Gallstones Revisited? Almadinah Almounawarah’s Experience (A Prospective Study of 212 Consecutive Cases)

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A total of 212 consecutive in-patients with ultrasound proven gallstones were studied prospectively for the clinical features of gallstones. There were 185 females and 27 males (female: male ratio of (6.9:1)) with a mean age (range) of 39.5 (17-83) and 49.5 (30-94) years respectively. Fifty per cent of patients had no specific symptoms, and gallstones were an incidental finding in 3%. Acute cholecystitis was found in 22% and biliary colic was present in 30%. Intolerance to fatty food as a symptom was reported by only 40% of patients. Complications were rare; with acute pancreatitis seen in 1.4% and surgical jaundice in 0.4%. Thirty-eight percent of females were obese (Body Mass Index [BMI] > 30) with female mean (SD) BMI of 29.7 ± 5.2. In addition, there was 2% parity of six pregnancies. Amongst men 5.5% were obese with a male mean (SD) BMI of 24.8 ± 3.2.

All the gallstones analysed were of the mixed type with a mean (SD) cholesterol content of 49.9 (7.5%) of the stone weight (range 38-72%). In view of the clinical features shown by this hospital-based study we suspect that ‘asymptomatic’ gallstones in Saudis are common. A community based study would be needed to evaluate this suspicion.

Several epidemiological studies have shown that the prevalence of gallstones is higher in affluent societies than in developing countries. However, there have been reports from developing countries that have challenged this concept. A theory trying to relate gallstones to glaciers, thus making it a disease of temperate climates received an interesting response from Loeffer whose experience was in a tropical developing country.

The exact prevalence figures are unknown for the Kingdom of Saudi Arabia. There have been reports from other parts of the kingdom suggesting that the problem is so common that it deserves a large-scale population-based study. Our local statistics at King Fahad and Ohud hospitals (the two main Ministry of Health general referral hospitals in Almadinah Almounawarah) showed that cholecystectomy represented around 15% of all laparotomies.

It has been our impression that the clinical picture did not seem to follow accounts of the disease written in Western countries in that...
often male patients with the disease are seen; and females with gallstones are young, and complications due to gallstones do not occur at the same rate as the number of cases seen in clinical practice.

This paper addresses the question of whether the presenting clinical features of gallstones in Saudis is different from Western accounts of the disease. We also report the results of chemical analysis of a random sample of gallstones removed during operations.

Subjects and Methods

All Saudi in-patients were included who were admitted to King Fahad and Ohud hospitals during the 6-month period starting in mid-1989, with gallstones diagnosed by ultrasonography. Cases were studied in a prospective fashion from the time of ultrasound diagnosis irrespective of the indication for the ultrasound examination, the department they were in, or the way they were managed. The following routine was followed for each case:

1. A structured interview was conducted to collect data on patients’ particulars (name, age, sex, nationality), social background (education, occupation, marital status and number of children in the case of females), smoking habits, presenting symptoms. The check-list for the presenting symptoms included: abdominal pain (site of pain and referred pain), intolerance to fats, vomiting, dyspepsia or heartburn, flatulence, pruritus, and finally an open-ended question about ‘any other symptoms?’ was asked. The presence of a symptom was quantified by noting the mode of presentation (first time, recurrent or continuous) and duration.

2. Examination included measuring the weight and height (using a beam balance scale and a stadiometer), and noting the clinical signs at presentation. The check-list included the following signs: jaundice, Murphy’s sign, palpable gallbladder, hepatomegaly, epigastric tenderness and ‘incidental’ signs or absence of physical signs.

3. All patients had the following blood tests performed on specimens drawn after an overnight fast: liver function tests (serum bilirubin, serum albumin, aspartate aminotransferase (AST), alanine aminotransferase (AST), alkaline phosphatase), fasting blood sugar, lipid profile (total serum cholesterol, serum triglycerides), HBsAg screening done by means of reverse passive haemagglutination test for HBsAg (Hepastest-3 HA Screening kit—Wellcome). Only cases with suspected acute pancreatitis had a serum amylase estimation.

Patients were followed up until they left the hospital. A computer-generated random sample that included 100 stones out of the gallstones removed at cholecystectomy was chemically analysed.

The data were analysed by computer and the raw data fed into Lotus software and the descriptive statistics performed.

Results

The 212 Saudis included: 27 males mean age (range) 49.5 (30–94) years, 185 females mean age (range) 39.5 (17–83) years, with a female: male ratio of 6.9:1.

Table 1 summarizes the frequency of different symptoms and signs at presentation. Putting the symptoms signs and investigations together produced the following conclusions: acute cholecystitis was diagnosed in 22% of subjects whereas biliary colic was seen in 30% of cases and complications included only three cases of acute pancreatitis and one case of surgical jaundice (i.e. 1.4% and 0.4% of the cases respectively).
Gallstone cholesterol content (% of stone weight)*

*Other constituents: Calcium, phosphorous; bilirubin; iron and organic material.

Figure 1. Number of gallstones in each of three bands of cholesterol content (total = 100).

Obesity (BMI > 30) was present in 38.3% of females, with a female mean (SD) BMI of 28.3 (6.2), the corresponding values for the males were 5.5% and 24.5 (3.18). Parity: the mean number of pregnancies was 6.0. Diabetes mellitus was present in 6/212, (2.8%). HBsAg screening was positive in 3/134, (2.2%).

Figure 1 illustrates the cholesterol content of 100 gallstones analysed chemically. The mean (SD) cholesterol content was 49.9 (7.5%) of stone weight with a range of 38–72%. Other constituents were calcium, phosphorus, bilirubin, iron and organic matter.

Discussion

Gallstones are known for not causing symptoms; in one population-based Italian study 78% of the subjects who were found to have gallstones were asymptomatic, and 85% of them remained asymptomatic when interviewed years later. Our study addressed the clinical features of the disease in a hospital population of Saudis and comparisons were made with reports from Riyadh, Western countries and Syria.

The age of the patient population showed that the males were older than females, which is a universal finding. However, the age of our patients and particularly females was much younger than is reported from Western countries where patients are in their fifth or sixth decade.

The prevalence of gallstones is higher in females; however, the female: male ratio in this study, (6.8:1), is higher than reports from Syria or Riyadh where the values were (5:1) and (3.8:1) respectively. This could not be accounted for by any bias in the study; one probable explanation is that females may be more sensitive to symptoms. Of the associated factors, obesity (taken for this study as BMI > 30), was clearly commoner among females than males. As a higher prevalence of gallstones among the obese is an established fact, this may be another reason for the remarkably high female: male ratio we noted. The high incidence of diabetes mellitus (21.4%) among cholecystectomy patients reported from Riyadh, was not seen in our patients where the corresponding figure was 3.8%; perhaps it reflects a true difference in the prevalence of diabetes mellitus between Riyadh and Almadinah Almounawarah.

There is general agreement among clinicians on what constitutes symptomatic gallstones, namely the occurrence of biliary pain, acute cholecystitis, biliary obstruction and pancreatitis.

It was very interesting to note that in what should be a highly symptomatic hospital population 50% had non-specific symptoms and in 2.3% of the cases gallstones were an incidental finding. A group of non-specific symptoms, ‘painless dyspepsia’ was reported to occur with similar frequency in patients and controls. Intolerance to fats, a symptom often ascribed to gallbladder disease, was reported in only 40% of our patients, in spite of our impression that Saudi diet (kabsah) is rich in fats. The commonest clinical presentations in this study were recurrent biliary colic and recurrent acute cholecystitis; 30% and 22% of cases respectively. Reports in the literature are conflicting; Truesdell reported a single typical attack followed by long periods of freedom from symptoms; Ransohoff et al. reported uncomplicated biliary pain in 90% of cases as the initial symptom, a finding reported also by Newman; whereas Pickerman & Gonzalez found acute cholecystitis as the initial evidence of symptomatic gallstones in 77% of their patients. The diagnostic inaccuracy of symptoms in this disease is well illustrated by the fact that whereas some authorities consider biliary pain to be the only specific symptom of gallstone disease; patients with apparently typical biliary pain were not relieved of their symptoms by cholecystectomy. Actually it is neither explained why some subjects with gallstones develop symptoms while others do not; nor is it known how soon after stone formation symptoms start.

Acute pancreatitis was seen in three patients in this series of 212 consecutive patients (1.4%); thus making it the least common presentation of
gallstones in our patients. This is very interesting as the role of gallstones in the aetiology of pancreatic is a significant one, particularly in this country where alcohol is almost absent from the scene. However, in support of this finding, follow-up studies of patients with silent gallstones showed a low incidence of subsequent pancreatitis, 55.39

All the gallstones were of the mixed type containing a fair amount of cholesterol with bile pigment, calcium and phosphorous in variable trace amounts. This finding may have some therapeutic implications in the application of the techniques of dissolution and lithotripsy.

In conclusion our findings in this hospital population, revealed that what is expected to be 'symptomatic' gallstones were associated with fairly mild clinical disease with rare complications. We suspect that the 'symptomatic' gallstones we are seeing in clinical practice in this country represent no more than a fifteenth of the sand of the Arabian desert when compared to the asymptomatic stones in the population at large. Only a well planned population-based study can show if that hypothesis is correct.

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References