The diagnosis of cholangiocarcinoma

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Abstract

Background

The most frequent primary hepatic malignancy is cholangiocarcinoma (CCA). Wide resections, the development of local treatment, and chemotherapy have all improved the prognosis in recent years.

Objective

To determine the diagnosis of cholangiocarcinoma

Methods

A cross-sectional study was conducted at Pakistan Institute of Medical Sciences, PIMS, Islamabad, Pakistan

which was performed between June 2023 to Feburary 2025, The total number of patients in our study were 100. The number of Male patients in our study were 55 and female were 45. For all patients, we did diagnostic tests, (CA-19-9), (MRCP, CT Scan). We also took stages of cholangiocarcinoma. We took parameters of BMI (kg/m2) for all patients. We excluded pregnant women and children in our study. Data was tabulated and analyzed by SPSS version 27.

Results

In a current study total 100 patients were enrolled. The minimum age of patients were 53 years and the maximum age of the patients were 78 years. The mean age were 65.10±7.752 years. The minimum BMI of patients were 23 (kg/m2) and the maximum BMI 39 (kg/m2). The minimum ALT were 73 and the maximum were 105 (u/l). The minimum AST were 60 and the maximum were 96 (u/l). The minimum ALP were 140 and the maximum were 250 (u/l).The mean of ALP were 181.80±24.96 (u/l).The frequency of Jaundice were not present in 30 patients and were present in 70 patients. The frequency of Itchy skin were not present in 65 patients and were present in 35 patients. The frequency of dark urine were not present in 80 patients and were present in 20 patients.

In Figure 3, we can see the treatment of cholangiocarcinoma, (Biliary drainage 10%, Chemotherapy 15%, RFA 35%, and Surgery in 40% of patients).The frequency of CA-19-9 were negative in 25 patients and were positive in 75 patients. P-Value were 0.03. The frequency of diagnose of cholangiocarcinoma on CT scan were 30 and diagnose on MRCP were 70 and its percentage were 70%.In our study P-Value were less than (< 0.05).

Conclusion

We concluded that Cholangiocarcinoma best and early diagnosis on MRCP. Stage 2 is the most common stage of cholangiocarcinoma in the study.

Keywords: Magnetic resonance cholangiopancreatography (MRCP), percutaneous transhepatic cholangiography (PTC), endoscopic retrograde cholangiography (ERC), Computed tomography (CT scan), Magnetic resonance imaging (MRI).

Introduction

Topographically, cholangiocarcinomas are classified as either extrahepatic or intrahepatic carcinomas. Additional subtypes of extrahepatic cholangiocarcinomas include heliar, intermediate, and distal carcinomas. The most common type of hilar cholangiocarcinoma is divided into four stages by the bismuth classification [1]. Epidemiological studies show that the incidence of CCA has significantly increased in developed nations [2]. Cholangiocarcinomas often grow longitudinally down the bile duct rather than radially away from it. Because of this, imaging techniques like MRI, CT, and ultrasound have a limited sensitivity for identifying cholangiocarcinomas [3]. Additionally, a case-control research discovered that iCCA, a condition whose occurrence is rapidly increasing in developed nations, is associated with risk factors such as HIV infection, liver cirrhosis, diabetes mellitus, chronic inflammatory bowel illnesses, and chronic hepatitis C [4]. Before an endoscopy, staging should be done using cross-sectional imaging. The best noninvasive method for spatially depicting the bile ducts at the moment is magnetic resonance cholangiopancreatography (MRCP), which has sensitivity and specificity comparable to diagnostic endoscopic retrograde cholangiography (ERC) and percutaneous transhepatic cholangiography (PTC). MRI combined with MRCP serves as a "route planner" for endoscopic drainage in addition to enabling the assessment of local respectability [5]. Computed tomography (CT) has a good sensitivity for tumor infiltration of the arteries and veins [6]. Measuring carbohydrate antigen 19-9 (CA19-9) can sometimes help in the diagnosis of CCA [7]. Complete surgical excision is the only treatment for CCA that may be successful. Alternative therapy approaches have not been the subject of any published randomized trials. If complete (R0) resection is thought to be feasible, then curative surgery should always be tried. The presence of distant metastases is contraindicated. R0 resection is the most important factor for a successful surgical outcome [8-9-10]. Other prognostic factors include lymph node involvement, vascular invasion, and tumor grade. The safety margin should be as large as possible since on intraoperative frozen sections, it is often impossible to exclude out tumor infiltration of the perineural sheaths [11–12]. Surgical methods include extended resections (trisectorectomy), hemihepatectomy (left or right), atypical segmentectomy, segmentoriented resection, and total lymphadenectomy [13–14]. Adenocarcinomas that are well, moderately, and poorly differentiated make up the bulk of cholangiocarcinomas; other histological

subtypes are rarely observed [15–16]. Caroli's illness and other bile duct cystic diseases are also detected early in life [17–18]. As we continue to unravel the molecular processes underlying the evolution of cholangiocarcinoma, we will focus our efforts on a customized medicine strategy when it is advanced or in the adjuvant context. Magnetic resonance imaging is equally as accurate as computed tomography (CT) for the diagnosis and staging of CCA. Among its advantages are the utilization of tailored sequences and hepato-specific contrast material to accomplish, Metformin use is associated with a decreased incidence of intrahepatic cholangiocarcinoma in patients with diabetes, according to recent research examining risk factors for the disease's development [19]. Diffusion-weighted imaging (DWI) and MR cholangiopancreatography (MRCP) are helpful in distinguishing between iCC and HCC. The sensitivity of a liver biopsy depends on its location, size, and operator skill. Core biopsies are required for a definitive diagnosis, and the needle size should range from 19 to 21 gauge, depending on the anatomical location of the lesion and coagulation factors [20].

MATERIALS AND METHODS

A cross-sectional study was conducted at Pakistan Institute of Medical Sciences, PIMS, Islamabad, Pakistan which was performed between June 2023 to Feburary 2025, The total number of patients in our study were 100. The number of Male patients in our study were 55 and female were 45. For all patients, we did diagnostic tests, (CA-19-9), (MRCP, CT Scan). We also took stages of cholangiocarcinoma. We took parameters of BMI (kg/m2) for all patients. We excluded pregnant women and children in our study. Data was tabulated and analyzed by SPSS version 27.

Inclusive criteria: Included all patients who have cholangiocarcinoma.

Exclusive criteria: We excluded pregnant women and children.

Results

Table 1: Mean age, BMI, ALT, AST and ALP of all the enrolled patients (*n=100*)

Variables	Minimum	Maximum	Mean±SD
Age (Years)	53	78	65.10±7.752
BMI (kg/m2)	23	39	30.10±4.322
ALT (u/l)	73	105	87.85±10.072
AST (u/l)	60	96	78.40±9.344
ALP (u/l)	140	250	181.80±24.96

In a current study total 100 patients were enrolled. The minimum age of patients were 53 years and the maximum age of the patients were 78 years. The mean age were 65.10±7.752 years. The minimum BMI of patients were 23 (kg/m2) and the maximum BMI 39 (kg/m2). The minimum ALT were 73 and the maximum were 105 (u/l). The minimum AST were 60 and the maximum were 96 (u/l). The minimum ALP were 140 and the maximum were 250 (u/l).The mean of ALP were 181.80±24.96 (u/l).

Table 2: Frequency and Percentage of Gender (n=100)

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
F	45	45.0	45.0	45.0
M	55	55.0	55.0	100.0
Total	100	100.0	100.0	

In the above table 2, the frequency of Female patients were 45 and the percentage were 45.0. The cumulative percent were the same 45. The frequency of male patients were 55 and the percentage were 55.0. Total number of patients were 100 (100 %) in our study.

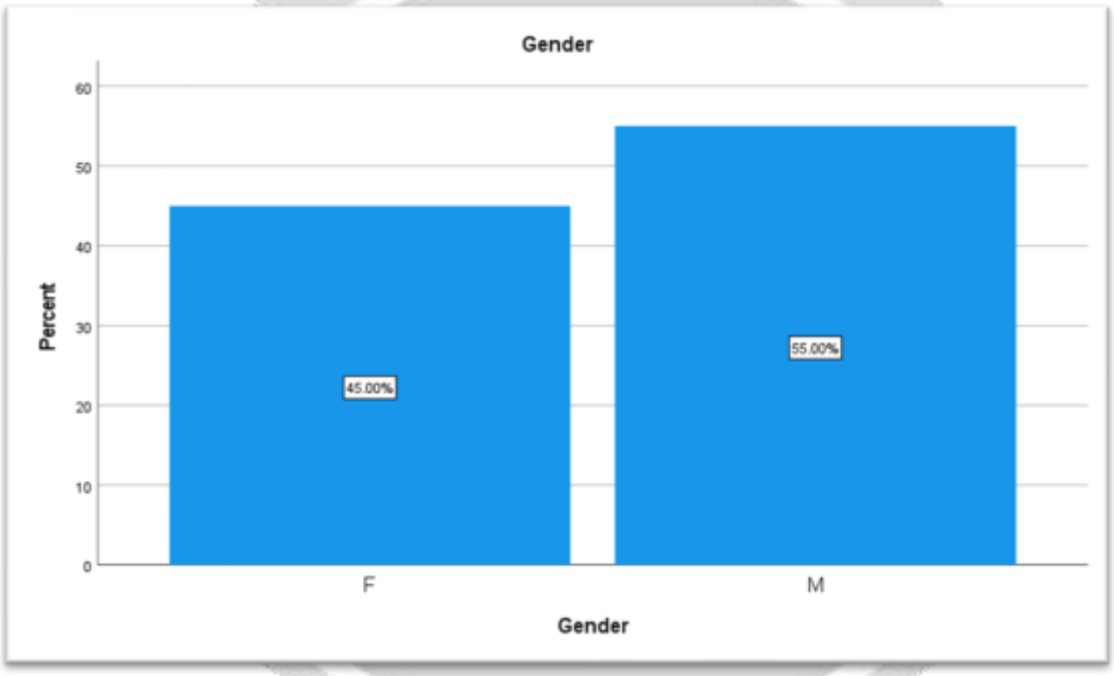

Figure 1: Bar chart of gender distribution.
In Figure 1, we did a gender distribution, we can see the male and female patient frequency in the above bar chart.

Table 3: *Patient characteristics of enrolled patients (n=100)*

Variables	**Frequency**	**Percentage**	**P-Value**
Jaundice			
NO	30	30.0	
YES	70	70.0	0.04
Itchy skin			

NO	65	65.0	
YES	35	35.0	
Dark urine			
NO	80	80.0	
YES	20	20.0	
Fever			
NO	85	85.0	0.03
YES	15	15.0	
Loss of appetite			
NO	70	70.0	
YES	30	30.0	
Chronic Liver disease			
NO	80	80.0	
YES	20	20.0	
Diabetes			
NO	85	85.0	
YES	15	15.0	
Smoking			
NO	70	70.0	
YES	30	30.0	
CA-19-9			
Negative	25	25.0	0.03
Positive	75	75.0	
Diagnose on			
CT Scan	30	30.0	
MRCP	70	70.0	
Complications			
Cirrhosis	15	15.0	
Infection	20	20.0	
NO	65	65.0	

The current study included a total of 100 patients with cholangiocarcinoma whose characteristics are summarized in

Table 3. The frequency of Jaundice were not present in 30 patients and were present in 70 patients. The P-value were 0.04. The frequency of Itchy skin were not present in 65 patients and were present in 35 patients. The frequency of dark urine were not present in 80 patients and were present in 20 patients.

The frequency of fever were not present in 85 patients and were present in 15 patients and its P-value were 0.03. The frequency of loss of appetite were not present in 70 patients and were present in 30 patients. The frequency of chronic liver disease were not present in 80 patients and were present in 20 patients. The frequency of diabetes were not present in 85 patients and were present in 15 patients.

The frequency of smoking were not present in 70 patients and were present in 30 patients. The frequency of CA-19-9 were negative in 25 patients and were positive in 75 patients. P-Value were 0.03. The frequency of diagnose of cholangiocarcinoma on CT scan were 30 and diagnose on MRCP were 70 and its percentage were 70%.

The frequency of complication cirrhosis were 15 , infection were 20 and were no infection 65 patients.

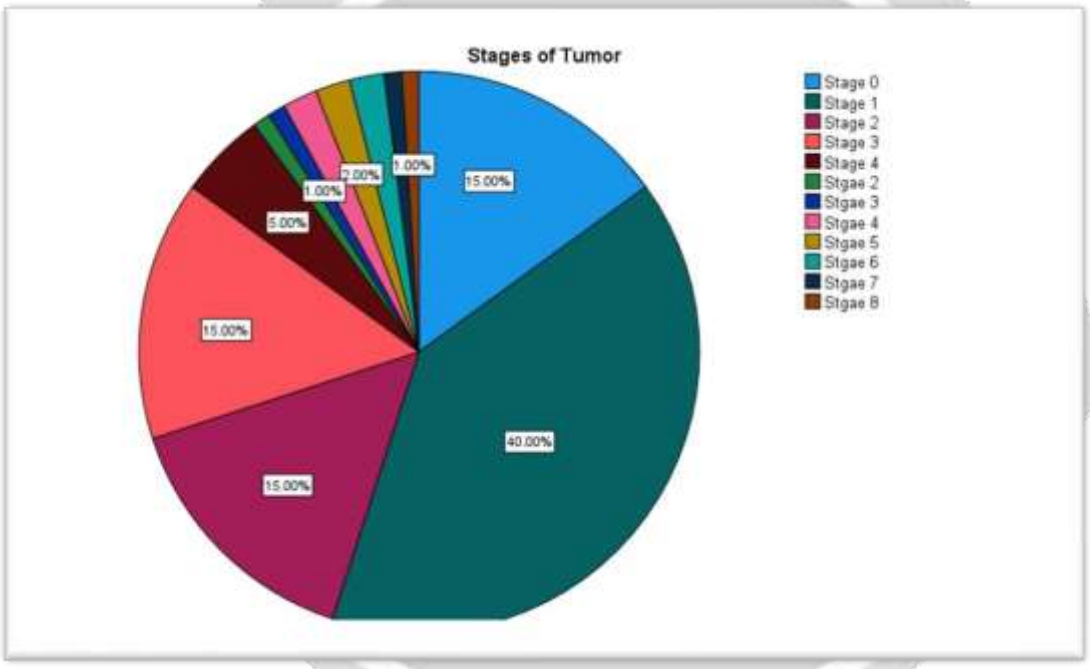

Figure 2: In Figure 2, we can see the stages of Tumor in the above pie chart.

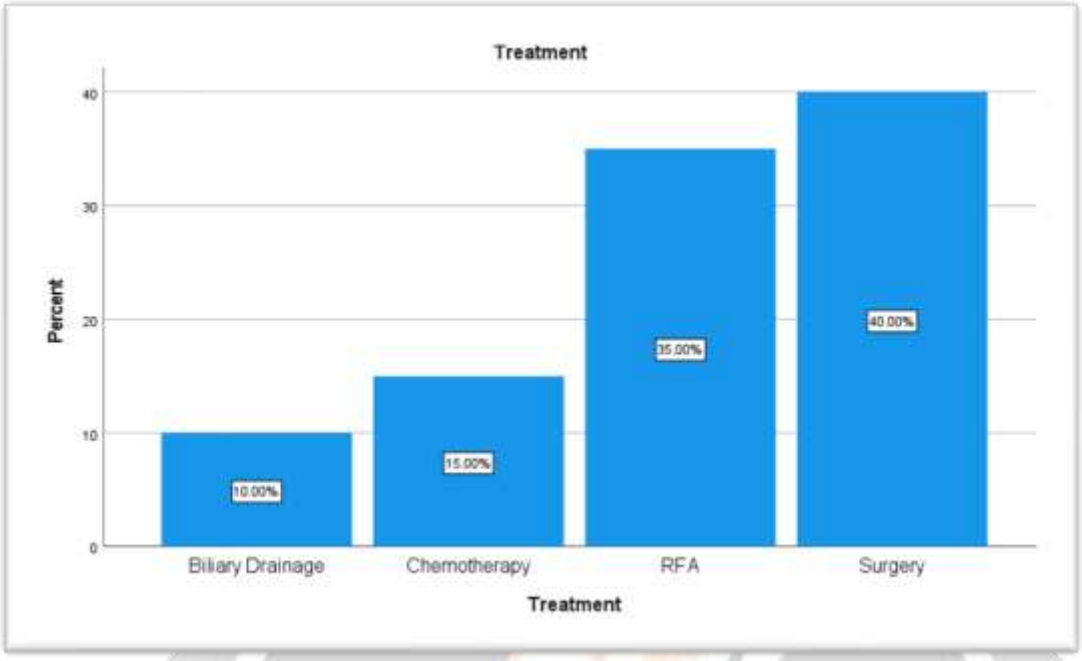

Figure 3: In Figure 3, we can see the treatment of cholangiocarcinoma, (Biliary drainage 10%, Chemotherapy 15%, RFA 35%, and Surgery in 40% of patients).

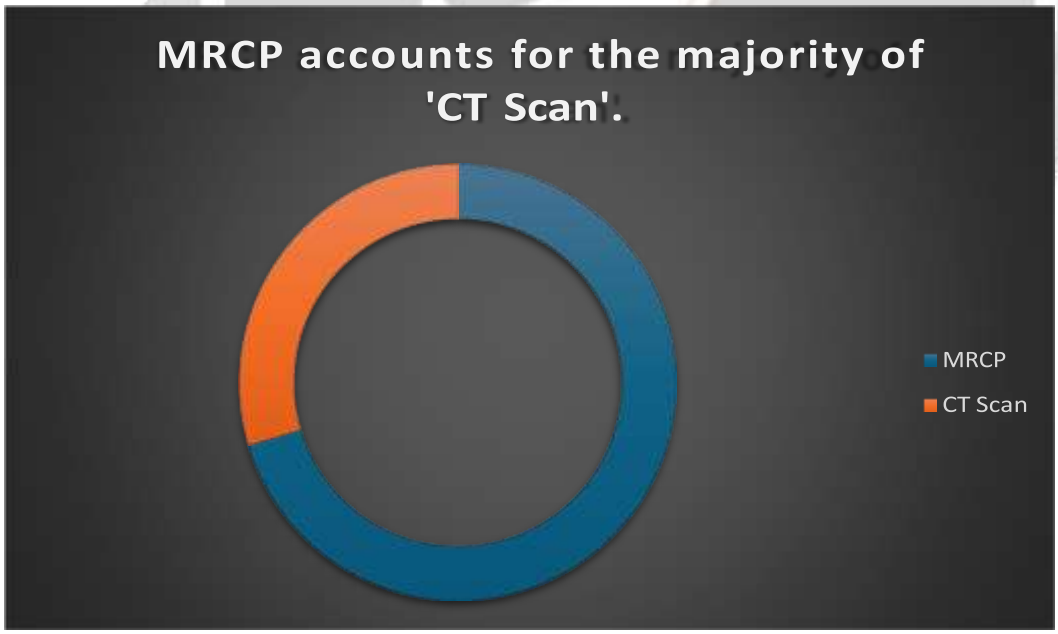

Figure 4: MRCP versus CT scan.

Discussion

The only possibly curable therapeutic options for CCA are surgical procedures. However, the majority of patients with CCA are diagnosed at a late stage of the cancer, and 10% to 45% of patients who were thought to be resectable are found to be unresectable during exploratory laparotomy [21-22-23]. Surgical resection is the suggested treatment for CCA. Conditions that prevent surgical resection include distant metastases, bilateral, multifocal disease, and comorbidities where the risks of surgery outweigh the expected benefits [24]. Postoperative morbidity and mortality rates have decreased in recent years [25]. Even with careful preoperative staging, over half of patients still appear to have locally advanced tumors or metastases (liver, peritoneal, or nodal) during exploratory laparotomy. At SL, hepatic and peritoneal metastases are readily detectable, as our meta-analysis showed [26]. A previous systematic analysis on staging laparoscopy in proximal bile duct tumors included patients with gallbladder cancer from these series and trials with gallbladder carcinomas alone . Most of the studies in this systematic review showed poor accuracy in detecting locally advanced disease or nodal metastases. These numbers explain why only a small portion of patients actually benefit from this additional procedure [27].

CONCLUSION: We concluded that Cholangiocarcinoma best and early diagnosis on MRCP. Stage 2 is the most common stage of cholangiocarcinoma in our study.

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