TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some diseases of the digestive system met with in general practice.

MANAGEMENT OF DISEASES OF THE GALL-BLADDER AND BILE DUCTS

BY

J. W. McNEE, M.D., D.Sc., F.R.C.P.

This article is meant to be practical, and is therefore dogmatic. References to the scientific and experimental data, and even the names of the chief workers in this field of medicine and surgery, are for brevity almost excluded.

It has been recognized only comparatively recently that inflammation of the gall-bladder (cholecystitis) is the commonest of all intra-abdominal diseases, and attempts have been made to investigate the early stages with a view to preventing the late sequels. The rapid development of intra-abdominal surgery has taught us an enormous amount about gall-stones and other late complications of diseases of the gall-bladder and bile ducts, and for a long time our ideas of diagnosis and treatment were built around what may be termed for brevity a "late pathology." Moynihan's oft-quoted "inaugural symptoms of gall-stones" are now universally recognized to be those of the preceding cholecystitis, but even then they are generally the indication of a later stage than practitioners must attempt to recognize and treat. My experience as an examiner has shown me that the idea that these symptoms occur mainly in a woman who is "fair, fat, forty, and fecund" still appears to be thought all-sufficient, but it must now be emphasized that:

1. Cholecystitis occurs at all ages, even in childhood, and in both sexes, although females, for certain definite reasons, still preponderate.

2. Cholecystitis, although so common, is seldom recognized at present in its earliest stages, and it must be admitted that diagnosis is difficult unless a definite attempt is made to *investigate properly all forms of indigestion which resist simple treatment.*

Causation of Diseases of the Biliary Tract

For practical purposes nearly all diseases of the biliary tract (excluding only uncommon conditions such as the dysfunctions, the solitary cholesterol stone of metabolic origin, tumours, and parasitic infestations) begin as one or other grade of inflammation, so that this part of our subject consists mainly of a consideration of the causes of cholecystitis. The essential features are the settlement of micro-organisms in the biliary tract, what predisposes to them, how they reach there, what site they flourish in, and what varieties of microbe are concerned.

As to predisposing causes, all are agreed on the importance of biliary stasis, due to obesity, over-eating, chronic constipation, lack of exercise, and repeated pregnancies. The importance of focal sepsis in teeth, tonsils, sinuses, and elsewhere, as predisposing causes, stands scientifically on much less firm ground.

The route by which microbes enter the biliary tract to settle there is still in dispute. The possibilities are the blood stream (portal or systemic), ascent of the ducts from the duodenum, lymphatic spread from the liver,

and adhesions to other inflamed viscera near by. Much work must still be done to decide this point, but the general view held at present is that the blood stream is the most important route.

The micro-organisms concerned and the site in which they flourish are also in dispute, which is unfortunate, because an important line of medical treatment is here involved. The investigations have been of two kinds: (1) the bacteriological examination of the bile, the gall-bladder wall, and the lymphatic gland draining the biliary tract, in specimens removed by the surgeon under aseptic conditions; (2) the examination of bile drawn off by the method of duodenal intubation. The results of these two methods in the main do not agree. According to the surgeons the bile from the gall-bladder is often sterile in the presence of active disease, while cultures of the wall of the gall-bladder itself show almost always the presence of a streptococcus. Duodenal drainage, on the other hand, has in the hands of different observers yielded much more commonly the *B. coli* or some member of the coliform group. Infections of the bile with typhoid and paratyphoid bacilli form a small, well-recognized group. If the seat of the infecting organism is in the depths of the gall-bladder wall and seldom in the bile itself, then obviously no "disinfectant" of the bile, as it passes from the liver to the biliary tract, can be expected to cure the microbic infection, but only some remedy carried in the blood or some indirect method such as vaccine therapy. It is unfortunate for our patients that this difference of opinion exists. It seems best at present to regard the investigations of the surgeons as dealing with later and more chronic infections which have required operation; and, with the positive knowledge of infection of the bile itself in typhoid fever, to regard earlier cases as amenable to medical methods described below.

Certain Methods of Investigation

Apart from the essential clinical investigation—history, symptoms, and physical signs—two methods of fairly recent introduction now play a considerable part in the investigation of a case of biliary disease.

1. *Cholecystography*.—This was introduced by Evarts Graham of St. Louis and his associates in 1924. An x-ray method for diagnostic purposes only, it has its chief value in the late stages of biliary disease, and particularly when gall-stones are present. It is of limited value in early cases of cholecystitis.

2. *Duodenal Intubation or Duodenal Drainage*.—This is carried out by introducing a narrow rubber tube through the stomach into the duodenum and causing contraction of the gall-bladder by various means, most commonly by the administration through the tube itself of a concentrated solution of magnesium sulphate. Chiefly developed by Vincent Lyon and his associates in Philadelphia, this is a method both of investigation and of treatment by "non-surgical biliary drainage." It is far too little used in Britain, chiefly because the wrong metal tip at the end of the tube is commonly employed. Everyone is now quite familiar with the fractional test meal for which the tube, with its small rubber-covered ovoid end and small holes to suck out the gruel meal from the stomach, is admirably adapted. Unfortunately the small ovoid tip does not readily pass through the pylorus into the duodenum, and the pyriform metal tip used by Vincent Lyon is much to be preferred; it is now obtainable

from Messrs. Mayer and Phelps, 59, New Cavendish Street, London W.1.

A practical fact also to be noted is that the rubber tube, to which the metal tip is attached by a tying of silk, is supplied in America of greater stiffness and smoothness than appears to be possible for the rubber manufacturers in this country. These are small matters of detail, but they count greatly in performing the technique.

The tests of hepatic function so far introduced are definitely not of great value in the elucidation of biliary disease in its early stages.

Dysfunctions of Gall-bladder (Biliary Dyskinesia)

Functional disturbances of the gall-bladder and biliary tract—spastic and atonic—must obviously be considered first, as the name connotes an absence of organic disease. Such cases are rare, and fortunately are not likely to trouble the practitioner greatly. The clue to their origin is believed to be a functional disturbance of the sphincter of Oddi at the biliary papilla where it enters the duodenum. The spastic variety, which results in distension of the gall-bladder, shows itself clinically either as a persistent dull ache below the ribs or may even simulate gall-stone colic. The occurrence of the atonic variety is, it must be admitted, only inferred. Treatment applies only to the spastic variety, and belladonna should be given in full doses. A mixture containing rhubarb, or the homely Gregory's powder, is also recommended.

Different Grades of Cholecystitis

The mildest variety is known as *simple catarrhal cholecystitis*, and is believed to be associated with a very low grade infection, which, however, may unfortunately progress to serious pathological consequences. It is at this early stage that a diagnosis should be made, but this is at present far too seldom done. There may be no definite symptoms or physical signs directly referable to the gall-bladder, and the usual clinical features are epigastric fullness, flatulent dyspepsia, and nausea. These are often termed "biliousness," which is a symptom-complex of many diverse origins. In this condition *x-ray* diagnosis, by cholecystography, is valueless in the earlier and important stages, and may, indeed, lead to error. The cystic duct may be partly obstructed by the catarrhal inflammation of the mucosa, and bile containing the dye may fail to enter the gall-bladder, thus leading to the suspicion of much more serious organic disease. As a rule, however, the gall-bladder shadow and the capacity of the gall-bladder to concentrate the bile and the dye, and to empty itself partially, are entirely normal.

The duodenal tube may give great help in diagnosis at this stage, but it will give even more when the condition has persisted for some time. The interpretation of the results obtained by drawing off the bile has been greatly

elaborated, but in practice I am content with the following observations.

The bile obtained is immediately centrifuged, and films of the sediment are stained by Gram's stain and by methylene-blue. The presence of a number of pus cells is virtually diagnostic, and if chains of streptococci or fairly numerous coliform bacilli are seen the diagnosis is certain. (For brevity, the part of the technique which excludes the possibility of pus cells coming from the stomach is here omitted.) Bacteriological cultivation of the bile obtained is, in my view, only of importance in the diagnosis of typhoid cholecystitis. Strict asepsis in passing the tube into the duodenum is impossible, and one microbe carried in by the tube from the stomach may, after multiplication in culture, lead to an entirely erroneous conclusion.

In the later stages of catarrhal cholecystitis the clinical symptomatology does not change greatly, and now constitutes in reality the preceding or inaugural symptoms of gall-stones.

Somewhere in this group may be placed the condition known to surgeons as "strawberry gall-bladder," although the origin of this condition is uncertain and may be metabolic rather than inflammatory. At all events the clinical features which have led surgeons to remove gall-bladders of this type are those of catarrhal cholecystitis. The strawberry gall-bladder shows a reddened mucosa with yellowish specks (of cholesterol), and it is claimed that the condition can be definitely recognized by duodenal drainage, but I have no experience of this.

Treatment

The treatment advised in catarrhal cholecystitis is as follows. Fats, contrary to what is often taught, should not be entirely omitted from the diet, as they are the natural means of emptying the biliary tract. Butter, milk, cream, and olive oil are not, as a rule, contraindicated, in moderation: it is cooked fats and fried foods which aggravate the flatulent distension. With the knowledge that gall-stones may be the sequel of chronic catarrhal cholecystitis, articles of diet rich in cholesterol (such as egg-yolk) are often forbidden, but there seems no reliable scientific evidence that the amount taken could influence the total cholesterol content of the blood or the bile. A cholagogue of some bile-salt product is useful, and a pill sometimes prescribed (Vincent Lyon) is:

R	Sod. oleat.	...	...	...	...	gr. iiij
	Sod. glycochol.	...	...	...	...	gr. iiij
	Sod. salicyl.	...	...	...	...	gr. iiij
	Ol. pip.	...	...	...	...	℥ j
	Excipient	...	...	...	...	q.s.

To be taken three times daily after meals.

A laxative is often necessary, and pulv. rhei co. is one of the best. Non-surgical biliary drainage should be employed, three times weekly, by the following method. As has been indicated, a solution of magnesium sulphate is passed down the duodenal tube to induce contraction and partial emptying of the gall-bladder for diagnostic purposes. It has been found equally efficient for treatment when the solution is taken by mouth. In practice I give the following directions. Magnesium sulphate, 25 per cent. solution in water, with a flavouring agent such as syrup of orange, is prescribed. The patient is directed to take, on an empty stomach, 1 drachm or more of the medicine in a wine-glass of water immediately on waking. The dose may be varied and increased, but not sufficiently to produce a definite purgative effect.

Hexamine in large doses of 120 grains or more, accompanied by an alkali to prevent irritation of the urinary tract, has been greatly recommended, either alone or

combined with a bile-salt product. It is impossible to be dogmatic on the value of this drug, and advocates and detractors are possibly in about equal proportions.

Finally it must be emphasized that the medical treatment of catarrhal cholecystitis must be persistent and prolonged for many months. Relapses are frequent, and if the disease is allowed to pursue its course unchecked gall-stones are the common sequel.

The Acutely Infected Gall-bladder

In acute infective cholecystitis, acute suppurative cholecystitis, phlegmonous cholecystitis, and empyema of the gall-bladder the distinction from simple catarrhal inflammation may be difficult, but as a rule these conditions start acutely and violently, and are recognizable by ordinary clinical methods. The patient suddenly suffers from nausea, acute pain and tenderness over the gall-bladder, fever, and vomiting. The leucocyte count is raised. Here the differential diagnosis is the important matter, especially from acute conditions affecting the appendix, right kidney, or duodenum. Cholecystography is both useless and inadvisable in the acute stage. Duodenal drainage will show pus cells and micro-organisms in the bile, but is seldom carried out. The immediate treatment is expectant, consisting of rest, sedatives, and starvation—except for the free administration of glucose in solution. If the acute infection clears up, non-surgical biliary drainage, by the method indicated, must be persisted in, and the treatment previously outlined for the milder catarrhal cholecystitis also followed. On the other hand, the infection may lead on at once to suppurative or phlegmonous changes, or to empyema of the gall-bladder, when the treatment becomes obviously surgical.

Chronic Cholecystitis, with or without Gall-stones

There is no need to elaborate this section, except to point out that the sequel of a long-standing cholecystitis may be either a small, thickened, and deformed gall-bladder, or one containing stones. Here the diagnosis is adequately made by ordinary clinical methods, and it is in this group that cholecystography as an ancillary clinical method comes into its own. In spite of the much-advertised medical cures, by olive oil or by other methods, it may be stated categorically that once gall-stones have been proved to exist there is no known hope of cure except by surgery.

Hydrops or Mucocoele of the Gall-bladder

Here the cystic duct is obstructed permanently, either by stone or stricture, and the gall-bladder gradually distends with a clear mucous secretion. The condition must almost certainly give rise to clinical symptoms at first, but they are frequently missed, and the large globular swelling is often found quite accidentally and merely presents a problem in abdominal diagnosis. The condition may be mistaken for a Riedel's lobe, a movable right kidney, hydronephrosis, or even, in obese women, for an ovarian cyst. The treatment is purely surgical.

Parasitic Infestation of the Biliary Tract

This is a rare condition, and in Britain the only parasite concerned is *Ascaris lumbricoides* (roundworm), which may enter the biliary tract from the duodenum and completely block the ducts. Obstructive jaundice supervenes, and the gall-bladder may be distended. The only method of diagnosis is to examine the stools for ova in all unusual cases of obstructive jaundice. The treatment is surgical.

Tumours of the Gall-bladder

These are fortunately uncommon, but carcinoma is one of the recognized complications of gall-stones. Simple tumours occur also, but are excessively rare. Diagnosis is always difficult in the early stages, and cholecystography is not of much help. Surgery is the only possible treatment, but prognosis is always bad in malignant tumours in this region.

Medical Pre-operative and Post-operative Treatment

Surgeons are agreed that to reduce the operative risk intensive pre-operative treatment may be essential in gall-stones and other diseases of the biliary tract. Great obesity, diabetes, intense jaundice—to name only a few complications—may require careful treatment before operation can be contemplated. The liver is always to some extent damaged or deranged in function, and even after a successful operation the general treatment applicable to cholecystitis is required for some time. Administration of glucose daily before operation is of great value, and is indeed the chief drug to employ.

The treatment of patients with "surgical" biliary diseases who refuse operation, or are too old, or suffer from other diseases which prevent operation, is a difficult and complicated matter, and cannot be considered here.

In conclusion, two points seem worthy of mention. First, the practitioner must not forget, in the differential diagnosis of biliary diseases, the possibility of a lesion outside the abdomen. Coronary thrombosis, acute right-sided basal pneumonia, diaphragmatic pleurisy, and even incipient herpes zoster, have all led to error. Secondly, he must remember that the gall-bladder is an organ with definite and important functions of value to the body, and every possible effort should be made to conserve it.

ROYAL MEDICAL BENEVOLENT FUND

This is the centenary year of the Fund, and a special appeal is being made for new subscribers to carry on the work begun a hundred years ago, since when £398,055 has been distributed in charitable allowances. Cheques should be sent to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London, W.1.

At a recent meeting of the committee thirteen new applicants were assisted and twenty-nine grants were renewed to beneficiaries on the books of the Fund; in all £1,029 was voted. The following particulars of a few of the cases helped indicate the kind of work undertaken.

Dr. X., aged 77. Retired from practice in 1925. Is now suffering from arthritis and severe sciatica, and finds walking difficult. His savings are exhausted, and he is living with his married son, whose means are only £2 a week. The Fund voted an emergency grant of £5 and a maintenance grant of £40, payable in four instalments.

Widow, aged 36, of M.B. who died in June, 1935, leaving his widow and two children penniless. The widow is to take up training in chiropody, and the Fund voted a maintenance grant of £36, payable in four instalments. The Ladies' Guild will assist in the educational expenses of the children.

Dr. Y., aged 79. Has outlived his savings and finds it extremely difficult to get locumtenent work at his age. Fund voted £40, payable in four instalments.

Daughter, aged 63, suffering from tuberculosis of mesenteric glands. Resides in Switzerland for the sake of her health. A grant of £26 was voted by the Fund towards her medical expenses.

The following letter has been received from the son of a deceased medical practitioner aged 88, who was in receipt of a Fund's annuity up till his death in 1936:

"May I take this opportunity once more of thanking the committee for the manner in which my father's annuity from the Fund was administered. It was very largely instrumental in making his closing years comfortable and peaceful."