(RESEARCH ARTICLE)

The diagnosis and treatment of cholangiocarcinoma

Faisal Kamal *, Sachin, Pankaj Kumar Rana and Anuj Kumar Pandey

Xinjiang Medical University, The first affiliated hospital of Xinjiang Medical University.

Abstract

Background: Cholangiocarcinoma (CCA) is the second most common primary hepatic tumor. In recent years, its prognosis has improved because of wide resections and the establishment of local treatment and chemotherapy.

Objective: To determine the diagnosis and treatment of cholangiocarcinoma

Methods: A cross-sectional study was conducted at First affiliated hospital of Xinjiang Medical University, Urumqi, Xinjiang, China which was performed between December 2023 to July 2024, 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. For treatment, we used surgery, RFA procedure and chemotherapy. 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. Surgery and RFA are the two good methods for the treatment of cholangiocarcinoma. Stage 2 is the most common stage of cholangiocarcinoma in our study.

Keywords: Magnetic resonance cholangiopancreatography (MRCP); Percutaneous transhepatic cholangiography (PTC); Endoscopic retrograde cholangiography (ERC); Computed tomography (CT scan); Magnetic resonance imaging (MRI)

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* Corresponding author: Faisal Kamal

1. Introduction

Cholangiocarcinomas are topographically categorized as intrahepatic or extrahepatic carcinomas. Hilar, intermediate, and distal carcinomas are further subtypes of extrahepatic cholangiocarcinomas. The bismuth classification divides the most prevalent kind of hilar cholangiocarcinoma into four stages [1]. The incidence of CCA has sharply increased in developed countries, according to epidemiological data [2]. Instead of growing radially away from the bile duct, cholangiocarcinomas frequently grow longitudinally along it. As a result, the sensitivity of imaging methods such as MRI, CT, and ultrasound for cholangiocarcinoma identification is low [3]. A case-control study also found that HIV infection, liver cirrhosis, diabetes mellitus, chronic inflammatory bowel disorders, and chronic hepatitis C are risk factors for iCCA, a condition whose incidence is sharply rising in developed countries [4]. Cross-sectional imaging should be used for staging prior to endoscopy. With sensitivity and specificity comparable to diagnostic endoscopic retrograde cholangiography (ERC) and percutaneous transhepatic cholangiography (PTC), magnetic resonance cholangiopancreatography (MRCP) is currently the best noninvasive technique for spatial depiction of the bile ducts. In addition to allowing for the evaluation of local respectability, magnetic resonance imaging (MRI) with MRCP also acts as a "route planner" for endoscopic drainage [5]. The sensitivity of computed tomography (CT) for tumor infiltration of veins and arteries is good [6]. In certain cases, the diagnosis of CCA can be aided by the measurement of carbohydrate antigen 19-9 (CA19-9) [7]. The only possibly effective treatment for CCA is total surgical resection. There are no published randomized trials of alternative therapeutic methods. Curative surgery should always be attempted when complete (R0) resection is regarded as possible. A contraindication is distant metastases. The most crucial element for a favorable surgical outcome is R0 resection [8-9-10]. Tumor grade, vascular invasion, and lymph node involvement are additional prognostic variables. Since it is frequently impossible to completely rule out tumor infiltration of the perineural sheaths on intraoperative frozen sections, the safety margin should be as high as feasible [11-12]. Atypical segmentectomy, segment-oriented resection, hemihepatectomy (left or right), expanded resections (trisectorectomy), and total lymphadenectomy are among the surgical procedures performed [13–14]. The majority of cholangiocarcinomas are adenocarcinomas that are well, moderately, and poorly differentiated; other histological subtypes are infrequently seen [15–16]. Patients with bile duct cystic disorders, such as Caroli's disease, are also diagnosed at an early age [17–18]. We will concentrate our efforts on an individualized medicine approach for cholangiocarcinoma when it is advanced or in the adjuvant context as we continue to dissect the molecular pathways behind its progression. For the diagnosis and staging of CCA, magnetic resonance imaging is just as accurate as CT. Its benefits include the use of hepato-specific contrast material and specialized sequences to achieve, Recent research analyzing risk factors for the development of intrahepatic cholangiocarcinoma highlights the link between metformin use and a lower incidence of this disease in patients with diabetes [19]. MR cholangiopancreatography (MRCP) and diffusion-weighted imaging (DWI) are useful for differentiating between HCC and iCC. Location, size, and operator skill all affect how sensitive a liver biopsy is. For a conclusive diagnosis, core biopsies are necessary, and the needle size used should be between 19 and 21 gauge, depending on the lesion's anatomical location and coagulation variables [20].

2. Materials and methods

A cross-sectional study was conducted at First affiliated hospital of Xinjiang Medical University, Urumqi, Xinjiang, China which was performed between December 2023 to July 2024, 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. For treatment, we used surgery, RFA procedure and chemotherapy. 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.

3. 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).

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

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.
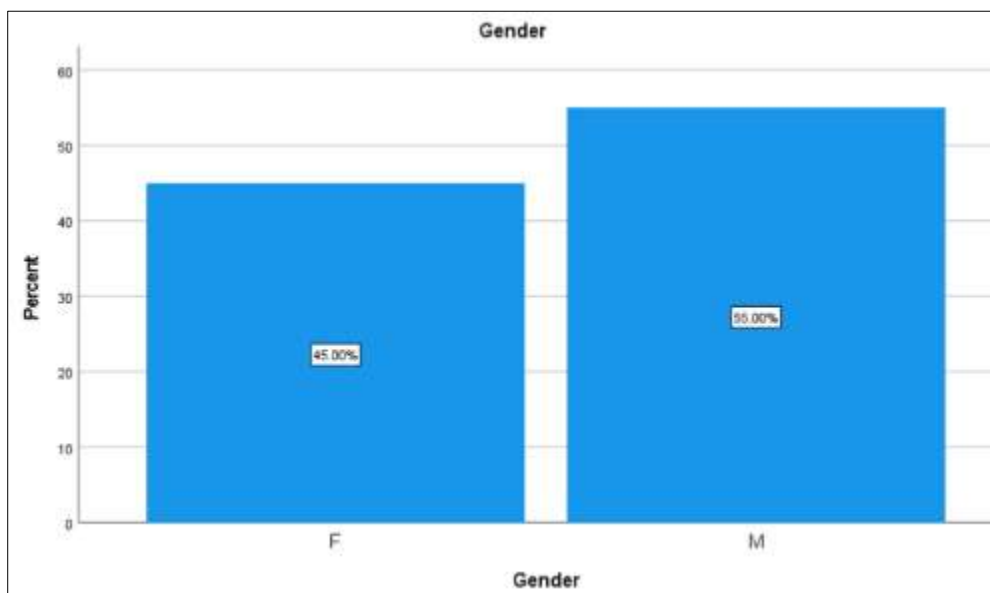
Figure 1 Bar chart of gender distribution

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

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.

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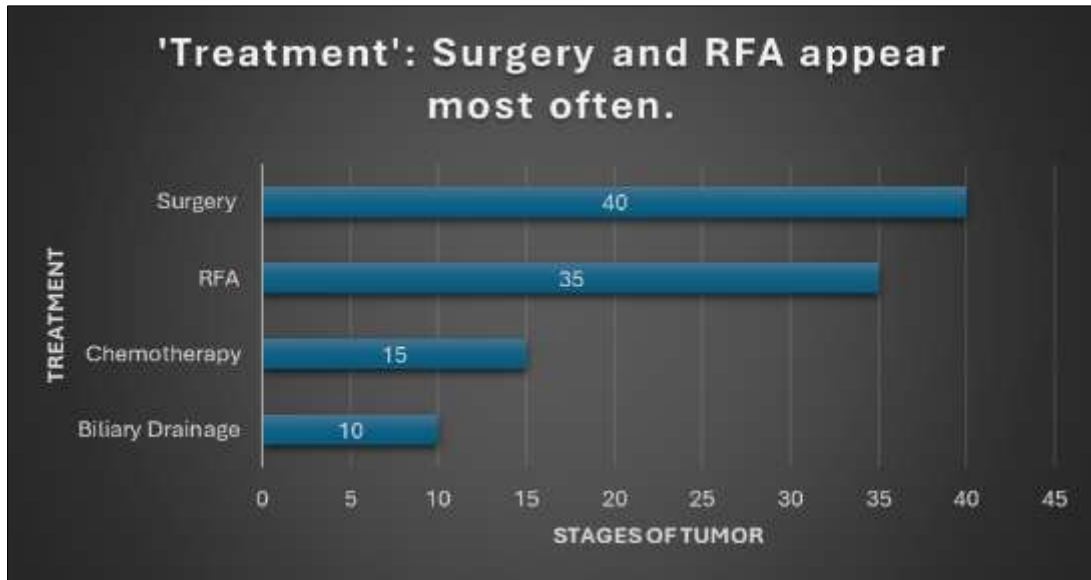
The frequency of complication cirrhosis were 15 , infection were 20 and were no infection 65 patients.
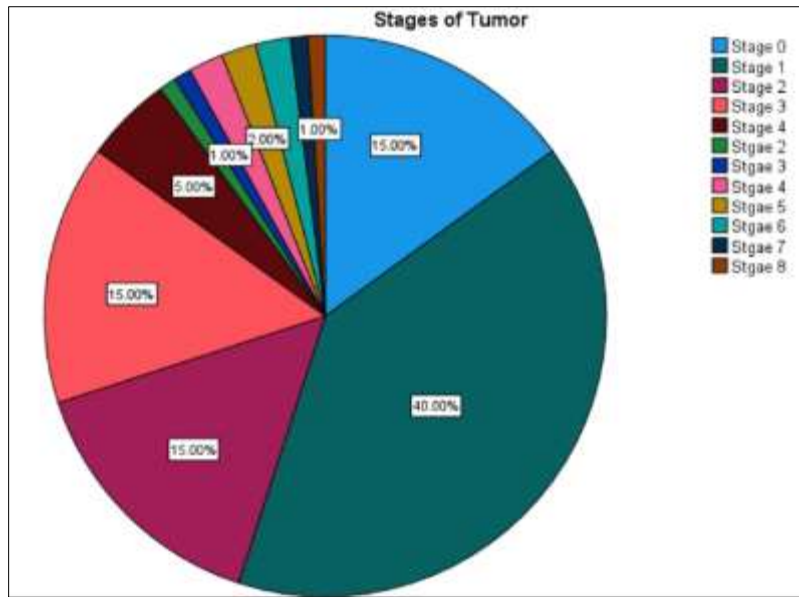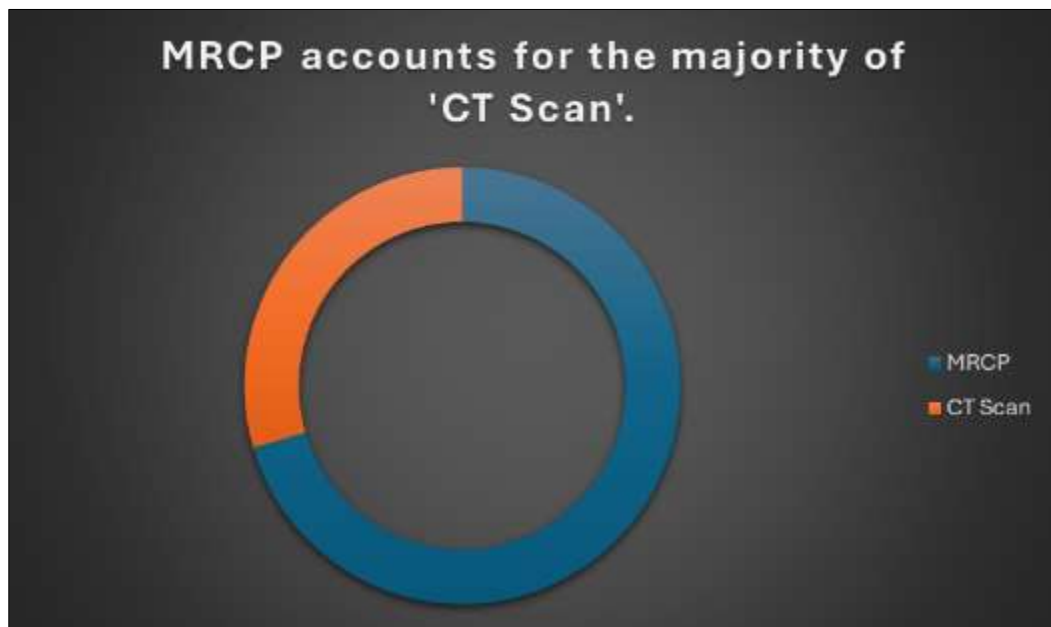

Figure 2 Stages of Tumor in the above pie chart
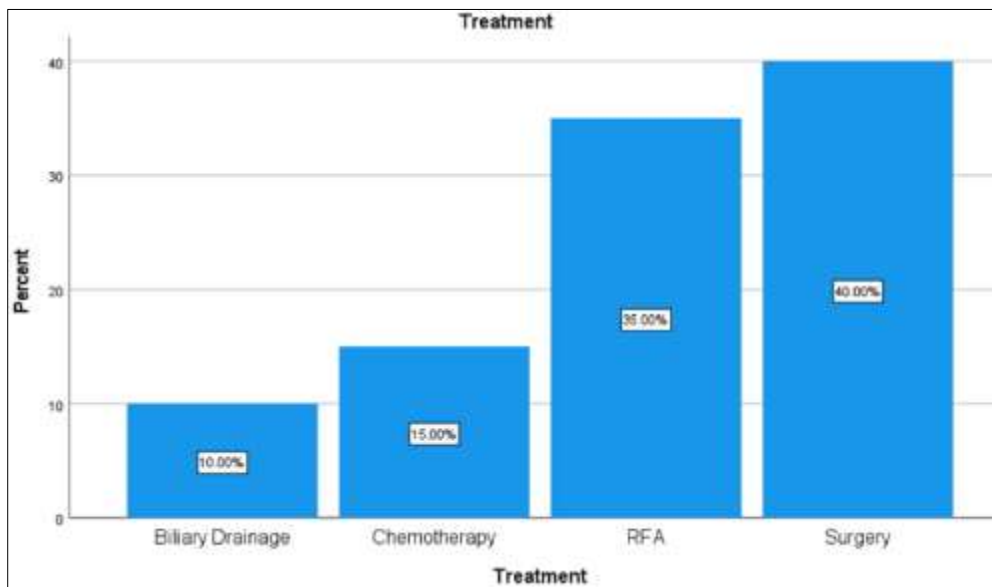
Figure 3 Treatment of cholangiocarcinoma, (Biliary drainage 10%, Chemotherapy 15%, RFA 35%, and Surgery in 40% of patients)

Figure 4 Surgery and RFA appear most

Figure 5 MRCP versus CT scan

4. Discussion

Surgical treatments are the only potentially curative therapeutic options for CCA. However, 10% to 45% of patients who are thought to be resectable are shown to be unresectable after exploratory laparotomy, and the majority of CCA patients receive their diagnosis at a late stage of the disease [21-22-23]. The recommended course of treatment for CCA is surgical resection. Bilateral, multifocal disease, distant metastases, and comorbidities where the risks of surgery exceed the anticipated benefits are among the conditions that preclude surgical resection [24]. In recent years, rates of postoperative morbidity and mortality have declined [25]. Nearly half of patients still seem to have locally progressed tumors or metastases (liver, peritoneal, or nodal) after exploratory laparotomy, even with thorough preoperative staging. Our meta-analysis demonstrated that liver and peritoneal metastases are easily identifiable at SL [26]. Gallbladder cancer patients from these series, as well as trials with gallbladder carcinomas only, were included in a prior systematic review on staging laparoscopy in proximal bile duct tumors [27]. The majority of the studies in this

systematic review demonstrated low accuracy in identifying nodal metastases or locally progressed illness. Only a small percentage of patients truly benefit from this extra operation, which is explained by these figures. Additionally, during the past ten years, preoperative imaging using CT and MRI has significantly improved, making it simpler to identify locally advanced illness, lymph node metastases, and (extra)hepatic metastases [28].

5. Conclusion

We concluded that Cholangiocarcinoma best and early diagnosis on MRCP. Surgery and RFA are the two good methods for the treatment of cholangiocarcinoma. Stage 2 is the most common stage of cholangiocarcinoma in our study.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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