

Isolation and identification of bacteria from cholecystitis gallbladder

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Abstract

Fourty patients were included in this study all diagnosed clinically cholecystitis and cholecystitis with stone . Bile fluid and pieces of gallbladder were collected from the operating theater then cultured , growth of pathogenic bacteria were identified by standard bacteriological tests . *Escherichia coli* represent the most common pathogene (75%) in cholecystitis,(79%) in cholecystitis with stone while β -hemolytic streptococci(12.5%) in cholecystitis, (8.3%) in cholecystitis with stone , *Klebsiella* spp. (6.25%) in cholecystitis ,(12.5%) in cholecystitis with stone ,*Proteus* spp. were isolates from cholecystitis patients(6.25%).

Introduction

The gallbladder is appear shaped sac(7.5-12.5cm) long with a normal capacity of about 30-60% of fluid but capable of considerable distension in certain pathological conditions. The gallbladder is located under the surface of the right lobe of the liver(Bailey and love's , 1995). It serves as reservoir for a substance called bile , which is produced in the liver to help the body to digest fatty foods , fat soluble vitamins like A,D,E and K , minerals and calcium (Elson,1975) . Cholecystitis refers to a painful inflammation of the gallbladder's wall , the disorder can occur once(acute) , or can recur multiple times (chronic) . Acute cholecystitis is one of the most common and major complication of gallstones (Chatziioannou *et al.*, 2000). Gall stones are solid accumulations of the components of bile , particularly cholesterol , bile pigments and calcium (Irfans *et al.*,2007) .

In most case of cholecystitis the bacteria can be cultured from the bile or gallbladder wall , the biliary infection can be caused by any type ranging from aerobic Gram- positive to Gram-negative to anaerobic organisms. Aerobic organisms cause 94% of biliary tract infection while anaerobic organisms caused the rest (Bailey and love's , 1995) .

Materials and Methods

During the period of from April 2008 till October 2008y,a total of forty bile fluid and part of gallbladder were taken from patients cholecystitis by universal bottle containing brain heart infusion broth used as transportable media .Then cultured on blood and MacCocky agar.

Samples Collecting And Processing:

Bacterial isolates were identified to the level of species using the traditional and biochemical tests according to the methods of (Collee *et al.* ,1996 and Mac faddin ,2000).

Results and discussion

All patients were suffering from cholecystitis (16 patient) and cholecystitis with stones (24 patient). The age , sex and clinical symptoms case history of the patients and are recorded in Table (1).They divided in to two groups according to the sex (11) males and (29) females and according to their age group. They result was highly incidence between (35-45) years were reliable for cholecystitis and cholecystitis with stones formations. This result agreement with Al-kinani(1983) . The increase incidence of cholecystitis with increase of age related to changing androgen – to- estrogen ratios (Ananth & Kapur,1983). Females were more susceptible to cholecystitis than males , these results agreement with Irfan , recorded that the incidence of cholecystitis increase in females because of hormonal difference due to the

effect of endogenous as well as exogenous estrogen or progesterone or both decrease the chenodeoxy cholic acid and total bile acid pools , with consequent increase in bile cholesterol secretion and saturation (Irfan *et al* .,2007).

In this study infection of gallbladder with the presence of stone was more common than without stone , this smaller to study of (Al-kinani,1983 ; WUSD , 2006). The presence of bacteria in the bile duct is an important factor in the formation of pigment gallstones (Swidsinski and Lee , 2001).

Table -1-
Relationship between age groups of patient and cases of cholecystitis and cholecystitis with stones formation .

AGE	MALE	FEMALE	CHOLECYSTITIS		CHOLECYSTITIS WITH STONES	
			Male	Female	Male	Female
15-	-	2	-	2	-	-
25-	2	-	1	-	1	-
35-	7	12	3	3	4	9
45-	1	9	1	2	-	7
55-65	1	6	-	4	1	2
Total	11	29	5	11	6	18
Percentage			12.5%	27.5%	15%	45%

Table (2) shows the type of percentage of isolated bacteria from cholecystitis case which was 16 from 40 cases . while table (3) appear results of bacterial isolates from cholecystitis with stones. The highest percentage of isolates was *Escherichia coli* and this result agreement with (Ballal *et al* ., 2001 ; Irfan *et al* , 2007) . and the high percent of *E.coli* due to activity of glucuronidase enzymatic which play an important role in formation of calcium bilirubinate gallstone formation (vinay *et al* ., 1991 ; Al-Khateji,2006)) . The other bacteria which isolated in this study agreement with previous studies such as (Ballal , 2001;Al-Harbi *et al*.,2001) .

Table -2-
The pathogenic bacteria isolated from (16) patients suffering from cholecystitis .

DIAGNOSIS	CHOLECYSTITIS			
	Males	Females	Total	Percentage
<i>E.coli</i>	4	8	12	75%
<i>Klebsiella</i> spp.	-	1	1	6.25%
<i>Proteus</i> spp.	-	1	1	6.25%
β -haolytic streptococci	1	1	2	12.5%

Table -3-
The pathogenic bacteria isolated from (24) patients suffering from cholecystitis with stone.

TYPE OF BACTERIA	CHOLECYSTITIS WITH STONE		TOTAL	PERCENTAGE
	Male	Female		
<i>E.coli</i>	5	14	19	79%
<i>Klebsiella</i> spp.	1	2	3	12.5%
<i>Proteus</i> spp.	-	-	0	-
β -haolytic streptococci	-	2	2	8.3%

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