeces. These three cases were all diagnosed as due to Gall stones; and the only hope held out, short of surgical interference, was that each attack might be the last. They, however, got the longer the worse, as they were bound to do, for each attack aggravated the condition of affairs. In these cases of abdominal surgery they might have been operated on, a serious shock for
any one of the patients. What would have been the feelings of the operator should the gall-bladder have been found small and empty? I speak in the best sense, for did I not advocate operation in Case 5!

Norman James Morton

Note.

The following extract is taken from "The Lancet" of the 9th inst. It is heart of a discussion following a description of some recent cases of hepatic surgery, and is a comment on the above thesis.

Dr. Halle, though he admitted that surgeons had relieved physicians of many of these troublesome cases, yet held that there were instances in which it would be better if they waited longer before operating. In one case in which cholecystotomy was done the gall-bladder was found empty and cancer discovered to be present. In another case, in which operation was urgently recommended, the patient got well with rest and the use of mineral waters. Many attacks of so-called gall-stone colic were spurious and due to other causes, such as a collection of scybala at the hepatic flexure of the colon; or, as in one instance, the presence of a large round worm. Medical treatment should certainly be carefully tried before operative interference was thought of.

Mr. Keatley related a curious case that came under his care at the West London Hospital. A man had been ill six months, and had twenty attacks of bilious colic. He opened his abdomen and found the gall-bladder small and thickened; but careful palpation of both it and the ducts revealed no calculus. The patient made a rapid recovery, and gained strength. The hernia, which frequently developed at the site of the abdominal wound, was due to a want of correct apposition of the peritoneum and fibrous elements of the abdominal walls one to another; cases left open for drainage were likely to prove defective in this respect.