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Original Article

# A Clinical Study of Cholelithiasis

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*Mortality*

ABSTRACT

240 cases of cholelithiasis were studied in Osmania General Hospital, Hyderabad. Clinical features, age incidence, sex ratio, presentations, investigations & surgical modalities of treatment were studied. The series is compared with the series reported by North American surgeons. The incidence is 2% of all the operated surgical cases. The youngest patient was 16yrs of age & the oldest patient was 66yrs. The maximum number of patients was between 41-50yrs of age. The female to male ratio was 2:1. Most of the patients were not overweight or obese but moderately built. Pain in the right hypochondrium was the presenting symptom in 98% of the cases. Ultrasonography of the abdomen was the most accurate investigation (nearly 100%). Laproscopic cholecystectomy was the surgical procedure of choice. There was no mortality in the series.



## 1. Introduction

"To study the epidemiology of gall stones is both exciting and frustrating; Exciting because epidemiology holds the key to etiology; when we know exactly who gets a disease we are a long way to defining why they get it; Frustrating because accurate information on who gets gall stones is so hard to come by". Thus wrote Heaton (1975) who went on to describe fascinating geographical differences in known prevalence. The highest in the world is among the Pima Indians in the U.S.A. and the lowest among Greenland and Canadian Eakimoa. Cholelithiasis is common generally in U.S.A., U.K., Sweden, France, Germany, Israel and Australia but rather less so in Egypt, India, Japan, Thailand and Singapore.1

The incidence of Cholelithiasis varies not only from country to country but also from place to place in one country. Even in our country, the incidence of gall bladder disease differs in various regions. The incidence reported in Calcutta, West Bengal is 25% of all operated surgical cases (Raha & Aikat, 1967). In Sasson General Hospital, Pune the incidence is very low i.e., 0.4% of all operated cases (Joshi M. 1975). In the more affluent urban population of that region, gall bladder disease accounts for 2.35% of all operated cases (1970). In Delhi, from Lady Hardinge Medical College and Hospital, 290 cases of Cholecystitis were recorded from 1956-1967 out of which 171 were cases of stones. The present study is undertaken to find out the incidence in Osmania General Hospital and also to study various aspects of the disease.2

## MATERIALS AND METHODS

A retrospective review was made of all patients admitted with diagnosis of Cholelithiasis and treatment at Osmania General Hospital from October 2011 to October 2013

240 cases of cholelithiasis were personally studied to compare the age incidence, Sex ratio, Clinical features, Laboratory an imaging studies and different surgical modalities of treatment.

## ANALYSIS, OBSERVATION AND DISCUSSION

During the period of October 2011 to October 2013, 240 cases of cholelithiasis were admitted in Osmania General Hospital and analysis which include 240 cases for the purpose of comparison of the series reported by North American Surgeon's James Momanne et al (1991) and Vijaypal (1980) were compared for the study.

### Incidence:

The incidence in relation to the total number of surgically operated cases during the above period found out to be roughly 2%.

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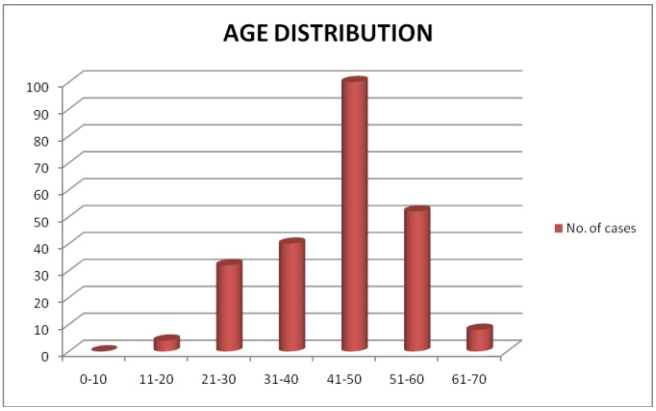
**TABLE No1: AGE DISTRIBUTION**

| Age | No. of cases | Percentage |
|---|---|---|
| 0-10 | 0 | 0 |
| 11-20 | 4 | 1.8% |
| 21-30 | 36 | 14.9% |
| 31-40 | 40 | 16.5% |
| 41-50 | 100 | 40.5% |
| 51-60 | 52 | 20.8% |
| 61-70 | 8 | 3.7% |

**FIG NO:1- AGE DISTRIBUTION**



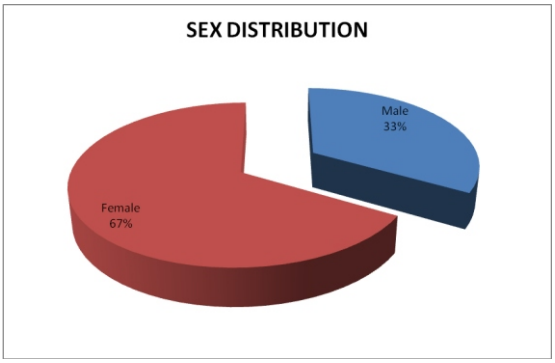

The youngest patient was 16 years age and the oldest was 66 years. In North American series, the youngest was 7 years and the oldest was 70 years of age. Vijaypal, H.S. Lakhtkia and Bhargava (1980) from Aligarh U.P. reported a series of 175 cases in which youngest patient was 16 years and oldest was 70 years age, which corresponding with present series.

In the present series maximum number of patients was in the 41 to 50 years age group, where as in North American series the majority of the patients were in the age group of 51 to 60 years. In Vijaypal (1980) series maximum numbers of patients were in 41 to 50 years age corresponding with present series.

**TABLE No: 2 - SEX DISTRIBUTION**

| SEX | No. of cases | Percentage |
|---|---|---|
| Male | 80 | 33.3% |
| Female | 160 | 66.6% |

**FIG NO:2- SEX DISTRIBUTION**



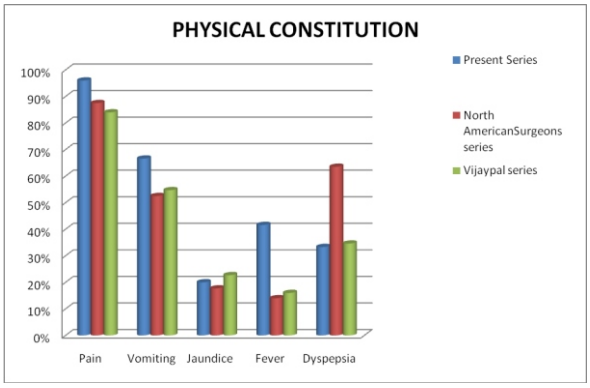

In the present series female patients accounted for 66.6% of the total cases and males are 33.3% with a female to male ratio of 2:1. In Bansali, Dniel et al & Vijaypal (1980) reported the female to male ratio 1.5:1, 3.1:1 and 2.4:1 respectively. So in our present series female to male ratio is 2: 1 so coinciding with the findings of the above workers?

**PHYSICAL CONSTITUTION**

Although obese people suffer more but in the present series of cases studied it is evident that most of them are not over weight, and most of them moderately built. Where as in North American series 30% of the patients were obese.

| Symptoms | Present Series | North American Surgeons series (1991) | Vijaypal series(1980) |
|---|---|---|---|
| Pain | 96% | 87.5% | 84% |
| Vomiting | 66.6% | 52.5% | 54.7% |
| Jaundice | 20% | 17.7% | 22.7% |
| Fever | 41.6% | 14.0% | 16.% |
| Dyspepsia | 33.3% | 63.5% | 34.6% |

**FIG NO:3 –PHYSICAL CONSTITUTION**



**PAIN**

Pain was presenting symptom in all most call cases (98%) there was wide variability in duration of the pain ranging from 3 months to 5 years. Most of the patients gave history of chronic recurring pain. In all cases pain were localized to right hypochondrium. Radiation of pain was present in 60 cases, nearly about 25%. In majority of the above patient's pain it's of colicky in nature.

In Vijay pal (1980s) series pain in right hypochondrium is 84% cases, which is different from the present series.

**VOMITING**

Was present in 66.6% of patients. In Vijay pal series (1980) the incidence of vomiting in 54%, which is corresponding with our present series.

**FEVER**

Was present in 41.6% of cases in our series. In Vijay pal (1980) series 16% of cases had fever which is lower than the present series.

**JAUNDICE**

Jaundice was present in 20% of cases. In North American series Jaundice was present in 17.5% of cases. So in both the series Jaundice was the least common symptoms.

In Vijay pal (1980) series the incidence of jaundice 22.7% which is similar to the present series, where the incidence of Jaundice is 20%.

Jaundice is the least common symptom in all the three study groups.

**DYSPEPSIA**

In Vijay pal (1980) series, Dyspepsia was present in 34.66% of the cases. So, in present series incidence of Dyspepsia (33.3%) is corresponding with the Vijay pal (1980) series.

**INVESTIGATIONS**

1. Urine analysis
2. HB% T.C. & D.C.
3. Chest X-ray
4. E.C.G. (for the patient above 40 years of age)
5. Blood sugar
6. Blood urea
7. Blood group
8. Serum cholesterol
9. Serum Calcium

**SPECIFIC INVESTIGATIONS LIKE**

1. Plain X-ray abdomen
2. Ultrasonography of abdomen
3. ERCP
4. L.F.T.

Urine examination revealed bile salts and bile pigments in 33% of cases. Leucocytosis was present in 10% of the cases. 16 patients were found to be diabetic on investigation. Chest x-ray, E.C.G. served as routine preoperative investigations.

**FIG 4: X-RAY OF ERECT ABDOMEN**

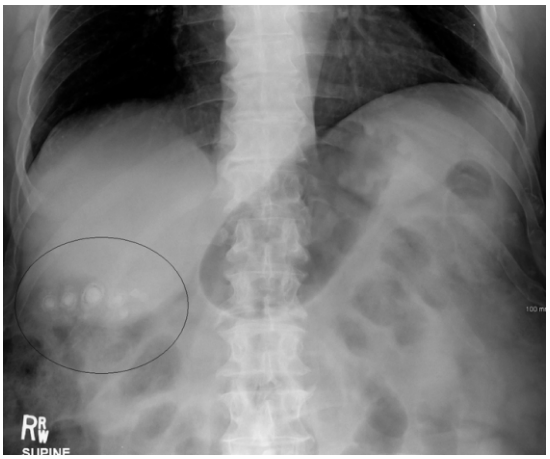



**FIG NO:5- X-RAY OF ERECT ABDOMEN**

**FIG NO:6. US ABDOMEN SHOWING MULTIPLE GALL STONES**

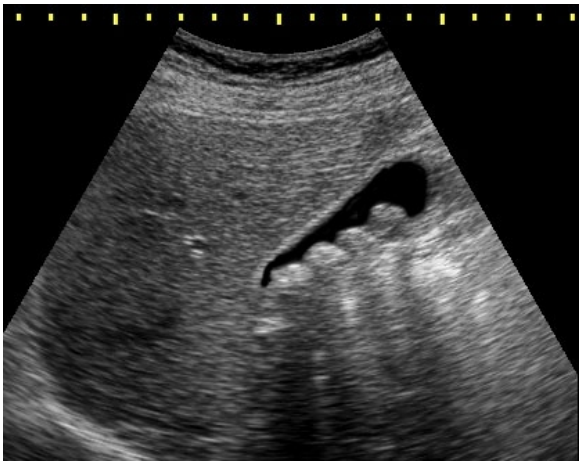


**FIG NO:7- US ABDOMEN SHOWING MULTIPLE GALL STONES**

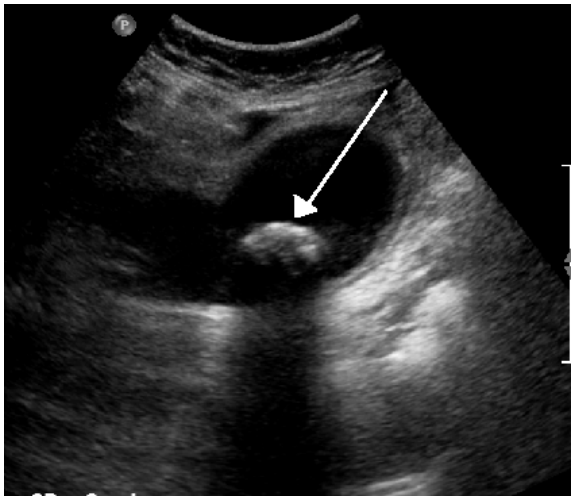


**FIG NO:8. E.R.C.P.**

**FIG NO:9. E.R.C.P.**

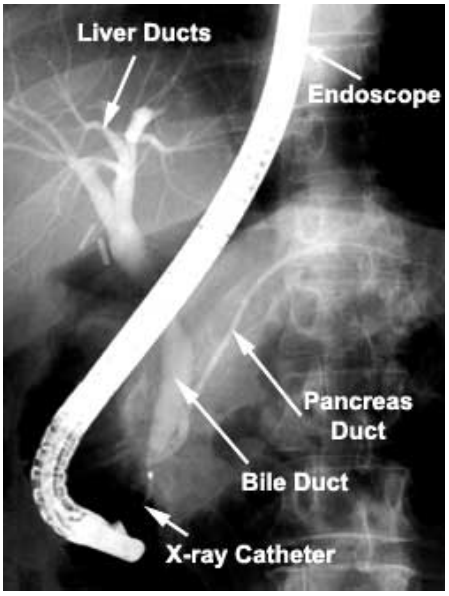



**FIG NO:10 - E.R.C.P.**

**FIG NO:11 - E.R.C.P.**

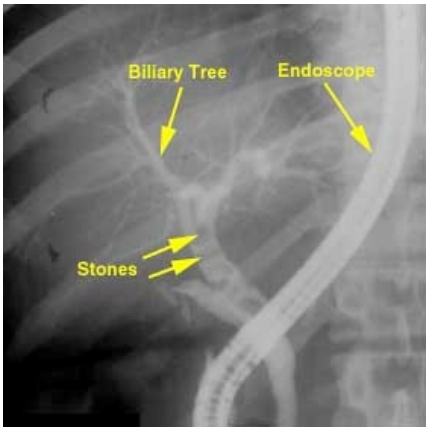


**FIG NO:12 M.R.C.P.**

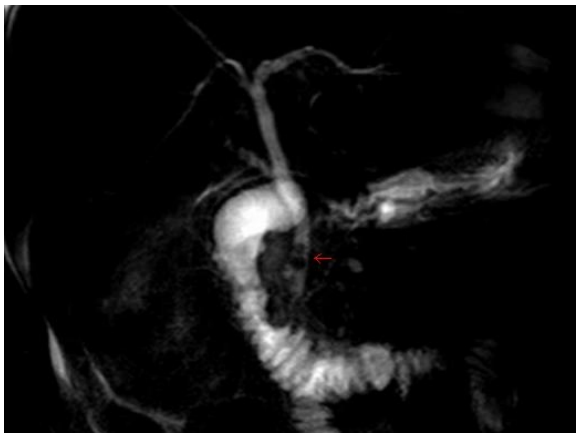


**FIG NO:13 - M.R.C.P.**

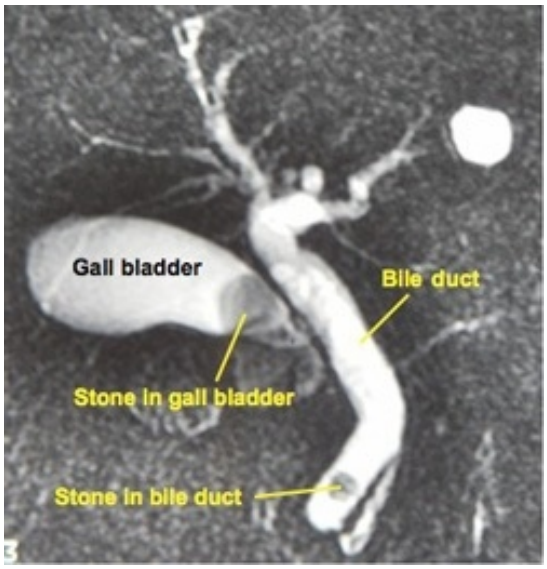



**FIG NO:14 - M.R.C.P.**

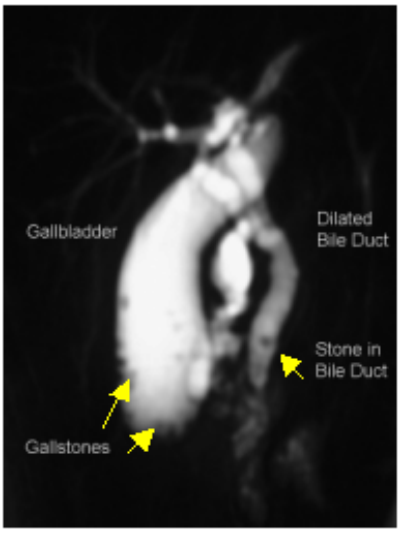



**FIG NO:15. LAPAROSCOPIC CHOLECYSTECTOMY**

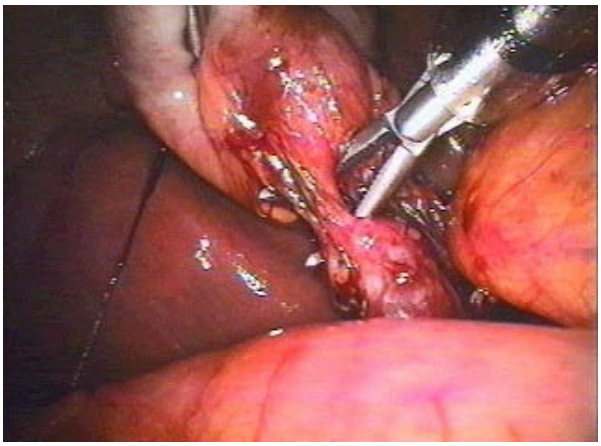


**FIG NO:16 - LAPAROSCOPIC CHOLECYSTECTOMY**

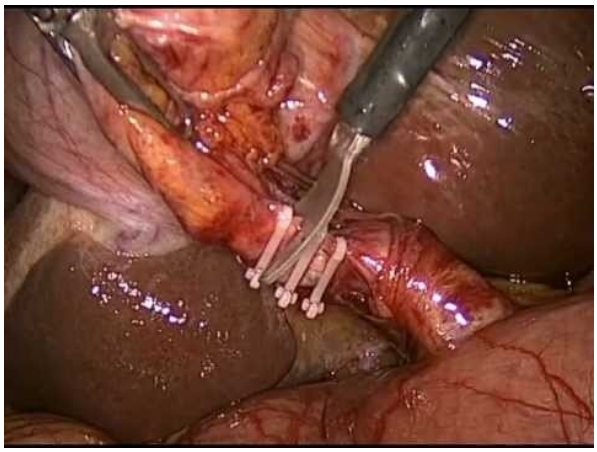


**FIG NO:17 - LAPAROSCOPIC CHOLECYSTECTOMY**

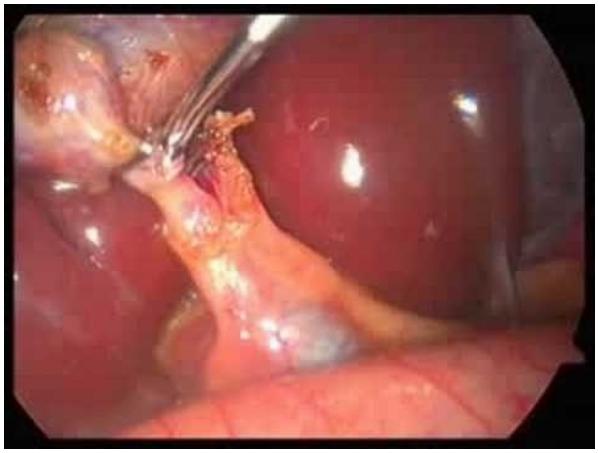


**FIG NO:18 - LAPAROSCOPIC CHOLECYSTECTOMY**

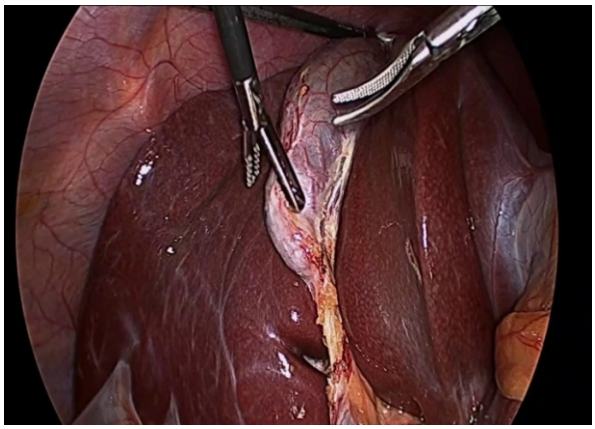
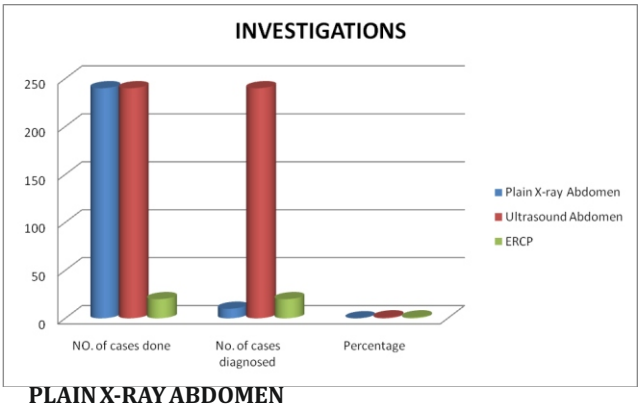


**FIG NO:19 - LAPAROSCOPIC CHOLECYSTECTOMY**

## INVESTIGATIONS

| Investigations | NO. of cases done | No. of cases diagnosed | Percentage |
|---|---|---|---|
| Plain X-ray Abdomen | 240 | 10 | 4.1% |
| Ultrasound Abdomen | 240 | 240 | 100% |
| ERCP | 20 | 20 | 100% |

**FIG NO:20 - INVESTIGATIONS**




**PLAIN X-RAY ABDOMEN**

Plain X-ray abdomen revealed radio-opaque calculi in 4.1% of call cases.

**ULTRA SONOGRAPHY OF ABDOMEN**

Ultrasonography was done 240 cases which revealed calculi in gall bladder in all the cases i.e. 100%

From the above data it can be concluded that ultrasonogram for the suspected cases of cholelithiasis is the most useful investigations with the highest rate of accuracy (nearly 100%)

**ERCP**

Out of 48 cases of jaundice, 20 had features of obstructive jaundice for whom ERCP was done and CBD calculi were found in all 20 cases.

Among the other investigations rise in the serum cholesterol was observed in 52% of the cases. Serum transminases have shown increase in 20% cases. Serum bilirubin rise was noted in 20% of cases. Prothrombin time was prolonged in 12% of the total cases.

**MANAGEMENT**

240 cases were studied during the period of October 2011 to October 2013. All the cases were taken up for elective surgery after preparing the patients with antibiotics. Parenteral glucose and inj. Vitamin K for cases of obstructive jaundice.

**OPERATIVE MANAGEMENT**

Under General anesthesia, Kocher's sub-costal incision was chosen for open cholecystectomy procedure while 4 ports were introduced for laparoscopic procedure.

**OPERATIVE PROCEDURES ADOPTED**

1. Laparoscopic cholecystectomy

2. Open Cholecystectomy (includes Lap Converted to Open Cholecystectomy)

3. CBD exploration + T-tube drainage + Cholecystectomy

| Type of operation | No. of cases | Percentage |
|---|---|---|
| Lap cholecystectomy | 160 | 66.6% |
| Open Cholecystectomy (include Lap Converted to Open Cholecystectomy) | 60 | 25% |
| CBD exploration + T-tube drainage + Cholecystectomy | 20 | 8.33% |

Lap Procedure of choice in 160 cases while open cholecystectomy was done for 60 cases which included conversion from Lap cholecystectomy to open cholecystectomy. In 20 cases CBD exploration with T-tube drainage was done. In Jayapal series (1980) T-tube drainage and cholecystectomy was done in 9.33% of cases for choledocholithiasis, where as in the present series out of 240 cases CBD exploration and T-tube drainage was done in 8.33% of cases for choledocholithiasis.

**POST OPERATIVE CARE**

It was based on general principles with restriction of oral fluids for 24 hours in Laparoscopic cholecystectomy and 48 hours for open cholecystectomy. Antibiotics were given for all the patients for a period of 7-10 days. Drainage tube was removed on the 4th postoperative day.

**POST OPERATIVE COMPLICATIONS**

20 patients developed wound infection, and in 10 cases respiratory tract infection developed in the post operative period in open cholecystectomy. In two cases, biliary discharge was present for 4 to 5 days through the wound of the drainage tube. All these complications were readily overcome with appropriate antibiotics. No postoperative complications were seen with laparoscopic cholecystectomy.

T-tube was removed between 8 to 12 post operative days. In one case T. tube cholangiogram was not satisfactory because of biliary mud for which saline wash given and T -tube was removed after getting a satisfactory T -tube cholangiogram.

**POST OPERATIVE INVESTIGATIONS**

Bile culture was done. In the majority of the cases, E.coli was grown. In few cases, Klebsiella & in few cases Pseudomonas was grown. The culture was Sterile in some cases.

**HISTOPATHOLOGICAL EXAMINATION OF GALL BLADDER**

1. Most of the cases showed changes of chronic cholecystitis and Biochemical analysis showed most of the stones to be of mixed variety.

There was no mortality in our series, as all the cases were taken up for elective surgery

**CONCLUSIONS**

240 cases of cholelithiasis were analyzed and for a period of 2 years from October 2011 to October 2013. The following conclusions were drawn from the series :

1. The incidence of cholelithiasis is 2% of total surgeries performed during the study period, which is low compared to North American surgeons' series in which the percentage was 8%.

2. The age incidence was highest in 5th decade.

3. Incidence was highest in females.

4. Classical symptoms were found to be Pain in the right hypochondrium, Vomiting, Dyspepsia, Fever but the incidence of Jaundice was less.

5. Ultrasonogram was diagnostic investigation of choice.

6. Lap. Cholecystectomy was the most common operation done in our series and the most common cause of conversion to open cholecystectomy was dense adhesions.

7. Bile culture was done. The culture was positive for E.Coli in 33% of cases, making preoperative antibiotic mandatory.

8. There was no incidence of carcinoma of gall bladder in the presence of cholelithiasis in our series.

9. Biochemical analysis showed most of the stones to be of mixed variety.

There was no mortality in our series, as all the cases were taken up as elective surgeries.

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