Thesis

Gall Stones and Their Treatment

Alfred Walter George
MB, ChB, 2nd class honours
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Jaundice, from some obstruction to the escape of bile into the duodenum, may supervene from a variety of causes. It may in some cases be due to inflammatory thickening of the mucous membrane of the duct, or accumulation of inspissated mucus or other kinds of inflammatory exudation, in some the presence of stricture, in some the growth of polyoidal tumours, in some the impaction of calculi or other foreign bodies. In other cases they are to be sought in inflammatory infiltration of the tissue of the lesser omentum or of Glisson's capsule, or in the development in these situations of syphilitic, carcinomatous or other growths involving or compressing the ducts. Further tumours, springing from the stomach, pancreas or neighbouring parts, and especially when they press upon the common duct and obstruct its channel." (Brocktor, Theory and Practice of Medicine, 6th Ed., p. 510). Of all these gall stones is one of the most frequent ones with in practice and one of the most important. Drago Robson in the
prepare to his work on "Pul Stones and their Treatment," says, "that post mortem evidence proves Gall Stones to be present in 10% of all bodies examined," while Monarchon in "Dictionary of Diseases of the Liver," p. 199, says, "many patients suffer from what are repeated attacks of what is put down as Gastralgia or Gastritis in the stomach, without any jaundice, but whose subsequent history leaves little doubt that the attacks have been due to Gall Stones." I have always been interested in abdominal pain and many cases have afforded me food for thought and conveyed useful lessons. Among these have been some cases of Cholelithiasis and if these I have selected the most interesting as the basis on which to found a thesis. In passing I would like to mention how very difficult it is to avoid missing the real cause in some cases of abdominal pain, the patient being in such great distress, morphia is injected and the signs and symptoms masked. I shall report four
cases in which the symptoms were distinctly typical and marked others in which they were not so definite.

Case 1. In September 1893. Mrs S., 60 years, was seized with a sudden attack of pain across umbilicus and back, not radiating in any given direction, she felt sick but there was no actual vomiting and no rigor, there was however frequency of micturition and urina was rusty. Renal colic was suspected; an analgesic followed by a saline mixture was given, no haematuria or jaundice followed and in three days she was well again. The patient was a very robust woman, in good circumstances but inclined to worry, and not very judicious in her diet. She had had ten pregnancies ten years previously, had seven confinements, a severe partial laceration causing difficulty in controlling altered coitus ever since, and in consequence of this and of considerable adipose deposit her habits were decidedly sedentary. In the following February (1894) she had another attack.
will cause the same symptoms, except
that the pain was more in the epigastrium.

Two days later bile pigment was
discovered in the urine, and on the
following day jaundice developed
and tongue became jaundiced.

Subsequently the jaundice deepened
and the urine contained more and more bile.

Nausea became extreme, patient
lost all food. The stools, clay-coloured
and oily, were passed in pain, for
gall-stones, but on one occasion they
contained blood. Her pain increased
unsurprisingly and towards the end of
March, petechiae and haemorrhagic
patches appeared varying in size
from a split pea to a shilling.

During all this time she was
emaciating and getting feebler.

Bile and saline were given
without benefit and other oil ordered
but in spite of patients evident good
will she only took it twice or three
times. On April 12th she had a
more severe attack of biliary colic
with slight collapse. Morphine was
injected, but after still clamping but
no calcius found.

April 16th - death was near
enlarged to two fingers breadth below costal arch and somewhat tender.

April 21st. Tongue inclined to dryness and some lightness, temperature 99°, tongue a little more, urine contained much bile, epithelial cells and some debris.

April 23rd. Patient was pock in consultation and a diagnosis of gall stone with probable malignant disease was formed.

April 25th. She had gradually grown worse and become very drowsy with intervals of groaning, tooth little notice and was delirious at night.

The abdomen having become distended and liver enlarged to feel a suspicion of acute gallbladder atrophy was accused but no disease or tumor could be found in the urine. The pulse cone and other condition persisted till her death on May 1st.

May 3rd Post mortem Examination
No heart or lung lesion found, but they together with the liver, intestines and brain were all deeply bile stained; choledochal pleural exudation. No ascites, no peritonitis
spleen slightly enlarged. Kidneys decidedly larger than normal, their capsules not stripping easily. The liver was distinctly soft and enlarged but apparently on account of its firmness anterior margin was curled back, which explained the disappearance of its edge from below costal margin. Its surface looked greenish yellow and presented a number of nodules, the larger of which were distinctly umbilicated. Its bursa when cut extended a greenish yellow turbid fluid, like thin greenish pus. The bile ducts were decidedly dilated, as observed but nodules of new growth were scattered through its substance.

A hemorrhagic looking mass surrounded the gall bladder and adhered to the transverse colon in front, it originated from most of gall bladder and seemed to obstruct the common duct. The cystic duct was completely obstructed by two gall stones, blood stained and the size of large cherries. The gall bladder itself was filled with very numerous small calculi.
Remarks. The doubt the attack in September was one of biliary colic, although the absence of bile in the urine and jaundice and the presence of pain and frequent micturition was confusing. With the rapid appearance of bilious urine and the onset of jaundice in the February attack the diagnosis of gall stones followed as a matter of course.

And although the absence of pain throughout the illness was remarkable, malignant disease was suspected from the steady downhill progress of the patient. The jaundice too was of that deep greenish hue one often sees towards the end in malignant liver disease and this with the haemorrhage from the bowels made the diagnosis most unpromising.

The history of the last few days preceding death was unusual and quite I think unwarranted the suspicion of acute yellow atrophy, although the absence of Dezen and Tourniquet from the urine negatived the idea, probably an acute degeneration of liver tissue accounted for these anomalies symptom. The age of
The valves obstructing the cystic duct, leading to early impaction, might explain the absence of pancreatic pain, although the attack of April 12 was undoubtedly an attempt to expel them.

Case 2. J.A.P., who died in September 1895, had been under my care for the four years preceding her death. She was a thin frame woman, not taking much exercise, and although not in any way addicted to pleasures, was a regular consumer of family history was good, but she had all her life been subject to their troubles, bilious attacks and the like. Had married late, spending part of her married life at the Cape, no children but one this marriage. Before coming under my care she had been seen and treated by several medical men and on one occasion her then family doctor called in Dr. Pyle Smith, in consultation, and the friends were warned as to the possible development of cancer. In addition to frequent bilious attacks with dull pain and some tenderness in right hypochondri
and irregularity, she had experienced at long and irregular intervals, acute episodic attacks of pain with nausea, vomiting and slight jaundice but it was not until the beginning of 1874 that these became so frequent or severe as to have any very appreciable effect upon her general health. In January of that year she lost a close lady friend and after assisting in nurse her, had an attack of congestion of the lungs which reduced her vitality greatly.

After a long convalescence she recovered sufficiently to be about again and in June, 1874, after an unusually bad attack of episodic pain, was seen in consultation by Dr. George Stanley and her case diagnosed as gall-bladder with inflammation. The question of cancer being left open. An interesting feature in the case was the very continuous development of spina bifida, the abdomen over the liver especially being pitted with them. From August the attacks came on every five or six weeks in some of which case the collapse was so great, while
other were evacuated with rigor and fever, temperature 103° on one or two occasions, the condition being strongly suggestive of acute or "calculus" fever.

There was also very free perspiration, intense itching, deep jaundice, dark yellow urine and clay-coloured stool.

On four separate occasions there was diarrhoea from the bowels.

It was very difficult to get a proper examination of the motion, and consequently no calculi were ever discovered. Although evacuating considerably, she was able to be about until April, 1893, when she had become too weak to leave her room and during the last three months of life was confined to bed and attended by a trained nurse, who carefully examined the stools with a negatoscope. These last three months were practically free from appetite, pain and while there was occasionally a little jaundice, both the urine and stools were strongly free from bile.

Death was apparently from exhaustion.

I was only permitted to make an examination of the liver, to decide the question of cancer. Its fluid
was found in the peritoneal cavity but the intestines, large and small, on the right side, were firmly adherent from old peritonitis and could only with great difficulty be separated. After considerable search the gall bladder was discovered, much shrunk and adhering to and communicating with the transverse colon by a peculiar opening, into which the tip of my little finger could be introduced and lying free in it was one solitary gall stone faceted on two sides and as large as the tip of my thumb.

The liver itself, much smaller adhered to the intestines below and to a less but considerable extent with the diaphragm in front and above. On percussion it was harder than usual owing to evident destruction of its parenchyma and comparatively increase of the fibrous stroma, and only slight bile stained. The bile ducts were dilated, spleen slightly enlarged. Although careful search was made no cancer was discovered and no reperitoneum either in or
Remarks. This case was I think remarkable for the long history of liver trouble, for the extensive peritonitis, and from adhesions of intestines and liver, for the ulceration into the transverse colon, and escape of all the calculi but the large one found and in spite of the long continued irritation no development of cancer. The gall stones remaining apparently too large to escape by the fistula opening into the colon, and that there had been others was evident by the fact, in fact.

Case 3.

Mr. T. 54. was suddenly seized in the beginning of August 1893, with pain in the epigastriai region, acidness and pain. Two days later he became distinctly jaundiced and the urines colorless. This continued for seven days when he had another attack of pain and vomiting.

Eight days later he had another a third attack, the pain being rather more severe. The jaundice had continued all through.
Three weeks from the commencement of his illness he was seen by the late Mr. Pristome who said: "There was no doubt he was suffering from gall stones, and that probably the first attack was due to the entrance of a calculus into the duct, the second to its escape into the duodenum and the third to the entrance of another."

For the next two months the patient was at Bournemouth and on three occasions he had attacks of biliary colic with jaundice. At the end of October he returned to London in pretty good health and with his skin fairly clear. In the last week of November he experienced two severe attacks, three days interluding with a return of the jaundice, but by the middle of December this had entirely disappeared and the patient was well again. The following summer, 1894, he went to Carlbad for a month and greatly benefited by the treatment, and with the exception of a slight attack in September 1895, no slight as not to require medical treatment, he has had no return of his symptoms.
The patient is a poor man fond of the pleasures of the table, takes very little exercise and has a peater who suffers from gall-blows.

Remarks. This case shows the difficulty of obtaining the calculi in a case in which there is no doubt of their diagnosis. The patients were examined carefully and frequently, daily, for a long time after the two attacks in the last week of November, but no gall-stones were ever found.

Case 4.

Mr. S. 62, was first seen in November 1872 after three days of pain in the right hypochondrium and epigastrium with nausea and vomiting and other symptoms had already commenced. Her temperature was then 100. Tongue coated with a creamy white film, there was bile in the urine. Stools clay colored, liver to be felt below costal margin and marked tenderness in the region of the gall bladder. The patient was ordered to be carefully examined, and this was done by her daughter, with the result that for several
one or more calculi were discovered. The attacks of pain were frequently repeated until the middle of December, a marked feature in some of them being the great quantity of flatus she belched from the stomach.

The patient is a stout healthy woman, fond of good living and of sedentary habits. Seven years previously she had an attack of pain with vomiting and slight jaundice which lasted several weeks, followed after an interval of five years by another but milder attack which she was told was congestion of the liver, but which, in the light of subsequent facts my I think, was due to gall stones.

In the case of four other cases, all occurring in stout, healthy looking elderly ladies, from fifty to sixty five, all having sudden attacks of pain and vomiting with more or less jaundice, and in whom I suspected the presence of gall stones, although a careful examination of their stools failed to discover any
The present state of our knowledge of Cholelithiasis is well described as a "natural process of the biliary passages," by Sir J. B. Stewart, and others. It consists in the formation of concretions derived from the various constituents of the bile, in some part of the biliary passages, usually the gall bladder. The calculi are of various kinds, but practically the ingredients that compose them are bile pigments, Bilirubin, especially, Cholesterol and the acids of the bile in combination with lime. These composed of bile pigment are usually numerous and small, dark red or brown in color, irregular in outline and very soft, while those of Cholesterol are hard, smooth and of varying size, frequently large and few in number.

The old idea of these floating in water when first voided is now believed fully exploded, but after being thoroughly dried they may do so. We are very much in the dark as to how they originate. The origin of gall stones is obscure.
it is easy of course to understand their increase of size by accretion of additional solid material, but it is not generally easy to determine the cause of the first step in their development, namely the formation of a nucleus. In some cases this has been found to be a fragment of a needle, a dead Entozoön, a small blood clot, or (according to Dr. Theobald) portions of the epithelial lining of the gall ducts. In the majority of cases it consists of a mass of consolidated biliary containing matter." Brodie, p. 355. Again, Tappe, Principles and Practice of Medicine, p. 357, says their origin is probably a little suspended mucous impregnated with lime salts.

To this silicicium is attracted and a nucleus is formed upon which Cholesterol is deposited." A German observer, Nagaro, has I believe advanced the theory that Bacillus Comuni Coli penetrate to the gall bladder, from the duodenum, and act on cause precipitation of the album of the bile, but I think it is hardly necessary to assume this, for given a supersaturated and stagnant condition of the bile there
is no reason why some of the parts of the bile should not form concretions or crystals, one. We know that cholesterin and the bile salts are very insoluble and any excess in the bile would readily aid in forming concretions. Some have thought the cholesterin may be in excess by reason of some abnormalities and in normal canning it to be over secreted and the bile salts because of their excess in the food. Nothing over the opinion of various writers the general belief seems to be that these two excess brought about aided perhaps by extent of the mucous membranes of the gall bladder is the chief cause of the formation of biliary concretions. The predisposing causes being undoubtedly per age, social position, habits, and perhaps locality.

According to Bollinger's quoted by Prof. Robert p. 53. of all cities very much in frequency in different localities, thus the percentage of cases found per 100,000 in Dynevor is 5.4; Dresden 7.8; Breslau 8.8; Strasburg 12.3.
Boëttiger also found the relative frequency of the disease in women as compared with men as 5 to 2, and as to the cause of this difference he doubts the action of pregnancy, but believes more in the mode of life, and the manner of clothing, and gives phlegmatism in support of this view.

Mackenzie (p. 57) says gall blisters are 4½ times more frequent in women than in men, and (p. 54) also considers tight lacing of more consequence than pregnancy, as young women under 30 suffers from gall blisters four times more frequently than men. Maclean (p. 341) says they are more common in females than in males (3:2). My own cases have been in the proportion of eight females to one male. The reason of this greater frequency in women is in doubt their sedentary mode of life and also, I believe, to the fact that women of the well-to-do classes, past middle life, being given to over eating. I am of opinion that pregnancy limiting as it does the depth of respiration is the movement downwards of the diaphragm, and
in causing plasies of the bile. This is supported by Schroeder, quoted by Magollen, p. 57, who found among women with gall stones that 90% had borne children.

Age

Gall stones are chiefly met with in persons of middle and advanced life but they may occur at any age. Sclater and quoted by Wychevan, p. 342, reports a case in an infant 23 days old, and Wychevan himself met with them in a lady of 23. (Case Ixxx). My own cases have all been in elderly people.

Social Position

I think social position may be given as a predisposing cause. All my cases have occurred in people of good circumstances and during the four years I have been on the staff of the Wilburn, grenade Vale and St. John's Wood Dispensary, not a single case of gall stones has come under my notice among the number of poor people who have sought medical advice there.

Habit

The majority of sufferers from gall stones are of stout habit, consuming fatty and carbohydrate foods largely, and taking little exercise, again leading to plasies of the bile.
Results

Gall stones are reported to have passed out of the biliary tract by the action of the ducts of the liver into the duodenum. In very many cases the calculi are passed into the duodenum and relief is obtained and one having escaped is of course easy for others to follow. Occasionally they slip back into the gall bladder.

They may cause ulceration of the wall of the gall bladder sometimes into the peritoneal cavity and a fatal peritonitis ensues sometimes into some part of the intestinal tract, duodenum or transverse colon (Case 2) where the calculi escape with the faeces.

As a local abscess may form, the abscess pointing into the bowel, lung, peritoneal cavity or through the skin, with formation of a taking fistula and escape of the calculi (by intection, case CXXX).

Cancer

As to the development of cancer, there is ample evidence that the presence of gall stones often leads to the development of cancer of the gall bladder or ducts, and certain gall stones and cancers are frequently found together (Case 1)."
p 87 says "Bender found gall stones in 85% of the cases of cancer of the gall bladder. The fact that women suffer from cancer of the gall bladder more frequently than men (80:20) is in favour of gall stones being the original disease."

There seems to be some difference of opinion as to acute jaundice simply of the urine resulting from obstruction of the bile ducts. Many of the symptoms in cases were suspicious of malignant jaundice although it did not actually supervene. "Malignant jaundice of the adult may exist without lesion of the liver and is never caused by obstruction of the bile ducts."

There is ample proof from the occasional suppression of the symptom of malignant jaundice in cases of exclusion of ducts, that extensive destruction of the secreting structure of the liver with suppression of bile is fully competent to induce all the phenomena of the disease under.
Forbes. Medical Record. Dec. 5, 1834
p. 711.
Symptoms

While the calculi lie in the gall bladder they cause no symptoms and their presence may be unsuspected. It is when they become dislodged and impacted in the bile ducts that their presence is revealed and we get an attack of biliary colic followed by severe or less jaundice. In a typical case the patient is, without any warning whatever, seized with manifest, violent, paranormal colicky pain in the right hypochondriac, or epigastric region, which radiates in various directions. The pain is not relieved by pressure. Indeed there is usually so much tenderness that a thorough examination is out of the question. It is probably due to irritation and dilatation of the cystic or common bile duct.

"Recently I introduced a blunt sound into the gall bladder after cholecystotomy had been performed. The moment the sound entered the cystic duct the patient complained of acute pain in the epigastric region.
which immediately ceased when the instrument was withdrawn. The injection of sterilized water into the gall bladder, with slight force, elicited the same pain. Between the paroxysms there is usually a dull aching pain. The severity of the attacks leads to weakness and acceleration of the pulse, with pecthing and a cold clammy perspiration, that was well marked in Case 2, and often a feeling of oppression across the chest. Nausea, retching, and vomiting are among the commonest symptoms. The temperature is generally not much affected but in some cases it becomes high, with rigor, and we get symptoms very much like an attack of Cholera fever. In severe cases the shock is extreme and the patient collapsed. There is great tenderness in the region of the gall bladder and in some cases it may be felt to be enlarged. Sometimes the patient gets sudden relief from the pain escaping into the duodenum, or slipping back into the gall bladder. Frequently, however, the calculi
obstruct the common duct and jaundice follow. This usually comes on within two days of the onset of an attack, the earliest sign being the discovery of bile pigment in the urine, then an icteric henge may be observed in the ocular conjunctiva, over the sclerotic, and finally the whole skin becomes involved. This is often accompanied by a great deal of itching, and the motions become extraneous. Jaundice of jaundice if slight may pass off in a few days or it may last for months. Hutchinson records a case lasting continuously for nearly five years (Case CXVIII).

The absolute proof of gall stone is the finding them in the atomic evacuation, or in the gall bladder during cholecystotomy or post mortem, but when we remember the difficulty that is encountered in finding them in cases where there is practically no doubt as regards the diagnosis, we should not be surprised if we find more in many other less evident cases. In some cases also they do not pass back into the gall bladder. After an attack of
biliary colic the emissions should be broken up and passed through a pipe over a prolonged period, and in practice this is very seldom possible for obvious reasons.

Treatment

Is best considered under the following heads:

a. Preventive

b. Relief during the attack

of Biliary Colic

c. In the intervals

d. Instrumental, Surgical

a. In the class of disease is attention to diet of more importance than in liver disease, and this applies with added force to cases in which there may be a tendency to gall stones.

All such should be instructed to avoid, over eating, rich fatty and mucinous foods, and alcohol. To take as much exercise as possible. Ridding is especially good.

b. During the paroxysms patients get great relief from the application of hot fomentations with or without the addition of some pilocarpine, some cases benefit more by hot baths.

Retching and vomiting can be frequently relieved by copious
draughts of warm water, or warm water containing a teaspoonful of Sodium bicarbonate to the pint. In the majority of cases one has to inject morphine, or morphine and atropine, hypodermically, which not only ease the pain, but by unblocking the pass facilitate the passage of the calculi along the bile duct and so hasten and aid their escape. In some cases the administration of Chlorophyll, short of producing anaesthesia, is found necessary and is of immense service.

C. Once a condition of Cholestasis is established it is absolutely necessary that the sufferers should regulate their diet and take free exercise.

We can prevent pains of the bile and evacuate the gall bladder by the administration of Cholagogues and by the use of careful internal massage. A course of treatment at one of the hot Sodum or Sodium and

Expression openings such as Carlstedt (case 3 benefited greatly by it) or

Bith is of great service, and even the ordinary hydropathic course is frequently of great service.
But stones frequently occur in several
members of the same family and
especially so where, as one would
suppose, there is a tendency to got.
In these cases we should order
anti-pyogenic remedies and the
daily use of alkaline waters.

Alcohol has I late been strongly
recommended, to cause the explosion
and favour the passage of the calculi.

It is difficult to see how it
could be of service, personally I have
not seen any good results from its
use and very few patients can
tolerate it and the supposed gall
stones avoided have been, by many,
found to consist of their bilious
and Silica acid, in combination
with lime. Fernand Ang. des
Hôpitaux Sept 94. 8. 947. advocated
Digemem for a similar purpose.

Seeing that we have, as far
as our present knowledge goes, in
reliable means of dissolving or in
any way getting rid of gall stones
when once they have formed in
the biliary passages it is only
natural we should seek the
permanent aid. Sounding the
P. 18. Since writing the above, Brunton’s discovery has been given to the world, and as gall stones are found to be opaque to the X-ray I am in hopes that a method of using them may yet be found, enabling us to discover the calculus in situ.
gall bladder has occasionally been done, but it has no curative value and besides may set up peritonitis.

Aspiration also is not unattended with danger, but has occasionally been of service in emptying an over-distended gall bladder.

Opening the abdominal cavity is now so comparatively safe and so generally practiced that if our diagnosis could only be more certain, if we could only be in a position to more accurately differentiate gall stones from other diseases of the biliary passages, we should be in a much better position than we are to-day.

A perusal of the numerous reported cases of successful cholecystography has convinced me that in suitable cases, that is where the calculi are of large size, very numerous, and especially if they are giving rise to serious symptoms, the most rational treatment is by operation. The burden of this thesis, I wish to be understood, is, to urge a closer observation and study of Cholelithiasis, and to advocate surgical interference in cases found available.