Characteristics of Gallbladder Cancer in South India

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Abstract Gallbladder cancer is common in north India. It is also a well established fact that gall bladder cancer is frequently associated with gallstone disease in north India, similar to reports from the West. The magnitude of the problem of gallbladder cancer in south India and its link to gallstone disease is not clearly established. The aim of the study was to determine retrospectively, the characteristics of individuals with GBC in south India and to determine its association with gallstone disease. Retrospective data was obtained from records of proven cases of gallbladder cancer and patients undergoing cholecystectomy for gallstone disease between Jan 2001 and Dec 2010. Data retrieved included age, gender, and clinical presentation, findings on imaging, histology and details of management. The number of proven cases of gallbladder cancer each year ranged from 8 to 17. There were 38 men and 23 women. Male female ratio was 1.6:1. There were more men in the successive decades. Right upper quadrant pain (42 %) followed by jaundice (27 %) and a presence of a palpable mass (12 %) were the common clinical presentation. Pre-operative diagnosis of gall bladder cancer was possible in 80 %. Twelve patients had co-existing gallstones (19.6 %). Forty patients (50 %) had stage IV disease; only 6 patients had Stage I operable disease (9.8 %). During the same time 758 patients

had cholecystectomy for gallstone disease. Only one patient had an incidental gall bladder cancer, who had an extended cholecystectomy. Gallbladder cancer is uncommon in south India and its association with gallstone is also low.

Keywords Gall bladder · Gallstones · Carcinoma

Introduction

The incidence of gall bladder cancer (GBC), the commonest biliary malignancy in the West, shows wide geographical and racial variations [1–6]. More recently the incidence of gall bladder cancer is alarmingly increasing in China [7]. Though overall, GBC is said to be a rare disease in India, the incidence varies widely within the country [8–12]. Majority of the reports are from northern (The Ganges belt) and central parts of the country and has rarely been reported from the south [6, 13].

The reason/s for the regional difference between North and South India is not clear. An established fact is that almost 80 % of individuals with GBC in north India have gallstones [6, 13]. In a recent study high concentration of heavy metals in the water and soil of 60 villages along the Indo-Gangetic plains was considered as a contributing factor to the disease [14]

The aim of the present study was to determine retrospectively, the characteristics of individuals with GBC in south India and to determine its association with gallstone disease.

Patients and Method

A retrospective study was undertaken in the Department of Surgery and Gastroenterology of Stanley Medical College Hospital. Individuals who were residents of Tamil Nadu State

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Symptomatic Gall stone disease vs GB Cancer

Fig. 1 Symptomatic gallstones and gall bladder cancer diagnosed between 2007 to 2010

and had surgery for GBC, between Jan 2001 and Dec 2010 were included in the study. The study was retrospective and patient data was collected from the inpatient medical records, radiology and operative records. Data retrieved included age, gender, clinical presentation, findings on imaging, histology and details of management. Those patients with suspicious GBC, but negative at histology, or patients with no gallstone within the gallbladder during cholecystectomy, or those had recurrence of GBC after surgery were also excluded.

Results

The number of patients with proven GBC per year ranged from 8 to 17 (Fig. 1). There were 38 men and 23 women (Male: Female ratio 1.6:1). There were an increasing number of men with GBC seen in successive decades. There were no defined region within the Tamil Nadu State showing high prevalence of GBC. Majority of patients presented with right upper quadrant pain (42 %), jaundice (27 %) and a palpable mass (12 %). Pre-operative diagnosis of GBC was possible with abdominal ultrasound and CECT abdomen. Findings included the presence of an irregular thickening of gall bladder wall greater than 5 mm with or without calcification, or an intraluminal polypoidal growth. Fundus of the gallbladder (40 %) was the most common site for GBC followed by the neck (3 %). In the rest more than one site was involved. Twelve patients with GBC had co-existing gallstones (19.6 %).

Thirty patients (50 %) had Stage 4 -advanced disease, 25 (41.2 %) had Stage 2 and only 6 (9.8 %) had Stage I operable disease. Histologically, 46 % of GBC was poorly differentiated and was moderately differentiated adenocarcinoma in 12 %. Radical cholecystectomy was possible in

20 (37.8 %) patients. In 23 (37.8 %) patients in whom the tumor could not be resected, palliation was possible by ERCP in 12 and a surgical palliation in 3. Only one patient out of 758 cholecystectomies during the same period had an incidental GBC who had an extended cholecystectomy.

Discussion

Regional differences in GBC have been reported from India [15, 16]. Majority of the cases reported are from northern (Delhi) and central parts of the country (Bhopal). Fewer reports are from Maharashtra and South India (Chennai and Bangalore) [6, 8–12]

In a collaborative study at the Mahaveer Cancer Sansthan in Patna, Bihar State, between 2001 and 2002, which included 2 17 174 cases with malignancy from 105 centres in India (1, 03,081 in 2001 and 1, 14,093 cases in 2002), cancer of the gall bladder accounted for 9.6 % of all cancers in females and was the third leading site of cancer [17]. In one other study from Kolkata, both the major institutions i.e. Cancer Centre Welfare Home and Chittaranjan National Cancer Institute recorded gallbladder cancer to be 6.0 % and 5.8 % of all cancers, and was the third and fourth leading sites respectively [11].

Based on the Adyar Cancer Registry report from Chennai, pooled information from 19 hospitals within the city (both public and corporate hospitals), the prevalence figure of GBC was 0.52 % amongst men and 0.66 % amongst women. Majority of patients were in the 5th to 7th decade [7]. In the present study, the average number of cases with GBC seen per year in a single high volume tertiary referral centre for Hepatopancreaticobiliary disorders was 8 (range 8 to 17). The male female ratio was 1:6:1 with a shifting trend towards an increasing GBC in males over the successive decades. A referral and centre bias for a rising numbers of GBC cases seen per year in our institution cannot be excluded.

The profile of GBC seen in south India is quite contradictory to reports from northern parts of the country [6]. The mean age of presentation of GBC in north India is 5th to 7th decade, while in the present study majority of the patients were in the 5th and 6th decades.

Gallstones are considered as important risk factor for gallbladder cancer [6, 15]. Globally, the incidence rates of GBC parallel the prevalence rates of gall stone disease. Gall stones are often present in 60–90 % of patients with GBC as compared to 20–25 % of an age-matched population [6, 13]. Similar to reports from North India [6], the coexistence of gall stone disease and GBC are high in eastern European countries, including Poland, Hungary, former Czechoslovakia and former East Germany, and in south American countries such as Bolivia, Chile and Colombo. In the present study, Only one patient with symptomatic GS disease had an

incidental GBC, who subsequently had an extended cholecystectomy. Twelve cases i.e. 19 % of patients with GB cancer in the present study had coexisting black pigment stones viz a viz 80 % of GB cancer in North India have predominant cholesterol GS [6, 15]. An earlier study [16], on composition of gallstones from the neighbouring states of Karnataka, Kerala and Andhra Pradesh had also shown that pigment GS were the dominant stones in these states. Also, these States have rarely reported large series of GBC [8–10].

Summarising, based on our present observation we believe that GBC is rare in south India and is rarely associated with gallstone disease.

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