

Ampullary carcinoma incidence and diagnostic approach experience in GIT teaching hospital

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Abstract

Aim:

studying the problem and diagnosis of ampullary carcinoma in Iraq and comparing it with other world reports.

Materials and Methods: prospective and retrospective study of 56 patients with ampullary carcinoma carried out in GIT CENTER (tertiary center) from January 2004 to December 2007. The incidence of ampullary carcinoma, their age, sex, clinical presentation, diagnosis, types, are studied

Results

37 (66.1%) were male and 19 (33.9%) were females, for age the mean age was (49.1), distribution of residency they were mainly from Baghdad 42%, presenting symptom were jaundice in 65%, Duration of illness (peak is 1-2 months) mean period is (4.5) days.

US study reveals that gall bladder was distended in 82%, CBD dilated in 98%, tumor found in 45%, dilated pancreatic duct found in 62.5%,

Hepatomegaly

in 30.4%, dilated intrahepatic duct in 78%, and liver secondaries in 5.3% Sensitivity of ERCP were 100% comparing to 45% to US

Conclusion

Ampullary carcinoma is relatively common cancer. The mean age is 49.1 years lower than the western studies Sex: male are affected 2 times more than female with male: female ratio = 1.95 Residency: they are mainly from Baghdad, Jaundice is the main presenting symptom, and Average duration of symptoms was 6 weeks. Abdominal ultrasound is very informative but ERCP is the corner stone for the diagnosis, Normal looking papilla does not rule out occult ampullary tumor.

INTRODUCTION

Carcinoma of the ampulla of Vater is a malignant tumor arising in the last centimeter of the common bile duct where it passes through the wall of the duodenum and ampullary papilla [1, 2, 3] Distinction between true ampullary carcinoma and periampullary tumor is critical to understanding the biology of these lesions, each

type of mucosa produce different pattern of mucous secretion in complete histochemical study. Dawson divide acid mucin into sulphomucins and sialomucins and demonstrate that ampullary tumor secrete sialomucin had a better prognosis 100% versus 27% 5 years survival [4, 5]

In general, ampullary cancer produces

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sialomucin whereas perianampullary tumor secretes sulphated mucin. Adenocarcinoma is the most common type of perianampullary carcinoma [2, 6, 7, 8]

MATERIALS & METHODS

Retrospective and prospective study of 56 patients with ampullary carcinoma carried out in GIT CENTER

(the main GIT tertiary center in Iraq) from January 2004 to December 2007.

The incidence of ampullary carcinoma, their age, sex, clinical presentation, diagnosis, types, are studied, during that period total admission was 3764 cases, 573 of them were having GIT malignancies.

Management of these cases either was totally in the GIT Center or maybe partially in the GIT Center and partially in other hospitals including the Nursing Home. Different surgeons managed the cases.

45 patients underwent operations.

-7 patients had endoscopic stenting.

-4 patients refused surgery.

Those patients, who underwent endoscopic stenting, are in advanced stage or unfit for general anesthesia or both. I estimate the age, sex, residency and presenting symptoms. Risk factors were not included because there is little data available.

Preoperative laboratory studies included complete blood picture, blood urea, serum creatinine, serum electrolyte, fasting blood sugar, prothrombin time, partial thromboplastin time and liver function tests.

electrolyte, fasting blood sugar, prothrombin time, partial thromboplastin time and liver function tests.

Abdominal ultrasound was done for all the patients; review of gall bladders if normal, removed, distended or gall bladder stones were present.

Common bile duct also checked if normal, dilated, presence of tumor and if containing stones.

Pancreatic duct if normal or dilated.

Liver: normal, hepatomegaly, dilated IHD and liver secondaries. ERCP+

Biopsies were taken for all patients. We compared the sensitivity of ERCP and the ultrasound in diagnosis.

CT was done in 21 patients only. MRI was done in only 17 patients.

RESULTS

56 patients with Ampullary carcinoma were included. They represented 1.7% of the total admissions to the GIT Center during this period (3764 patients), and 9.7% of the GIT malignancies. 37 of them were males (66.1%) and 19 were females 33.9% with male to female ratio equal to 1.94/1. Figure 1

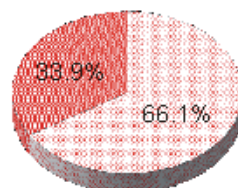


Figure (1) Sex distribution.

The age ranged between 18-80

years with mean age was 49.1 years and a peak incidence of 50-59 years (Figure 2).

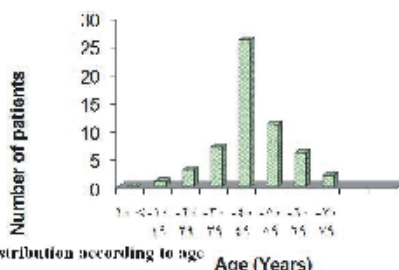


Fig (2) distribution according to age

Distribution according to residency

Distribution of patients according to residency, they were mainly

from Baghdad 42% followed by Nasriya 9%

Presenting symptoms

Jaundice was the presenting symptom in 65% followed by palpable gall bladder in 53.4%, loss

of weight encountered only in 42% of patients;

Itching was present in 48% and 1 patient presented as melena 1.7%

Duration of symptoms

ranged between 10 days and 1 year with a peak between 1-2 months, mean period was 45 days

Laboratory investigations Hemoglobin below 8 g/dl found in one patient only, (8.1-10) in

12 patients, between 10.1-12 in 20 patients, 12.1-14 in 17 patients and between 14.1-16 in 6 patients. TSB was normal in patients 18.8%.

It had a peak between 10-20 mg/dl (in 23 patients 41%). ESR was elevated in 80 % of the patients it range between (50-100mm/hr) in 45 patients.

Liver enzymes SGOT and SGPT were elevated in 31 patients; alkaline phosphatase was elevated in 88% of the cases. US was done with Doppler study for all by which we assessed the gall bladder 16% were normal (9 cases). Five patients had cholecystectomy 9%, 46 patients 75 % had distended gall bladder, 5

patients of them had gall bladder stones.

C.B.D. was normal in one patient 1.7% dilated in 55 patients 98.3% and tumor was found in 25 patients 4

5% Dilated pancreatic duct was found in 35 patients 62.5%.

Liver was found to be normal in size in 39 patients 69.7%.

Hepatomegaly was found in 30.3 % while dilated I.H.D found in 44 patients 78%.

Liver secondaries were found in 3 cases 5.3%.

We studied and compared ultrasound and ERCP findings (Tables 1). Sensitivity was found to be 100% in ERCP in the diagnosis of Ampullary mass compared to 45% in ultrasound.

Table (1) Ultrasound and ERCP of 56 patients

Pathology	Ultrasound		ERCP	
	Number of patients	Percentage	number of patients	Percentage
Ampullary mass	25/56	45	56/56	100
Common bile duct dilatation	55/56	98	56/56	100
IHD dilatation	44/56	78	56/56	100
Pancreatic duct dilatation	35	62.5	17/56	30
Overall sensitivity	98/96	88	56/56	100

Dilated C.B.D. was 100% accurate in ERCP compared to 98% in ultrasound. IHD dilated was 100% in ERCP compared to 78% in ultrasound. Pancreatic duct was found to be dilated in 62.5% in ultrasound compared to 30% in ERCP.

Operative findings

were recorded in all patients:

Gall bladder was distended in 71%, removed in 9% and normal in 20%.

C.B.D. was dilated in all patients 100%. Liver secondaries were found in 4 cases.

The numbers of patient's sustained operations were 45 patients

those who sustained resection were 26 patients.

19 patients had radical resection (Whipple procedure) and 7 patients had local resection. Palliative procedures were done in 19 patients with different type of bypass operations. 7 patients had sustained endoscopic stenting because the tumor was advanced and 4 patients refused surgery.

DISCUSSION

The age was compared with other studies (Table 2) outside Iraq. In our study, it ranged between 40-50 years. In 45 cases 51%, mean age is 49.1 years.

Table (2) Age incidence in different studies.

Item	Philippines society ⁽²⁸⁾	Our study	Blumgart[9]
Mean age	61	49.1	65
Peak	61-70	40-50	61-70

We compared our study with Philippines society of Gastroenterology (PSG) and with Blumgart studies.

We had lower age incidence (mean age)

compared to both studies (Table 2).

Concerning sex, we compared our study with (PSG) (Blumgart) and Mehta study.

Table (3) Sex incidence in different studies.

	Our study	PSG	Blumgart	Mehta [1]
M/F	1.95	1.27	1.2	1/1

Sex distribution was more in males than females about 2/1 times while the difference in distribution between M/F was less clear in western studies; PSG, Blumgart and Mehta (Table 3).

In relation to residency, patients were mainly from Baghdad, 42% followed by Nasriya 9% patients. The most common presenting symptom was jaundice, which consisted 65. % in our studies

while this was slightly higher in western studies (Table 4).

Weight loss was the main presenting symptom in Blumgart study 90% while in our study it constituted only 42%.

Pruritis: was the presenting symptom in 48% and higher than western studies.

Unusual presentation was fever only in one patient 1.7%, melaena in 1 patient 1.7%.

Table (4) Presenting symptoms in different studies.

Item	Our study %	PSG %	Euro J. 2000[11] %	Blumgart %
Weight loss	42	32	69	90
Abdominal mass	9	8	6	5
Pain	49	48	38	81
Jaundice	65	92	88	73
Anorexia	45	32	30	43
Palpable gall bladder	53.4	38	50	42
Malaise	32	28	30	35
Melaena	1.7	0	0	0
Fever	1.7	0	0	0
Pruritis	48	47	37	32
Cholangitis	25	24	21	30

Duration of Symptoms

The duration of symptoms was below 2 months in 73.4%, 1-2 months in 30% (peak) and they ranged between 2 weeks and 1 year.

Table (5) Bio chemical results in different studies.

Biochemical Study	Our study	PSG	Blumgart
Alkaline Phosphatase	88 %	77%	%
SGOT, SGPT	55 %	66%	%
Bilirubin	82 %	38%	41%
Hb%	24 % below 10 gm	15%	%
ESR	80 %	%	%
Blood Sugar	%	%	% in 80 %

Biochemically there was significant elevation in alkaline phosphatase, which was in 88% in our study slightly higher than that in western studies (Table 5).

Total serum bilirubin was elevated in about 82% in our study while it constituted 38% in PSG and 41% in Blumgart studies.

Elevated level of TSB and alkaline phosphatase were more dependable than liver enzymes in assessing such tumor, such finding were also reported in the western literatures [2, 3]. ESR was elevated in 80

% of the patients with about 50% of them were above 50. In our study, hemoglobin was

below 10 gm/dl in 24%. It is more than that of PSG, which was only 15%, was anemic. This anemia may be due to the development of bleeding from friable tumor [10].

We compared the accuracy of ultrasound with ERCP in the diagnosis of ampullary carcinoma as well as to assess the sensitivity of our ultrasound record (Table 6).

**Table (6) Ultrasound findings in our study in comparison
With PSG study.**

Ultrasound	Our study %	PSG study
Distended gall bladder	82	22% (2/9 case)
C.B.D. Dilated*	98	100%
Dilated pancreatic duct*	62.5	11% (1/9 case), (2/9 case missed)
Dilated IHD*	78	44% (4/9 case), (3/9 case missed)

* The figures represent percentage of accuracy when compared with the ERCP.

When we compared ultrasound of our study that was done by different doctors with that of (PSG), we found that the accuracy of our ultrasound is relatively good.

We found distended gall bladder in 82% while that of PSG was only 22%, C.B.D. was dilated in 98% compared to 100% in PSG study, while pancreatic duct was dilated in 62.5% compared to 11% in PSG. Dilated IHD 78% vs.

44%. ERCP should be the next investigation after ultrasound as endoscopy allows direct inspection of the medial wall of the duodenum and clear visualization of the papilla [2].

We compared ERCP to ultrasound in the diagnosis of ampullary carcinoma; we found that ERCP is the cornerstone in the diagnosis. It was accurate in diagnosis of tumors in 100% compared to 45

% by ultrasound also in assessing C.B.D. dilatation and IHD dilatation. In the diagnosis of pancreatic duct dilatation, it was less accurate than ultrasound. ERCP is relatively accurate in the diagnosis of mass or tumor and can take biopsy from it.

Biopsy during ERCP may be carefully done, as normal looking papilla does not rule out occult ampullary tumor. [3, 16, 18, 19, and 20].

In our study, we had depended on ultrasound and ERCP for diagnosis and staging.

CT and MRI although useful, there is limited data about them.

Endoscopic Ultrasound [12, 13, 21, 22, 23]

It was newly practicing in the GIT Center and no available data were found. It is potentially useful in the evaluation of ampullary tumor with respect to invasion of duodenal wall and pancreas. It is superior to conventional sonography, CT scan and angiography in

CT scan

It was done in 21 cases only in which revealed secondaries in the first stone and the tumor found to be unresectable in the second one. It can detect liver metastasis greater than 2 cm but approximately 30% of metastases are smaller and therefore not routinely detected, furthermore, peritoneal and omental metastases are usually only 1-2 mm in size and can be detected only by direct visualization [2,9,13].

Diagnostic Laparoscopy [4, 14, 24]

It is useful in selected cases for tumor staging, otherwise its usefulness in diagnosis is limited about (10-15%) with risk of trocar metastasis and risk of later laparotomy is 30%.

MRI^{14,20}

In our study was done in 17 patients, in 10 of them diagnosis was confirmed and in 7 it revealed the tumor was unresectable.

They are by no mean 100% accurate is equal or even superior to other staging methods. It is probably can replace most of these because it produces an (All in One) investigation.

Operative Findings The tumor was reported in all cases. The average size was 1-7 cm. Gall bladders and C.B.D. state relatively resembled that of ultrasound findings. Liver secondaries were

found in five cases, i.e. 2 cases were missed. Those that were missed were all below 2 cm in size.

Conclusion

Incidence: Ampullary

carcinoma is relatively common cancer. It represents 2% of total admissions and 10% of the GIT malignancies admitted to the GIT Center. Age

incidence: the mean age is 49.1 years lower than the western studies. Sex: male are affected 2 times more than female with male: female ratio = 1.94 more than that recorded by the western studies, which were equal, or with very slight difference. Residency: they are mainly from Baghdad followed by Al-Nasriya. Jaundice is the main presenting symptom, which is fluctuating in nature with pruritis to a lesser degree. Average duration of symptoms was 6 weeks.

Abdominal ultrasound is very informative but ERCP is the cornerstone for the diagnosis and also in assessing the histopathology by taking biopsy.

Biopsy may be carefully done, as normal looking papilla does not rule out occult ampullary tumor.

Whipple operation is the standard treatment while

Local resection is preserved for selected cases

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