PART I : INTRODUCTION
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Recently it has been recognised that anaerobic bacteria are involved in several biliary tract diseases (Finegold 1977, Lykkegaard Nielsen & Justesen T 1976), but the exact extent of such involvement and the role of these anaerobes in biliary tract, has been difficult to determine, frequently because anaerobic microbiological methods have been inadequate. Recent technological advances in the collection, isolation and identification of anaerobic microbes have provided an opportunity to assess more completely the role of anaerobic bacteria in biliary tract.

The route of bacterial entry into a normally sterile area of biliary tract is highly debatable (Rosenow, 1921; Graham et al, 1928; Large, 1957; Kune et al, 1974; Dineen, 1964; Lykkegaard Nielsen & Justesen T 1976). Many of these investigations are chiefly carried out with aerobic bacteria. However, very recently, few studies are documented on anaerobic bacteria (Lykkegaard Nielsen, 1976). These investigations are not in agreement with each others.

With reference to animal experiments, it is held by many current workers that bacteria from the blood can somehow be excreted, through the liver, into normal biliary tract (Cameron and Hou, 1962; Dineen, 1964; Lykkegaard Nielsen, 1976). The excreted bacteria in normal biliary tract, simply passes to the intestine without giving rise to infection. However, in the extrahepatic biliary tract diseases, they can proliferate in the
bile and anaerobes as well aerobic bacteria can be detected in significant number in the contents and the wall of the gallbladder.

The presence of anaerobic bacteria in the biliary tract poses several problems: (a) It is an established fact that the presence of such organisms increases the incidence of post-operative wound infection and the infection of nearby areas. (b) The anaerobes are frequently responsible for pre and post-operative bacteremia, and occasionally septicemia and Gram negative endotoxins. (c) The retrograde liver invasion by anaerobic bacteria causes significant injuries to the liver tissue and produces micro- and macro-abscesses. (d) The presence of such microbes renders conventional antibacterial treatment ineffective. (e) Association of anaerobes with aerobes (a commonly observed phenomenon in biliary tract infections) produces synergistic action on the host. (f) Some of the anaerobes and aerobes can metabolise bilirubin, cholesterol, phospholipids and bile acids. The metabolites produced by anaerobes, do have significant role in the development of several diseases process. (g) The direct or indirect role of these bacteria are also thought to be played in the formation of gallstones and enteroliths. (h) Infected biliary tract acts as a reservoir for the contamination of bowel and hence responsible for the development of Contaminated Small Bowel Syndrome.
In view of the renewed interest in the determination of the anaerobic biliary bacteriology, the route of bacterial invasion, the subsequent significance of anaerobes in the extrahepatic biliary tract and the non-availability of such documented study carried out jointly on these aspects, in India, the present study was undertaken to investigate:

1. Whether a normal human subject harbors any microorganism in their normal gallbladder.

2. The kinds and number of microorganisms present in biliary bile of the patients whose underwent biliary tract operation.

3. The presence of anaerobes and aerobes in the blood and in the biliary tract of the subjects with clinical evidence of bacterial infection.

4. The presence of bacteria in the biliary tree and the incidence of post-operative infection in patient's who have been subjected to biliary tract operations.

5. The route of bacterial entry in to the biliary tract, Comparison with human observations and experimental findings.

6. The biotransformation of bile acids due to the presence of bacteria, in, in vitro and invivo (Human study and experimental animal study).

7. The role of direct Gram's stain of bile and the importance of thin layer chromatography to detect the presence of free bile acids in the bile in the early management of biliary tract infections.