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# EPIDEMIOLOGY, AETIOLOGY, CLINICAL PATTERN AND OUTCOME OF CHOLELITHIASIS AND ITS RELATION TO CARCINOMA OF GALL BLADDER IN SCB MEDICAL COLLEGE AND HOSPITAL, CUTTACK, ODISHA

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ABSTRACT

**BACKGROUND:**

Incidence of cholelithiasis either as a silent stone or with symptoms and complications are quite frequent. The symptoms are so varied in nature that it becomes difficult to clinically come to the specific diagnosis. Moreover, most of the population have gastric or duodenal problem with similar symptoms thus misleading the diagnosis. The patients of cholecystitis or cholelithiasis are incorrectly treated till such a date when the disease becomes late and complicated. Cholelithiasis are extremely frequent and an increasing frequency of gallbladder carcinoma has been observed during the last decades. In this study we will be focussing more on the various aetiological factors, different patterns of clinical manifestations and signs and its relation to the carcinoma of gall bladder.

**AIM AND OBJECTIVE:**

1. To study the causes of gall stone formation.
2. To study various presentation of the cases of gall stones.
3. To study the relationship of the gall stones with carcinoma gall bladder.
4. To study the incidence of gall stones in relation to diet.
5. To study the relation of gall stone to socio economic status and family history.
6. To study the incidence gall stones in a different age groups and sex.
7. To study the relation of gall stone with incidence of gall bladder carcinoma.

**PATIENTS AND METHODS:**

All the cases of gallbladder diseases treated in the Department of Surgery, S.C. B Medical College & Hospital, Cuttack, Odisha during the period from (September-2013 to September-2015) were sorted out and studied in detail. The criteria for selection of cases were based on clinical history, physical finding, ultrasound and haematological investigation.

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**RESULTS:**

Cholelithiasis occurs in all age group. Our study showed predominant involvement of age groups from 31 -40(26%) and 41-50(40%). In the present study incidence of gall stones is high among female patients. Pain in right hypochondrium is the uniform sign in high percentage of patients (around 62). Symptomatology study shows incidence of nausea and vomiting (68.2%), pain in right hypochondrium (60.6%), fatty dyspepsia (48.48%) are the predominant features. Patients who have excess fatty diet (fast food) were found to be have higher incidence of cholelithiasis. Patient of middle class have high incidence of cholelithiasis. In this study about 93.94% cases are having normal cholesterol levels. In laparotomy about 93.94% cases have chronic cholecystitis as the major pathological finding. Mixed stones were the most common type of stone in all these patients.

**CONCLUSION:**

The incidence of gallbladder disease is on the rise these days due to change in dietary habits and change of life style pattern. In this context the incidence and prevalence of cholelithiasis is also on the track of uprising. But the majority of the cases of cholelithiasis have some sort of epithelial changes ranging from the histopathological study of the gallbladder specimens. The significant part is that most of these cases remain asymptomatic for malignancy and only detected either at surgery or after histopathological study. Hence a policy of “eternal vigilance” should always be adopted in all cases diagnosed as cholelithiasis. The previous thinking that silent gallstones should be treated with “wait and watch” policy seems untenable. Hence the plan of "hidden snake of malignancy might be lurking there" should be adopted in all cases of cholelithiasis irrespective of the type duration and nature of gall stones.

## INTRODUCTION:

Incidence of cholelithiasis either as a silent stone or with symptoms and complications are quite frequent. The symptoms are so varied in nature that it becomes difficult to clinically come to the specific diagnosis. Moreover, most of the population have gastric or duodenal problem with similar symptoms thus misleading the diagnosis. The patients of cholecystitis or cholelithiasis are incorrectly treated till such a date when the disease becomes late and complicated. The prolonged irregular and symptomatic treatment at various levels make the disease entity (harbouring the irritating factors) leading to various complications in the gallbladder, among which cancer gallbladder is the most dangerous one with a very poor 5-year survival rate[1].

Although carcinoma of the gallbladder has a low overall prevalence, it is the most common malignant lesion of the biliary tract and holds fifth place among malignant neoplasms of the digestive and a highly lethal disease[2]. Cholelithiasis are extremely frequent and an increasing frequency of gallbladder carcinoma has been observed during the last decades.

## AIM AND OBJECTIVE OF THE STUDY:

1. To study the causes of gall stone formation.
2. To study various presentation of the cases of gall stones.
3. To study the relationship of the gall stones with carcinoma gall bladder.
4. To study the incidence of gall stones in relation to diet.
5. To study the relation of gall stone to socio economic status and family history.

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6. To study the incidence gall stones in a different age groups and sex.
7. To study the relation of gall stone with incidence of gall bladder carcinoma.

## MATERIALS:

Total 66 patients who were attending the OPD or Casualty of Department of General Surgery SCB Medical College Cuttack Odisha having some evidence of gall bladder disease were admitted to IPD during the period of study (September 2013 to September 20215).

### Inclusion criteria:

1. Confirmed and Diagnosed cases of Gall bladder diseases

### Exclusion criteria:

1. Children below the age of 14 years.
2. Pregnant and lactating mothers.
3. Previously operated for some gall bladder pathology.
4. Terminally ill and moribund patients.

## METHODS:

After reception at outpatient or casualty department, all the patients are registered and their physical examination and required investigations were carried out after taking proper informed consent. Detailed assessments of cases are done according to preformed proforma.

**Routine Investigations:**

Blood Counts, LFT, Serum Profile, Coagulation profile, etc.

**Special Investigations:**

Ultrasound of Abdomen and Pelvis, CT scan of Abdomen and Pelvis, X ray Chest, X ray Abdomen and Pelvis.

## RESULTS AND DATA ANALYSIS:

## AGE DISTRIBUTION OF CHOLELITHIASIS

**TABLE 1: AGE DISTRIBUTION OF CHOLELITHIASIS**

| Age group | Male | Female |
|---|---|---|
| 0-10 | 0 | 0 |
| 11-20 | 0 | 0 |
| 21- 30 | 0 | 8 |
| 31- 40 | 2 | 15 |

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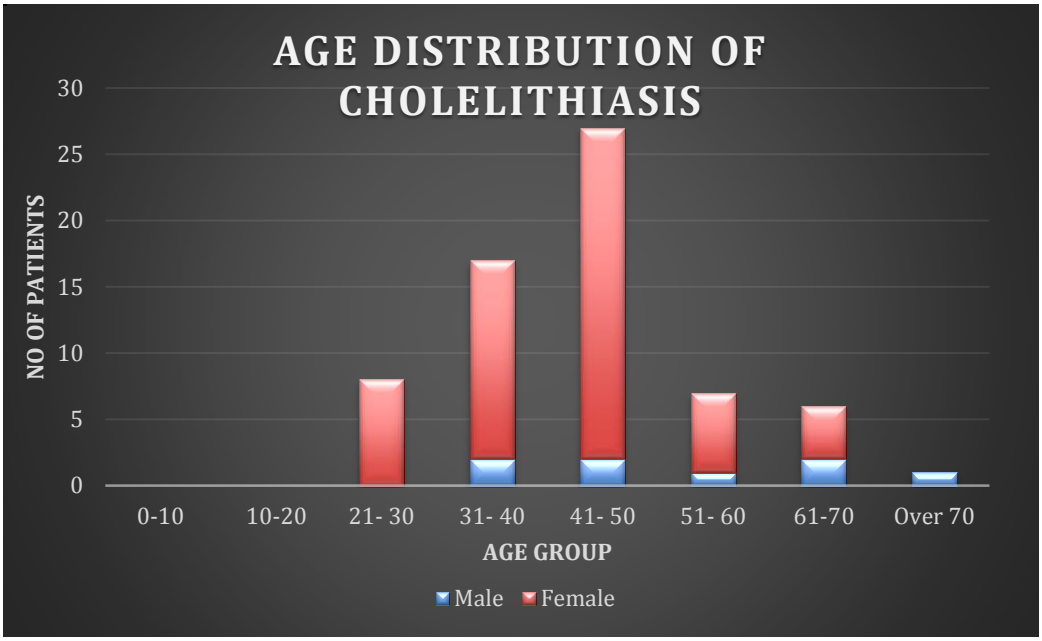
| | | |
|---|---|---|
| 41- 50 | 2 | 25 |
| 51- 60 | 1 | 6 |
| 61-70 | 2 | 4 |
| Over 70 | 1 | 0 |
| Total | 8 | 58 |

**CHART 1: AGE DISTRIBUTION OF CHOLELITHIASIS**




Age predominance from 40 – 70 years of age.

**DIFFERENT TYPES OF STONES IN RELATION TO SEX**

**TABLE 2: DIFFERENT TYPES OF STONES IN RELATION TO SEX**

| Types of stone | Male | Female |
|---|---|---|
| Mixed | 7 | 52 |
| Cholesterol | 1 | 5 |
| Pigment | 0 | 1 |

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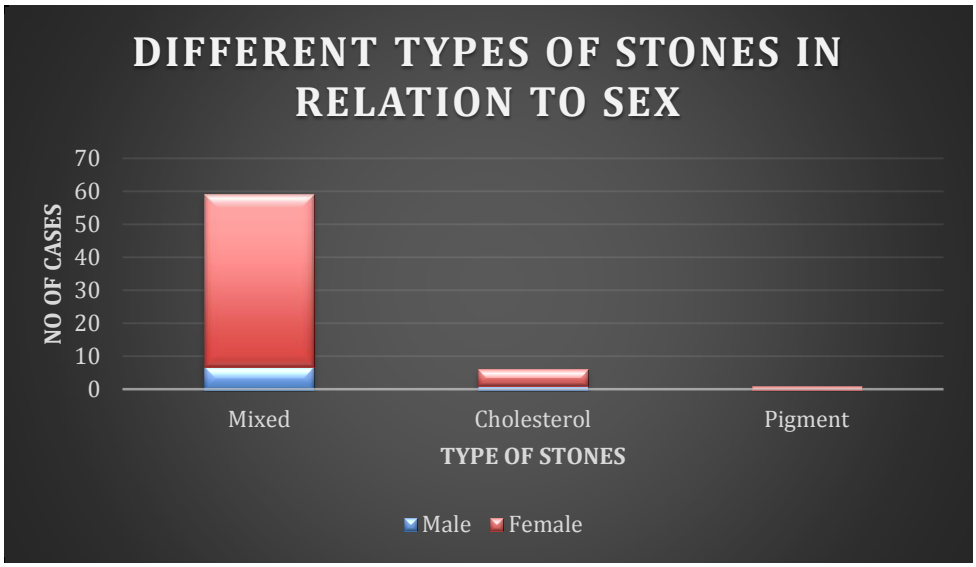
| | | |
|---|---|---|
| Total | 8 | 58 |

**CHART 2: DIFFERENT TYPES OF STONES IN RELATION TO SEX**




Female sex is predominantly affected.

**DIET WISE INCIDENCE OF CHOLELITHIASIS**

**TABLE 3: DIET WISE INCIDENCE OF CHOLELITHIASIS**

| Type of Diet | Male | Female |
|---|---|---|
| Normal diet | 0 | 10 |
| Excess fat diet (fast foods) | 2 | 36 |
| Excess protein diet | 4 | 4 |
| Excess carbohydrate diet | 1 | 8 |
| Combined excess | 1 | 0 |

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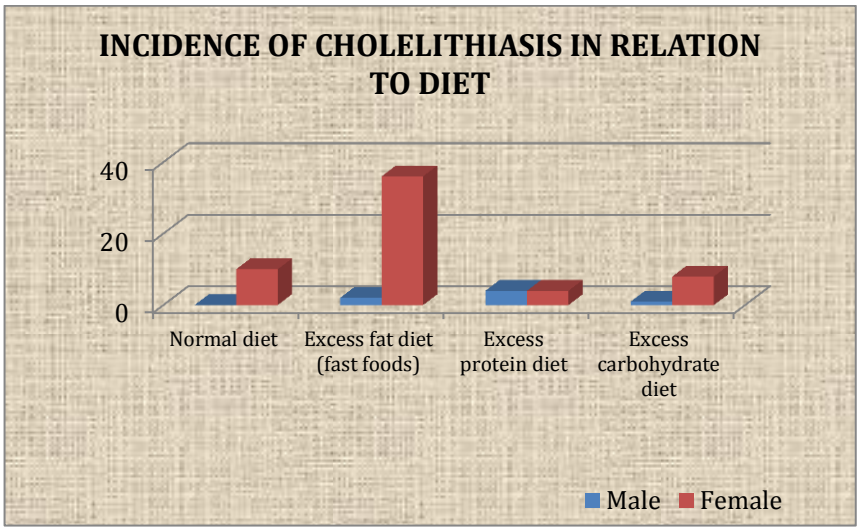
**CHART 3: DIET WISE INCIDENCE OF CHOLELITHIASIS**




People taking excess fat diet (fast foods) mixed diet has more predispositions.

**INCIDENCE OF SYMPYOMS**

**TABLE:4 INCIDENCE OF SYMPYOMS**

| Clinical Features | No. of Patients |
|---|---|
| **A. Symptoms** | |
| I)Pain Rt. Hypochondrium | 62 |
| Epigastrium | 53 |
| Referred to Rt shoulder | 48 |
| II)) Nausea / vomiting | 54 |
| III) Dyspepsia | 26 |
| IV)Jaundice<br>i. Jaundice | 15 |
| V)Anorexia / weight loss | 10 |
| VI)Fever with or without rigor | 49 |
| VII)Pruritus | 12 |
| **B. Signs** | |
| I) Pallor | 66 |
| II) Icterus | 15 |
| III) Abdominal distension | 23 |
| IV) Tenderness | |
| Rt. Upper quadrant | 62 |
| Epigastrium | 50 |
| Both areas | 50 |
| V) Rigidity Rt. Upper quadrant | 60 |
| VI) Lump Rt. Upper quadrant | 10 |

Pain in right hypochondrium is the predominant symptoms in these patients.

**INCIDENCE OF VARIOUS TYPES OF GALL BLADDER DISEASE**

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**TABLE 5: INCIDENCE OF VARIOUS TYPES OF GALL BLADDER DISEASE**

| Disease | Incidence during 2013-2015 | | |
|---|---|---|---|
| | Male | Female | Total |
| Chronic cholecystitis without stone | 04 | 10 | 14 |
| Chronic cholecystitis with stone | 01 | 35 | 36 |
| Acute cholecystitis without stone | 01 | 02 | 03 |
| Acute on chronic cholecystitis with stone | 01 | 09 | 10 |
| Cancer gallbladder without stone | 00 | 01 | 01 |
| Gallbladder perforation | 01 | 01 | 02 |
| **TOTAL** | **08** | **58** | **66** |

Chronic cholecystitis with stone is the most common type

**TYPES OF GALL STONE**

**TABLE 6: TYPES OF GALL STONES**

| Types of stones | Male | Female | TOTAL | |
|---|---|---|---|---|
| | | | No. | Percentage |
| Mixed | 07 | 52 | 59 | 89.40 |
| Cholesterol | 01 | 05 | 6 | 09.10 |
| Pigment | 00 | 01 | 1 | 01.50 |
| **TOTAL** | **8** | **58** | **66** | **100.00** |

Mixed stones are the most common type

**ANALYSIS OF THE SURGICAL PROCEDURE DONE**

**TABLE 7: TYPES OF GALL STONES**

| Types of stones | Male | Female | TOTAL | |
|---|---|---|---|---|
| | | | No. | Percentage |
| Mixed | 07 | 52 | 59 | 89.40 |
| Cholesterol | 01 | 05 | 6 | 09.10 |
| Pigment | 00 | 01 | 1 | 01.50 |
| **TOTAL** | **8** | **58** | **66** | **100.00** |

Mixed stones are the most common type

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**ANALYSIS OF THE SURGICAL PROCEDURE DONE**

**TABLE 8: ANALYSIS OF THE SURGICAL PROCEDURE DONE**

| Type of operation | No. of cases | Results |
|---|---|---|
| Only cholecystectomy | 59 | Single/multiple stones |
| Cholecystectomy with CBD exploration | 07 | No residual stone seen |
| Associated gland biopsy | | |
| a. Cystic gland | 01 | Secondary metastasis (adenocarcinoma) |
| b. Porta hepatis | 02 | Chronic inflammatory cells |
| c. Coeliac axis | 01 | Chronic inflammatory cells |

**FEATURES REPORTED AFTER HISTOPATHOLOGICAL STUDY**

**TABLE 9: FEATURES REPORTED AFTER HISTOPATHOLOGICAL STUDY**

| Sl. No. | Histology | No. of cases | Percentage |
|---|---|---|---|
| 1. | Chronic cholecystitis with epithelial dysplasia | 31 | 46.97 |
| 2. | Chronic cholecystitis with atypical hyperplasia | 08 | 12.12 |
| 3. | Chronic non-specific cholecystitis | 14 | 21.21 |
| 4. | Moderate polyposis | 01 | 01.52 |
| 5. | Normal gallbladder | 10 | 15.15 |
| 6. | Malignant changes (adenocarcinoma) | 02 | 03.03 |
| **TOTAL** | | **66** | **100.00** |

**DISCUSSION:**

**Age incidence:**

The age incidence finding also tallies with the findings of ***Chunhamaneewat S et al, (1999)***[3]**.** It does not agree with the observations of **Okamoto M et al, (1999)**[4]**,** whose maximum incidence were in the seventh decade followed by sixth decade. The lowest incidence in the observed series is in the eighth decade. The difference in these observations may be due to the fact that, people in this part of the country are not so much health conscious and come to the hospital after so many years of becoming symptomatic of the disease.

**Sex Incidence**

In the present observation, male to female ratio was 1:7.25 substantiates with the findings of ***Scott T.E et al (1996)5*** and ***Maingot (1997)***[6] who have mentioned that cholelithiasis subjects were predominantly female, and cholelithiasis is much more common in women that in men respectively.

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**Comparison of aetiology with other studies**

In the present study pain was elicited in the right hypochondrium in 60.6% of cases. In 18.2% of cases there was pain in the left hypochondrium or epigastrium without pain in the right hypochondrium and in 68.2% of cases nausea and vomiting was the chief presenting complaint. This finding substantiates with the findings of **Chao T.C et al (1996)**[7] who states that most common presenting complaint is abdominal pain followed by nausea, vomiting, jaundice. This finding also substantiates with the findings of ***Sabiston* (1997)**[8] and ***Maingot (1997)***[6]. ***Diehl AK et al (1992)***[9] states that the most certain symptomatic manifestation of gallstones is episodic upper abdominal pain, located in the epigastrium and / or the right upper quadrant associated with nausea and dyspepsia.

In our series unexpected malignant changes were seen in 3.04% (2) of cases of biopsy of the diseased gallbladder containing stones, which almost coincides with the findings of ***Duarte l et al (1993)***[10], who states that the incidence of unexpected malignant change in cholelithiasis is 2.5%. Recent ***Advance in Surg. No. 20. (Toylor)***[11] states that carcinoma in situ have been identified in gallbladders removed for gallstones or cholecystitis in 3.5% of patients which is almost close to the observations made in our series. ***Mori T et al (1997)***[12] also mentions the incidence of unexpected malignant change is 2.85%. Our observation 3.04% is little higher to the findings of ***Sabiston (1997)***[13] who has mentioned the incidence is 1 to 2%, also to the findings of ***Chunhamaneewat et al (1999)***[3] who has mentioned the incidence is 0.9%. This disparity is because of less number of cases included in the study. In this series only cholecystitis was found in 21.21% of cases and normal gallbladder was found in 15.15% of cases.

Out of all the surgical indoor patients in the S. C. B Medical College & Hospital. Cuttack from September-2013 to September-2015, 11.36% of patients were found to have symptoms pertaining to gallbladder diseases. From this 11.36% of patients, 66 cases of cholelithiasis were diagnosed after investigations which accounted for 60% of all gallbladder pathology patients. These 66 patients with cholelithiasis were studied with the purpose of their relationship/association with malignant changes in the gallbladder. The incidence of cholelithiasis was highest (40.10%) in the fifth decade. No case was recorded below 21 years or above 72 years of age. Females outnumbered males in the ratio of 7.25:1.71.22% of patients belonged to middle class family while 18.18% and 10.60% belong to the poor and high class respectively. 57.58% of cases were in the habit of taking excess of fat diet. 13.64% excess carbohydrate diet and 12.12% excess of protein diet while 15.16% were taking normal diet. No case gave definite history of gallbladder disease in the family. Among the symptomatology 68.2% cases had discomfort and pain in right upper quadrant, fatty dyspepsia was found in 48.4% of cases and in the signs, tenderness was elicited in the right hypochondrium in 60.6% of cases. Majority of the cases were having normal serum cholesterol level and no case found to have serum cholesterol more than 300mg%. 7 cases (10.6%) had jaundice with rise in serum bilirubin, SGOT, and SGPT. USG showed stones in all the 66 cases in some cases it was single stone and in others multiple stones. At laparotomy associated chronic cholecystitis was found in 62 (93.94%) of cases of which 15 cases (22.72%) had other complications, commonest being stones in CBD in 7 cases. 59 cases who were having mixed stone, in 9.1% of cases cholesterol stones were present. Pigment stone was seen in 1.5% of cases. 6.06% of cases had gross evidence of carcinoma gallbladder like think adhesion to gallbladder bed, hard and nodular texture of gallbladder wall etc.

All the 66 cases were subjected to laparotomy, only cholecystectomy was done in 59 cases; CBD exploration was done in 7 cases, cystic node biopsy in 1 patient which came to be secondary metastasis

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(adeno carcinoma). In all cases the gallbladder tissue was sent for histopathological study where chronic cholecystitis with epithelial dysplasia was found in 12.12% of cases, only cholecystitis was found in 21.21% of cases normal gallbladder was found 15.15% cases and unexpected malignant change (cancer gallbladder) was found in only 2 cases (3.04%), both of them showing adenocarcinoma.

**CONCLUSION:**

The incidence of gallbladder disease is on the rise these days due to change in dietary habits and change of life style pattern. In this context the incidence and prevalence of cholelithiasis is also on the track of uprising. But the majority of the cases of cholelithiasis have some sort of epithelial changes ranging from the histopathological study of the gallbladder specimens. The significant part is that most of these cases remain asymptomatic for malignancy and only detected either at surgery or after histopathological study. Hence a policy of "eternal vigilance" should always be adopted in all cases diagnosed as cholelithiasis. The previous thinking that silent gallstones should be treated with "wait and watch" policy seems untenable. Hence the plan of "hidden snake of malignancy might be lurking there" should be adopted in all cases of cholelithiasis irrespective of the type duration and nature of gall stones.

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