LIBYAN INTERNATIONAL JOURNAL OF ONCOLOGY

Original article

Morbidity and Mortality of Surgical Treatment approaches in Pancreatic Cancer Patients in National Cancer Institute, Misurata, Libya

Citation: Zubia N, Elturki A, Abusanuga M, Juwid A, Amer S, Al Khazraji B. Morbidity and Mortality of Surgical Treatment approaches in Pancreatic Cancer Patients in National Cancer Institute, Misurata, Libya. Libyan Int J Oncol. 2024;3(1):10-13.

Received: 18-01-2024
Accepted: 19-04-2024
Published: 04-07-2024

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Funding*: This research received no external funding.*

Conflicts *of Interest: The authors declare no conflict of interest.*

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Abstract

Pancreatic carcinoma is relatively rare. However, it is one of the most lethal cancers, with incidence rates close to mortality rates. It is the eighth leading cause of cancer deaths. Here we provide an update of the clinic-pathological features of pancreatic cancer cases that diagnosed at National Cancer Institute, Misurata, Liby, as well as their surgical treatment modalities and outcome at National Cancer Institute Misurata, Libya. This is a retrospective clinico-pathological study of pancreatic cancer cases registered in our institute from July 2005 to Dec 2020. Information regarding patients' details were retrieved from their files. Information included socio-demographic data, tumor stage, histopathological type and grade, and surgical treatment modalities. During the study period, a total of 247 pancreatic malignancies were registered. Of these, 110 (44%) were histopathologically confirmed. The diagnosis in the remaining patients was based on clinical and radiological basis. Male to female ratio of 1.6:1. The age ranged from 27-90 years with a median age of 60 years. The head was the most common site for pancreatic tumor in 140 (56%) cases followed by the body and tail. Adenocarcinoma was the most common histopathological tumor in 104 (94%) patients. Twenty-one (8.5%) patients presented in an early stage, 40 (16%) patients in a locally advanced stage and the remaining (75%) patients had metastasis at presentation. Our study was limited by being retrospective in nature, with relatively small number of patients. It also represents the experience of a single cancer center; therefore, a larger scale prospective study is recommended to study the clinic-demografic characters of this disease in the country

Keywords. *Diagnosis, Salivary Gland, Mucoepidermoid Carcinoma, Temporalis Flap, Subtotal Maxillectomy.*

Introduction

Mucoepidermoid carcinoma is an epithelial tumor typically seen in the salivary glands. This Pancreatic carcinoma is an uncommon neoplasm; however, it is one of the most lethal cancers [1]. Because of its high fatality, incidence rates are close to mortality rates. Globally, over 270,000 new cases diagnosed every year. Pancreatic cancer is the 8th most common cause of cancer deaths and is responsible for over 230,000 deaths annualy [2]. More than 85% of pancreatic cancer cases are adenocarcinomas of exocrine origin. Other tumor types including neuroendocrine and cystic neoplasms comprise around 10% but have better outcome. Pancreatic cnacer is most commonly seen in the 7th and 8th decades with a median age of 71 years at diagnosis [3]. Early pancreatic cancer has no specific symptoms and signs and there is no established screening strategy to detect it early [4]. Surgical resection remains the only potentially curative choice. Early pancreatic cancer patients who are fit for curative surgery represent 15-20% of all cases with a 5-year survival of 15%. On the other hand, the collective median survival for all cases of pancreatic cancer remains less than 6 months [5]. Prognosis, is therefore, poor.

The aim of this study is to review the database regarding pancreatic carcinoma cases presented in the National Cancer Institute Misurata, Libya, and to evaluate their outcomes.

Methods

This is a retrospective study including 247 patients registered at National Cancer Institute Misurata, Libya, between July 2005 and Dec 2020, to have pancreatic carcinoma. The patient medical files were reviewed retrospectively. Information collection included tumor stage, pathological features, surgical treatment modalities, and morbidity and mortality. Prior to treatment, measurement of tumor markers CEA and CA19.9 was performed. Radiologically, patients underwent computerized tomography (CT) of chest and abdomen. Diagnostic laparoscopy is an important preoperative measure to detect subradiological metastasis in patients with borderline resectable tumors or very high tumor marker levels. Recently endoscopic ultrasound (EUS) has become a standard practice as part of diagnostic work up to help assess resectability. Inoperable patients with obstructive jaundice undergo endoscopic retrograde cholangiopancreatography (ERCP) or percutanous transhepatic cholangiography (PTC). Informed consent forms were signed by all patients and/or their legal representatives. Decisions about management and work up were discussed in multidisciplinary settings. This study was officially approved by the National Cancer Institute Misurata's ethical committee (No. 2/ 2024).

Surgical treatment modalities

Whipple's procedure (pancreaticoduodenectomy) is used for tumours in the head of the pancreas. It involves an enbloc resection of the pancreatic head, duodenum, and the antrum of the stomach, proximal jejunum and distal biliary tree with the gallbladder. Then surgical reconstruction is achieved by anastomosis of the pancreatic stump, the divided bile duct and stomach to the jejunum. Modifications to the original Whipple's operation were described including Pylorus Preserving Pancraticoduodenectomy PPPD; where the antrum and pylorus of the stomach are preserved. This is believed to improve the physiological outcome with no difference in overall survival or incidence of recurrence. Distal pancreatectomy, on the other hand, is effective for lesions in the body and tail of pancreas. Its use as a curative surgery remains limited [6,7]. This is because lesions in this area usually present at a later stage and, therefore, unresectability is higher. The procedure involves resection of the distal portion of the pancreas, along with the spleen and over-sewing of the distal pancreatic duct. Total pancreatectomy: is far less commonly performed. It is used as a curative option for multifocal tumours e.g. IPMN of the main duct, and lesions in the neck of the pancreas [8].

Results

Two hundred and forty-seven patients were registered in the National Cancer Institute, between July, 2005 and Dec, 2020 to have pancreatic cancer. The median age was 60 years (range from 27-90 years). A hundred and forty-eight patients (60%) were males and 99 patients (40%) were females (Figure-1).

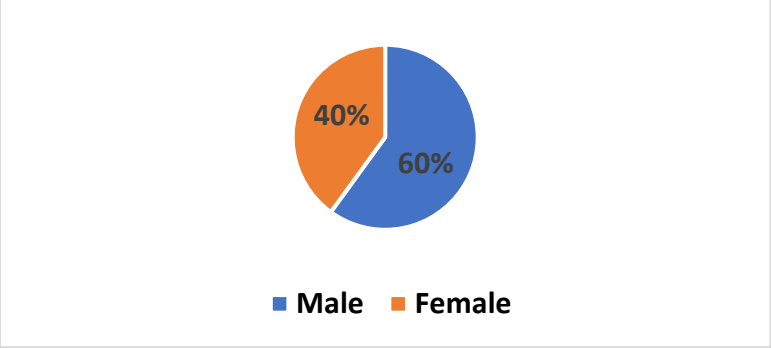

Figure 1 : Distribution of Pancreatic cancer cases according to gender at National Cancer Institute Misurata, Libya (2005-2020)

Twenty-one patients (9%) had early disease with T2N0M0 at diagnosis while forty patients (16%) had locally advanced disease. On the other hand, 186 patients (75%) were categorized to have metastatic disease (Figure-2).

Cytological or histological diagnosis was confirmed in 110 patients (44%). The diagnosis in the remaining patients was based on a clinical and radiological basis.

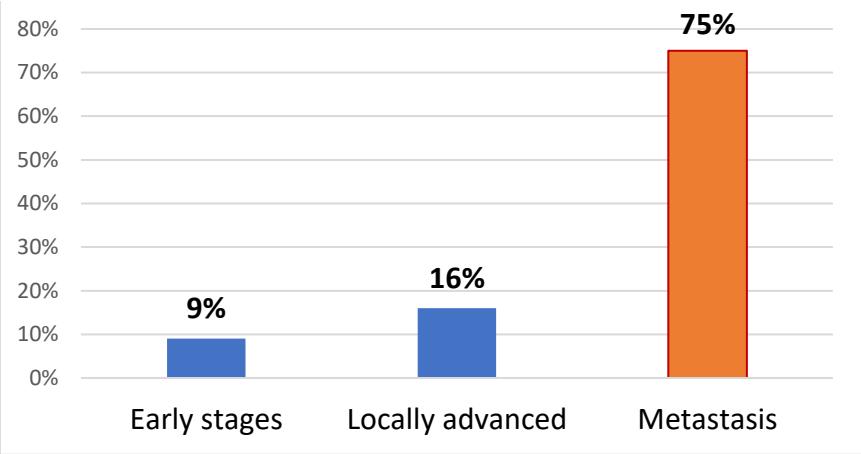

Figure 2 Distribution of Pancreatic cancer cases according to stage at first presntation at National Cancer Institute Misurata, Libya (2005-2020)

The histopathology result was classical adenocarcinoma in 91% of patients; three patients had neuroendocrine tumor, cystadenocarcinoma in two patients, two patients with pseudo-papillary neoplasm, acinar cell carcinoma in one patient, and mixed adenocarcinoma and neuroendocrine tumors in one patient.

Surgical intervention with curative intent was done in 28 patients. Whipple surgery was performed in 22 patients, distal pancreatectomy in 5 patients: two of them done laparoscopically, and total pancreatectomy in one patient (Figure-3).

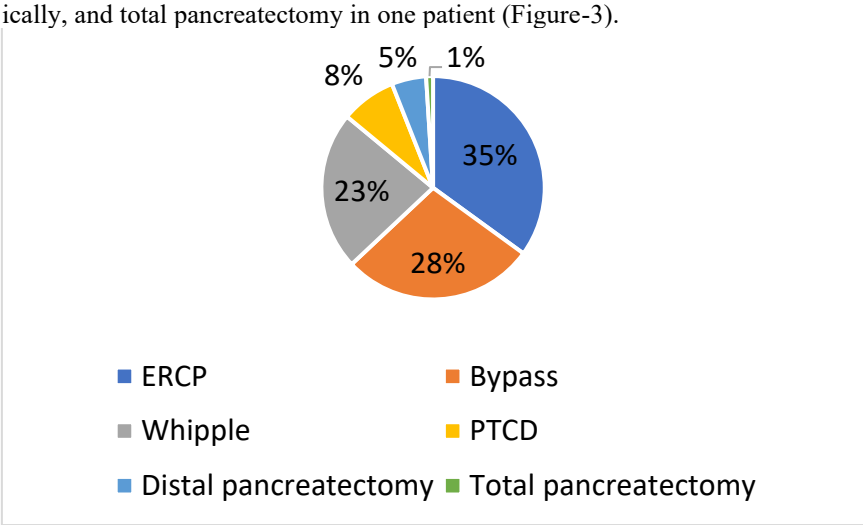

Figure 3: Percentage distribution of definitive surgical treatment modalities of pancreatic cancer cases at National Cancer Institute (2005-2020)

Twenty-seven patients who were deemed inoperable and had obstructive duodenal and/or biliary symptoms were offered palliative surgical bypass. Triple bypass surgery consisting of gastro-jejunostomy, choledocho-jejunostomy and jejuno-jejunostomy. It was successful in 20 patients.

ERCP was attempted in 44 jaundiced patients, 34 of them were successfully stented. Eight patients were offered percutaneous transhepatic cholangiography (PTC) to relieve jaundice, one of them had previously failed palliative surgical bypass and 2 of them had unsuccessful ERCP.

Outcome of the surgical treatment

Five patients (18%) who underwent curative surgical resection were complicated with pancreatic stump leakage; two of them were very severe and died of sepsis. Eight patients (28%) suffered from delayed gastric emptying, seven patients (25%) had complications of exocrine insufficiency and another 7 cases (25%) developed DM postoperatively. Three patients had wound infection and two patients developed bile duct leakage postoperatively that were

managed conservatively. Lastly, two patients had intra-abdominal abscess that required image-guided drainage.

Discussion

Pancreatic cancer is a relatively rare disease with an annual incidence rate of 8–12 cases per 100,000 in the Western world [2]. The incidence of pancreatic cancer has been relatively stable over the past decades with slightly increased rates in women, probably due to increased smoking rates amongst females [4].

In Libya, however, the incidence of pancreatic cancer has been rising over the past decade. In part, this has been explained by raised health awareness amongst the public and improved National Health Service in terms of diagnostic modalities and patient registry. In National Cancer Institute, 247 patients were registered over fifteen years representing the 9th most common cancer. The disease was more prevalent in males (60%) and in elderly patients (6th-7th decades).

Pancreatic cancer remains one of the highly fatal cancers with three quarters of patients have metastatic disease at diagnosis. Radical surgical resection with negative margins provides the only potential cure for the disease. Good prognostic indicators and predictors of long term survival following surgery include negative resection margins, no lymph node involvement and a small tumor size <3cm. The collective median survival for all patients with cancer pancreas is 4-6months [4]. Only 20% of patients are candidates for curative surgery, this excludes patients with metastatic disease to the liver, lung, peritoneum, bone or distant lymph nodes outside the boundaries of surgical resection. Other criteria that render patients unfit for curative surgery include invasion to the hepatic or superior mesenteric arteries. In the present study, however, only 28 patients (11%) were operative candidates, two patients died due to sepsis following pancreatic stump leakage representing a mortality rate of 7%.

Obstructive jaundice is very common especially in patients with pancreatic head lesions or due to metastatic liver disease. For non-operative candidates, endoscopic placement of a stent is preferred because of high successful rates compared to percutaneous drainage and less hospital stay compared to the surgical bypass procedure. Metallic prostheses are preferred especially in patients with longer life expectancy. Far less commonly, pancreatic cancer patients develop gastric or duodenal obstructive symptoms. These patients will usually require surgical bypass. An expandable metallic stent, however, can be an option in cases with proximal obstruction.

In conclusion, cancer of the pancreas is still an extremely fatal disease mainly because of late disease discovery. Early detection, accurate staging and prompt management are vital for successful treatment of this highly lethal disease.

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