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CHOLECYSTITIS *

BY

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The subject of gall-bladder infection has been discussed in recent years at many times and in many places, especially by hospital physicians and surgeons. It is a good choice for discussion at an Annual Meeting of the British Medical Association, because its great frequency and clinical importance may then be emphasized to the general practitioner, who, after all, has the main opportunity and responsibility of recognizing inflammation of the biliary tract in its earliest and most important stages.

The combined results of many observations, by physicians, surgeons, and pathologists, seem to show without any doubt that disease of the gall-bladder is now the commonest of all organic troubles of the digestive tract. This has been repeatedly stated by Sir Arthur Hurst, and he will no doubt speak on this point to-day. Statistics in different countries and in different clinics must vary, but Piersol (1936) has recently published an analysis of the admissions to the gastro-intestinal clinic of the University of Pennsylvania Hospital, Philadelphia, and shown that 16.3 per cent. of all the patients were diagnosed as suffering from gall-bladder disease. Duodenal ulcer, cancer of the stomach, gastric ulcer, and chronic appendicitis followed, in this clinic, in order of frequency, but these are merely the results in one American hospital. I am unable to present the statistics of any large series of gastro-intestinal cases in Britain, but it may safely be accepted that cholecystitis is now established here as one of the most common and important intra-abdominal diseases.

It is obviously my duty in opening this discussion to give a general survey of the problem before us and not to spend undue time on matters which will be dealt with in greater detail by subsequent speakers.

Age, Sex, and Type of Patient

It must nowadays be realized that the female who is "fat, fair, forty, and fecund" is by no means the only type subject to biliary disorders and to their common sequel of gall-stones. It is true that cholecystitis is more common in females than in males, for reasons which have many times been discussed and which need not detain us now. Gall-bladder troubles are, however, quite common in men, and it may be emphasized that cholecystitis occurs in young men and young women, and even in children. These facts are, I think, not yet sufficiently and universally realized. With the increase of outdoor games and exercise in young people this disease may diminish; but there are many, mostly living in cities, who have sedentary occupations in offices and factories and are prone to dyspepsia

and biliary disease. In acholuric jaundice, a disease generally recognized in youth, there is a special tendency to disorders of the biliary tract—both pigment stones and cholecystitis.

Aetiology

I have already referred to sedentary occupations as increasing the risk of cholecystitis, and indeed the factor of biliary stasis is the only important predisposing cause on which almost everyone will agree. It would not be justifiable here to discuss disturbances in the physiology of the biliary tract as a cause of biliary symptoms, since so little is known with absolute certainty. Problems concerning the sphincter of Oddi, contraction of the gall-bladder, and spasm of the main bile ducts are all involved here; and frankly, in my view, the time has not yet come to bring questions of disturbances in the physiology of the biliary tract into the realms of ordinary practical medicine. We have enough to deal with at present in gall-bladder pathology, due to microbic infection of the gall-bladder and biliary tract, the essential cause of the subject we are discussing—namely, cholecystitis. Here, too, we are faced with the difficulty of reconciling the divergent views of physicians and surgeons for the ultimate benefit of our patients. This matter will no doubt be examined fully by Sir Arthur Hurst and Sir David Wilkie, and I need only place the general position before you.

The points of importance are:

1. What are the common microbes which infect the gall-bladder, and what is their relative frequency?
2. By what route is the gall-bladder infected—by passage along the ducts from the intestine or by the blood stream? Do the microbes in fact exist mostly or partly free in the bile, or is the infection essentially deep-seated in the wall of the gall-bladder?

The importance of focal sepsis in teeth, tonsils, appendix, or elsewhere in the aetiology of cholecystitis is an essential part of the problem, which I only mention to give a lead to other speakers.

Varieties

Cholecystitis with Gall-stones.—It is obvious that in the past the diagnosis of cholecystitis was seldom made before the common sequel of gall-stones had occurred and given rise to obvious signs or symptoms. Even nowadays the frequent accidental discovery of gall-stones of inflammatory origin at post-mortem examinations shows either that a diagnosis was missed or that the symptoms were insufficient to make the patient seek treatment for

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biliary disease. It must be remembered that in patients who have already developed gall-stones recurrent attacks of cholecystitis are common and often severe.

Acute Infective Cholecystitis.—This is a surgical emergency and needs no discussion.

Catarrhal Cholecystitis.—This is the variety I wish to bring into the forefront of discussion to-day. It is due to infection with organisms of obviously low-grade virulence, and often smoulders on without giving rise to serious or acute symptoms for a long period of time. It is difficult to diagnose, but if untreated is likely to be followed by gall-stones and many other complications.

Symptoms and Diagnosis

Moynihan, in the days of the rapid development of gall-bladder surgery, described the "inaugural symptoms of gall-stones." These, we know now, were the symptoms of the preceding cholecystitis, but at a later stage than we must now identify them. At that time it is fair to say that the early stages, except of the acute and fulminating variety constituting a surgical emergency, were seldom if ever sought for or recognized. It is the diagnostic problem involved in the common catarrhal cholecystitis that I wish to emphasize, and a correct diagnosis will often be missed and treatment too long delayed if the doctor fails to investigate further all cases of dyspepsia which do not respond to simple treatment. He may, and generally does, consider the possibility of gastric or duodenal ulcer, and is disappointed when the x-ray examination by barium meal which he advises yields a negative result. He may think of chronic appendicitis; but up to the present he too seldom thinks of the great frequency of gall-bladder disease as a cause of dyspepsia. The association of flatulence with the dyspepsia is suggestive, but by no means conclusive.

It is best at the very outset, when considering how the diagnosis of gall-bladder infection may be proved, to admit the difficulties involved. The diagnosis by simple clinical methods is easiest when gall-stones are present. Biliary colic occurs in roughly 40 per cent. of such cases, while recurrent acute attacks of cholecystitis lead to obvious signs in the right upper quadrant. Further, it is in these cases that cholecystography is of such great diagnostic value. Even when gall-stones are absent the local signs of tenderness or pain or both below the right costal margin may, along with the presence of flatulent dyspepsia, strongly suggest the diagnosis. The real difficulty arises in the cases—and they are many—in which a catarrhal cholecystitis is associated with dyspepsia only, without local pain or tenderness over the gall-bladder at all. These are the early cases in which medical treatment may be of avail. How are such cases to be completely and positively diagnosed so that proper treatment may be carried out? Ordinary simple clinical methods fail us here—what help can we obtain by other methods?

I must first refer to cholecystography, but omit any lengthy discussion, since Dr. Hardman is to deal with this aspect of the subject. I will only say that in my experience, which is now considerable, the use of the dye followed by x rays generally does not yield information of positive diagnostic importance in the early cases of catarrhal cholecystitis in which physicians are so interested. I am too often confronted with an x-ray diagnosis of "pathological gall-bladder," or "poor filling," or "faintness of shadow," which are taken to indicate disease, when I know full well the differences in technique and the differences in absorption of the dye, even on different days in the same person. On the whole I am still very

chary of accepting a diagnosis of early cholecystitis on x-ray evidence, whatever improvements in technique may later make possible.

We now come to the method of duodenal intubation, and here I feel on quite different and much more secure ground. I would go so far as to say that in early cholecystitis it is at present the only diagnostic method on which we can positively rely. It is far too little used in Britain, but is a routine method in America and elsewhere. I have indicated in a recent paper some of the reasons why it has not yet obtained its proper place in diagnosis with us; and I feel this defect must be remedied. Perhaps, as in many tests of this kind, too much was at first claimed for the method; but of its diagnostic value in experienced hands I have no doubts at all.

Differential Diagnosis

This is at times easy, but is often difficult unless the technique of duodenal drainage is employed. This section might easily detain me too long, for the differential diagnosis from chronic gastritis, pylorospasm, peptic ulcer, carcinoma, and peripyloric adhesions would require consideration. Moreover, peptic ulcer and chronic cholecystitis may coexist: I have seen a number of examples of this combination. The clinical differentiation between cholecystitis and chronic appendicitis is not easy; and here again the duodenal tube may be the only real help. Diseases of the liver itself, especially early cirrhosis, are frequently confused with gall-bladder infections. I have made this mistake too often and have seen the cirrhotic liver exposed by the surgeon when my confident diagnosis was chronic cholecystitis. I deliberately omit more than a reference to important diseases situated outside of the abdomen—such as coronary thrombosis—which have frequently been mistaken for cholecystitis, since Dr. Miller will be speaking on this point.

Treatment

This will be discussed in detail by subsequent speakers, and I need only deal with some general principles. I have already alluded to the difficult problem of deciding on the site of the microbic infection and the important bearings the solution of this problem must have on treatment by drugs excreted in the bile. Next I must refer especially to the form of treatment now commonly known as "non-surgical drainage of the biliary tract." This treatment began with the use of the duodenal tube, repeated emptying or rather partial emptying of the gall-bladder being induced by the direct injection through the tube into the duodenum of either a concentrated solution of magnesium sulphate or olive oil. Later it was found in practice that the passage of the duodenal tube was unnecessary, the same drainage of the biliary tract being obtained by giving the patient a small dose of concentrated magnesium sulphate solution on an empty stomach. I am convinced of the great value of this form of treatment when persisted in daily for months.

As regards diet in the treatment of early cholecystitis and the prevention of gall-stones, I am far less strict (except when obesity forms part of the problem) than are many physicians. I do not see the need for restriction in cholesterol-containing foods, since the body can obtain a supply from so many foods. The only essential restriction is cooked fat, and especially "fried foods," which aggravate the common flatulent dyspepsia. I do not exclude butter or milk in moderate amount, and olive oil (a food) has great value in preventing flatulent dyspepsia and in emptying the biliary tract, although it does not dissolve gall-stones.

It must be remembered that in cholecystitis the liver itself is damaged or deranged in function, and a sojourn for treatment at a spa which specializes in hepatic diseases and in the other frequent accompaniments of cholecystitis, such as obesity, may be of great value. Disordered function of the liver, so commonly associated with cholecystitis, is claimed by some to be concerned in the aetiology of migraine, but I must state that I have never seen migraine in direct association with hepatic disease.

Conclusion

In conclusion, my plea is for the more general recognition by doctors in Britain of the great frequency of cholecystitis, of the difficulties that must be faced in making a correct diagnosis, of the methods that are of real practical use in diagnosis and treatment, and of the great diagnostic value of the duodenal tube. Further, I would express my belief that catarrhal cholecystitis can be cured in its earlier stages by medical treatment, and that in this way we may hope to diminish the incidence of gall-stones with their frequent dangers and complications.

CHOLECYSTOGRAPHY: THE EFFICIENCY OF THE GRAHAM-COLE TEST*

BY

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The introduction of this method of examination by Graham and his associates in 1924 was one of the outstanding advances in radiology, and it has proved of immense assistance to physicians and surgeons. Nevertheless there are many to-day who are inclined to question the accuracy of this method of detecting disease of the gall-bladder. I believe that such incredulity is most frequently due to a very common human weakness—the disposition to allow one error in diagnosis to make a much more lasting impression on the mind than ninety-nine correct diagnoses, and so when asked whether the Graham-Cole test is reliable the answer is frequently in the negative.

A second reason is a misconception as to how much a Graham-Cole test will reveal. Some place too great a reliance upon it as an absolute proof of the presence or absence of disease, without realizing that there are some unavoidable fallacies. No radiologist would attempt to claim infallibility for this method of examination, but we do claim that the Graham-Cole test, carried out with punctilious care as to preparation of the patient, administration of the dye, and radiographic technique, will yield valuable information on the functional ability of the gall-bladder to receive and to concentrate bile containing dye. This is to some extent a measure of the functional health of the mucous membrane of the gall-bladder, and the test yields a very high percentage of correct inferences regarding the presence of disease.

It must be recognized at once that there are pathological conditions remote from the gall-bladder, such as duodenal ulcer and chronic appendicitis, which will sometimes be responsible for a failure of that organ to show a normal Graham-Cole reaction. In my opinion such an admission brings home to us the necessity for a complete radiological examination of the gastro-intestinal

tract in all cases in which the Graham-Cole test and the clinical history and signs are at variance.

In thousands of cases operation has proved that disordered function, as shown by a faint shadow or a failure to obtain any shadow, is a result of disease of the gall-bladder, and in only a very small percentage are the x-ray findings due to remote lesions. In a large majority of the cases diagnosed as pathological, one can only go so far as to say that there is complete dysfunction or impaired function.

Conditions affecting the Gall-bladder

A differential diagnosis between the conditions which may affect the gall-bladder is only possible in a comparatively few cases. Stones containing not less than 10 per cent. of calcium will be demonstrable on an ordinary film without the introduction of any opaque dye. Bilirubin stones are also radiopaque. They may be obscured by the dye, only appearing when evacuation has occurred. Cholesterol stones are translucent. If there is no obstruction of the cystic duct, and the gall-bladder mucosa is sufficiently healthy to concentrate the dye, these stones will be demonstrable as well-defined clear spaces in the opaque dye.

Papillomas and adenomas may sometimes be recognized by the marginal defects which they produce. Stones do not show such defects, but tend to lie grouped together in the centre of the gall-bladder. Multiple papillomas may give rise to negative shadows in a dye-filled gall-bladder, similar to those of cholesterol stones. Repeated films taken at intervals would show that the defects remain constant in the case of papillomas, whereas stone shadows would alter in relation to one another.

The diagnosis of carcinoma of the gall-bladder may be made occasionally, and Kirklin of the Mayo Clinic in a paper written in March, 1935, refers to a case reported by Taterka in which the tumour produced a large irregular defect along the lateral wall of the gall-bladder and in which the entire picture was analogous to that of medullary carcinoma of the stomach as exhibited with the barium meal. Such appearances in the gall-bladder must be very rare indeed, for I believe that in the majority of cases of carcinoma of the gall-bladder a well-marked defect would be accompanied by such impairment of function of the mucosa that no shadow would be obtained by the Graham-Cole test.

I find it difficult to express a definite opinion upon Professor McNee's criticism that "x rays generally do not yield information of positive diagnostic importance in the early cases of catarrhal cholecystitis." I do not know at what stage in the course of the disease the function of the mucosa would be sufficiently affected to present positive x-ray signs or the duration of time which might elapse before such an effect was produced. I think that most of the cases sent for examination are those which have been suffering from recurrent attacks of cholecystitis, but I believe that a certain number of early catarrhal cases associated with duodenitis will show delay in the emptying time of the gall-bladder. Some workers have had experience and positive proof of such cases, but Kirklin states that he does not attach much importance to delay in filling or emptying.

It is impossible to go fully into the details of technique here. Suffice it to say that the correct preparation of the patient, strict directions as to the avoidance of all food until permitted, and a careful radiographic technique are essentials for reliable results.

* Communication to the Section of Medicine at the Annual Meeting of the British Medical Association, Belfast, 1937.