There is relatively sparse data, both local and international on the disease requiring cholecystectomy per year, making cholecystectomy one of the most common abdominal condition attributed to gallstones in 80% of cases. Gall stones can be divided in to three main types : Cholesterol, pigment (brown/black) or mixed stones. The causes of acalculus cholecystitis include biliary strictures, human immunodeficiency virus cholangiopathy, biliary parasites and primary sclerosing cholangitis. Other causes include complicated cases of burns, trauma, major surgery, Diabetes and unusual bacterial infection of the gall bladder (Salmonella spp, or Vibrio cholerae) and other systemic infections (Tuberculosis or syphilis). Human bile though sterile normally can become infected due to obstruction. Obstruction causes an increase in ductal pressure which leads to entry of micro infections (Tuberculosis or syphilis). Human bile though sterile normally can become infected due to obstruction. Obstruction causes an increase in ductal pressure which leads to entry of micro organisms resulting in bacterial proliferation and dissemination. Bacterial cholangitis is the most common type of acute cholangitis, with a gram negative preponderance. Gram positive and anaerobic are uncommon causative agents.Viral and fungal agents are rare. Although this disease has a low mortality rate its economic and health impact is significant due to its high morbidity. In fact gallstone disease is one of the most common abdominal condition both in developed and developing countries for which patients are admitted to hospitals and its frequency is increasing. Approximately 1-2% of asymptomatic patients will develop symptom requiring cholecystectomy per year, making cholecystectomy one of the most common operations performed by general surgeons. Therefore there is the need for more knowledge of the epidemiological characteristics of GD in order to better identify therapeutic strategies. The pathogenesis of bile infection is incompletely understood, with prevailing theories not fully explaining all the observations. There is relatively sparse data, both local and international on the prevalence of the infection in patients undergoing cholecystectomy. The conservative and prophylactic treatment is therefore based on best guess basis. The changing sensitivity pattern of antibiotics also pose a therapeutic challenge to clinicians. The rationale of this study was to determine the current trend of bacteriology and their sensitivity to common antibiotics in our population with symptomatic cholelithiasis. Total number of patient undergone cholecystectomy with symptomatic cholelithiasis were 110. Out of these male and female patients were 23(20.91%) and 87 (79.1%) respectively with male to female ratio of 1:3.78. The mean age of male and female patients with symptomatic cholecystitis were 46.20±10.88 years and 45.95±10.14 years. On culture and sensitivity test, 52(47.28%) have positive growth while 58 (52.73%) has no growth. The most common bacteria isolated was E Coli 28(25.45%) followed by klebsiella 16(14.54%), Salmonella 3(2.73%) and Shigella 2(1.81%), Pseudomonas 1(0.90%) & Acinetobactor 2(1.81%). Maximum no of patients with symptomatic cholelithiasis were 45(40.91%) that belong to the age group of 41 to 50 years followed by 38(34.54%) from the age group of 31 to 40 years. As per age wise distribution of isolated bacteria in symptomatic cholecystitis on culture test of bile, E Coli was most common in age group of 31 to 40 years (15.63%). Klebsiella was common in age group of 41 to 50 years; 8(7.27%). According to gender wise distribution of isolated bacteria in symptomatic cholecystitis on culture sensitivity, E Coli was isolated in 8(7.26%) males and 20 (18.18%) females, Klebsiella in 5(5.55%) males and 11(10%) females. On culture and sensitivity test E Coli showed high sensitivity to Cefuroxime in 22(78.57%) cases followed by Ceftriaxone in 21 (75.00%) patients. E Coli shows high resistance to Gentamicin in 17(60.71%) patients followed by resistance to Gentamicine in 12(42.86%) patients. Klebsiella showed high sensitivity to Gentamicine in 13(81.25%). Cefuroxime 12(75%), patients. The resistance of Klebsiella was noted maximum to Ampicillin which was in 10(62.5%) patients followed by resistance to Moxifloxacin in 8(50%). Salmonella showed high sensitivity to Cefuroxime in 3(100%) while the resistance was high to Ampicillin 3(100%) patients. Shigella showed high sensitivity to Gentamicine in 2(100%) and Cefuroxime 2(100%) cases. The resistance of Shigella was noted in maximum to Ampicillin in 2(100%) patients. The only cultre grown pseudomonas was sensitive to Cefuroxime & Gentamicine and resistant to Moxifloxacin and Ampicillin. The sensitivity of acinetobactor was high in Cefuroxime 2(100%), Gentamicine 2(100%) & Ceftriaxone 2(100%), both the Acinetobactor growth were resistant to Ampicillin & Moxifloxacin. The rationale of this study was to determine the current trend of bacteriology and their sensitivity to common antibiotics in our population with symptomatic cholelithiasis. The results of this study will be used to develop guidelines and recommendations for the rationale use of antibiotics. The result of this study will be shared with all surgeons and general practitioners locally and in the periphery to help them identify the type of antibiotic to be administered in symptomatic cholelithiasis. This will help us in rational use of antibiotic as well as reducing morbidity associated with cholelithiasis. Material and Method: Patients with cholelithiasis, undergone cholecystectomy in AGMC & GBP Hospital who are more than 18 years old, irrespective of sex, and religion is included in this study. STUDY DESIGN: Descriptive cross sectional study STUDY SETUP: The study was carried out In the Department of Surgery AGMC & GBP, Agartala . Tripura . STUDY DURATION:The procedure and data collection carried out for one year, with effect from the month of 01st January 2013 to 31st December 2013 STUDY POPULATION: SAMPLE SIZE: In department of Surgery AGMC and GBP from Aug 2011to Sep2012 a total no of 1430 major operations has been done. Out of that 480 were complicated or uncomplicated cholecystectomies. Prevalence of cholecystectomy 34%. qc = (100-34) = 66

L= 20% of prevalence = 13
n = (1.96) x 34x66/13^2
So the sample size(n) = 53
Though the sample size was 53, however all the patients older than 18 years undergoing cholecystectomy from 01st 2013 to 31st December in AGMC & GBPH, Department of Surgery is included in the study and a total no of 126 patients were studied during the period.

Patients of cholelithiasis, older than 18 years of age who has undergone cholecystectomy in AGMC & GBPH are included in this study.

Patients not undergoing, unwilling or unfit for surgery. Patients with obstructive jaundice (raised Alkaline phosphatase more than two times of normal) METHOD : All the study patients presenting with symptoms (pain right hypochondrium and vomiting) and tender right hypochondrium was diagnosed clinically as Cholecystitis and the diagnosis was confirmed by Ultrasonography (showing distended gall bladder with calculi). Routine investigations like Complete blood count, Blood Urea & Serum Creatinine, Random blood sugar, Serum electrolytes and investigations for anesthesia fitness like Chest X-Ray, ECG and LFT were performed. Pre anesthetic checkup was done and clearance taken for anaesthesia. The purpose and procedure of the study were explained to the patients. Informed consent is taken from each patient. The aims and objectives of the study, the benefits to be obtained, the confidentiality of participants and results, the voluntary nature of participation and free-will to withdraw from the study without penalty were clearly spelt out to the participants.

All the patients were operated through open cholecystectomy on subsequent elective list by consultant Surgeons. All patients were given a IV injection of third generation Cephalosporins at induction of anaesthesia and was continued for 3 days post operatively. After opening the abdomen and recording the findings, bile was aspirated from gall bladder at fundus in a 5ml disposable syringe. Gall bladder was removed after ligation and cutting of the cystic artery and duct.

TRANSPORT OF SAMPLE : The collected specimen of bile was labeled and send to Microbiology lab, AGMC & GBPH in 5cc disposable syringe.

CULTURE & SENSITIVITY METHOD : The macroscopic appearance of the sample was noted. Direct identification of organism by gram staining was done. For aerobic culture, the sample was inoculated on blood agar medium and incubated at 37°C for 24 hours. Isolation of the isolates was done by standard biochemical tests. Antibiogram of isolated organism is prepared by Kirby bauer method following CLSI guidelines.

ANALYSIS OF DATA : Data was recorded in a structured proforma, entered and analyzed using Microsoft MS Excel move. Patients were distributed according to age and gender. Percentage of different bacterial growth & sensitivity pattern on antibiogram was tabulated according to age and sex. The data was presented in the form of table and charts.

 Results: Total number of patient undergone cholecystectomy with symptomatic cholelithiasis were 110. Out of these male and female patients were 23(20.91%) and 87 (79.1%) respectively with male to female ratio of 1: 3.78.

The mean age of male and female patients with symptomatic cholecystitis were 46.20±10.88 years and 45.95±10.14 years respectively with an overall mean age of 46.13±10.65 years (table 1).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Mean age ± standard deviation (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>46.20±10.88</td>
</tr>
<tr>
<td>Female</td>
<td>45.95±10.14</td>
</tr>
<tr>
<td>Total</td>
<td>46.13±10.65</td>
</tr>
</tbody>
</table>

On culture and sensitivity test, 52(47.28%) have positive growth while 58 (52.73%) has no growth. The most common bacteria isolated was E Coli 28(25.45%) followed by klebsiella 16(14.54%), Salmonella 3(2.73%) and Shigella 2(1.81%), Pseudomonas 1(0.90%) & Acinetobactor 2(1.81%).

Maximum no of patients with symptomatic cholelithiasis were 45(40.91%) that belong to the age group of 41 to 50 years followed by 38(34.54%) from the age group of 31 to 40 years. As per age wise distribution of isolated bacteria in symptomatic cholecystitis on culture test of bile, E Coli was most common in age group of 41 to 50 years; 15(13.63%), Klebsiella was common in age group of 41 to 50 years; 8(7.27%). Full detail of age wise distribution is shown in table 2.

Table 2: Age wise distribution of common bacterial isolates on culture and sensitivity of bile in patients with symptomatic cholelithiasis.

<table>
<thead>
<tr>
<th>Age groups (years)</th>
<th>E Coli</th>
<th>Klebsiella</th>
<th>Salmonella</th>
<th>Shigella</th>
<th>Pseudomonas</th>
<th>Acinetobactor</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-30</td>
<td>2(1.81%)</td>
<td>1(0.90%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
</tr>
<tr>
<td>31-40</td>
<td>10(9.09%)</td>
<td>4(3.64%)</td>
<td>1(0.90%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>2(1.81%)</td>
</tr>
<tr>
<td>41-50</td>
<td>15(13.63%)</td>
<td>8(7.27%)</td>
<td>2(1.81%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
</tr>
<tr>
<td>51-60</td>
<td>1(0.90%)</td>
<td>1(0.90%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>1(0.90%)</td>
</tr>
<tr>
<td>61 and above</td>
<td>0(0%)</td>
<td>2(1.81%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
</tr>
</tbody>
</table>
According to gender wise distribution of isolated bacteria in symptomatic cholelithiasis on culture sensitivity, E Coli was isolated in 6 (7.26%) males and 20 (18.18%) females, Klebsiella in 5 (5.55%) males and 11 (10%) females. On culture and sensitivity test E Coli showed high sensitivity to Cefuroxime in 22(78.57%) cases followed by Ceftriaxone in 21 (75.00%) patients. E Coli shows high resistance to Ampicillin in 17 (60.71%) patients followed by resistance to Gentamycine in 12(42.86%) patients. Klebsiella showed high sensitivity to Gentamycine in 13(81.25%), Cefuroxime 12(75%), patients. The resistance of Klebsiella was noted maximum to Ampicillin which was in 10(62.5%) patients followed by resistance to Moxifloxacin in 8(50%). Salmonella showed high sensitivity to Cefuroxime in 3(100%) which was high to Ampicillin 3(100%) patients. Shigella showed high sensitivity to Gentamycine in 3(100%) while the resistance was high to Moxifloxacin and Ampicillin in 8(50%). Salmonella showed high sensitivity to Cefuroxime in 3(100%) while the resistance was high to Ampicillin in 12(42.86%) patients.

In our series of patients, majorities of isolates were susceptible to Cefuroxime, Gentamycine and Ceftriaxone and were resistant to Ampicillin. As regards to S Typhi these were susceptible to Cefuroxime and Gentamycine and resistant to Moxifloxacin and Ampicillin. Acinetobactor shows high sensitivity to Cefuroxime & Gentamycine and resistant to Moxifloxacin and Ampicillin. The sensitivity of acinetobactor was high in Cefuroxime 2(100%), Gentamycine 2 (100%) & Ceftriaxone 2(100%), both the Acinetobactor growth was resistant to Ampicillin & Moxifloxacin. Sensitivity and resistance of these 6 bacteria to various antibiotics is shown in detail in table 3.

Discussion:
In our study on culture and sensitivity test, 52(47.28%) have positive growth while 58(52.73%) has no growth. In different studies, the bacterial growth in bile culture was found at the rates of 16-60%. The most common bacteria isolated in our study was E Coli 28(25.45%) followed by Klebsiella 16(14.54%) Salmonella 3(2.73%),Shigella 2(1.81%), Pseudomonas 1(0.90) and Acinetobactor 02(1.81%).

In a study by Capoor et al 104 patients were studied. The patients were divided into three groups: Group A consisted of patients with acute cholecystitis with cholelithiasis; Group B consisted of patients with acute cholecystitis with gastrointestinal ailments requiring biliary drainage and group C consisted of patients with gallbladder carcinoma. Gallbladder, bile and gallstones were subjected to complete microbiological and histopathological examination. Bacteria were recovered from 17 samples (32%) in Group A, 17 (51.4%) in Group B and 1 (1.6%) in Group C. The most common organisms isolated were Escherichia Coli (11, 29.7%), Klebsiella (10, 27%), C Frendi (3, 8.1%), Salmonella Enterica sarover Typhi (3, 8.1%), etc. The majority of Enterobacteriacea isolates were susceptible to piperacillin-tazobactam and meropenem. As regards Salmonella spp., S Typhi was isolated from 2 (3.8%) patients in Group A and 1 (16%) in Group C. 44.

In a study by Ozturk et al, 114 patients who underwent cholecystectomy for various reasons were included in the study. Bacterial growth was isolated in the bile culture of 15 patients (13.1%). The most commonly isolated bacteria were Enterococcus species (4 pts,26.6%), E Coli(3)patients(20%), and Enterobacter spp (3 Patients,20%). The bile culture positivity rate was highest in patients with acute cholecystitis combined with cholecloolithiasis (3 patients, 100%). The bile culture bacterial growth was highest in patients over 60 years of age (10 patients, 27%) and those with concomitant diseases (9 patients, 23.6%).

In our study, on culture and sensitivity test, E Coli shows high sensitivity to Cefuroxime in 22(78.57%) cases followed by Ceftriaxone in 21 (75.00%) patients. E Coli shows high resistant to Ampicillin in 17(60.71%) patients followed by resistant to Gentamycine in 12 (42.86%) patients. Klebsiella shows high sensitivity to both Gentamycine in 13(81.25%) and Cefuroxime in 12(75%) patients. The resistant of Klebsiella was noted maximum to Ampicillin which was in 10(62.5%) patients followed by resistant to Moxifloxacin in 8(50%).

Salmonella shows high sensitivity to Cefuroxime in 3(100%) & Gentamycine in 3(100%) while the resistance was high to Ampicillin 3(100%) patients. Shigella showed high sensitivity to Gentamycine in 2(100%) & Cefuroxime in 2(100%) cases. The resistance of Shigella was noted in maximum to Ampicillin in 2(100%) patients. Pseudomonas showed high sensitivity to Cefuroxime and Gentamycine & resistance to Moxifloxacin and Ampicillin. Acinetobactor showed 100% sensitivity to gentamycine, Cefuroxime and Ceftriaxone & resistance to Ampicillin and Moxifloxacin.

Therefore antimicrobial activity against potential causative organisms, the severity of cholecystitis, and the local susceptibility pattern must be taken into consideration when prescribing drugs. Prior studies has observed excellent responses with Piperacillin Tazobactam and Meropenem with quinolones for gram negative isolates and Vancomycin for gram positive isolates being preferred.

Conclusions:
The most common bacteria of symptomatic Cholelithiasis isolated were E. Coli followed by Klebsiella, Salmonella and Shigella. These bacteria shows maximum sensitivity to Cefuroxime , Ceftriaxone and Gentamycine. The empirical antibiotics used for the treatment of symptomatic cholelithiasis must cover these common bacteria. Cefuroxime or/and Ceftriaxone and Gentamycine must be a part of empirical regime as it will help in reducing the morbidity associated with symptomatic cholelithiasis.

References:
1. Ma`ire Begley a, Cormac G.M. Gahan, , Colm Hill. The interaction between bacteria and bile. FEBS Microbiology Reviews. 29(2005)625-651

www.worldwidejournals.com
ParipeX - Indian Journal of Research

Volume-7 | Issue-2 | February-2018 | ISSN - 2250-1991 | IF : 6.761 | IC Value : 86.18