

Efficacy of Endoscopic Biliary Drainage in Pancreatic Adenocarcinoma

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Abstract

Introduction: The incidence of pancreatic cancer has increased in recent years. Pancreatic cancer accounts for 2.9% of all cancers in our registry. Biliary drainage is frequently required and is mainly indicated in cases of cholangitis and/or hyperbilirubinemia. Our work aimed to evaluate the efficacy of endoscopic biliary drainage in pancreatic adenocarcinoma. **Materials and Methods:** A cross-sectional study was conducted between May 2019 and October 2021 and included all patients with pancreatic adenocarcinoma, who underwent endoscopic biliary drainage. **Results:** Forty-five patients were enrolled, including 23 males and 22 females with a sex ratio of 1.04. The average age was 61 ± 10.9 years. Seven patients (16%) had a history of diabetes, 7 patients (16%) had a history of smoking, 4 patients (9%) had a history of alcoholism, 27 patients had no history. All patients were presented with cholestatic jaundice and 17 patients (37.7%) with abdominal pain. After morphological evaluation, only 11% of our patients had a resectable tumor and 89% of the patients had an unresectable tumor. Thirty-eight patients (84%) had a metallic biliary stent and seven patients (16%) had a plastic biliary stent. Biliary drainage associated with antibiotic therapy allowed controlling cholangitis in 98% of cases, only one patient (2%) died after drainage from sepsis. The average total bilirubin level before biliary drainage was 19.7 mg/dl and 4.8 mg/dl 2 weeks after drainage ($P = 0.51$), representing a decrease of 76%. **Conclusion:** Endoscopic biliary drainage is the gold standard for relieving the obstruction in pancreatic adenocarcinoma. Most of our patients (89%) had an unresectable pancreatic tumor. Drainage was ensured respectively by the metallic stent and plastic stent in 84% and 16% of patients and provided very sufficient biliary drainage with a decrease of 76% of bilirubinemia at 2 weeks post drainage.

Keywords: Pancreatic adenocarcinoma, endoscopic biliary drainage, ERCP.

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I. INTRODUCTION

The incidence of pancreatic cancer has been on the rise in recent years [1]. In France, the incidence of pancreatic cancer almost doubled between 1990 and 2007 [2]. Projections from 2010 suggest a 55% increase in the incidence of pancreatic cancer by 2050 in the United States [2]. Nationally, and particularly in the Rabat registry, pancreatic cancer accounts for 2.9% of all cancers and is the third digestive cancer, succeeding colon cancer [3]. Pancreatic cancer (70 to 80% of cases) can require biliary drainage by placing a biliary stent commonly performed by endoscopic retrograde cholangiopancreatography (ERCP) [4]. This biliary drainage is indicated mainly in cases of cholangitis and/or very high bilirubinemia. Our work aimed to evaluate the efficacy of endoscopic biliary drainage in pancreatic adenocarcinoma.

II. MATERIALS AND METHODS

A cross-sectional study was conducted using data collected anonymously from a uniform structured reporting used in our department for ERCP procedures from May 2019 to October 2020, including all patients with pancreatic adenocarcinoma, who underwent endoscopic biliary drainage during endoscopic retrograde cholangiopancreatography (ERCP). The study protocol was conducted following the Helsinki Declaration and all patients have given their informed consent in writing to publish their medical data. Variables were reported as mean \pm standard deviation for parametric data and as frequencies (percentage) for categorical variables. Comparative analysis was done using the appropriate tests (chi-square, Fisher's exact test, or Student's t-test). A p-value < 0.05 was considered statistically significant. Statistical analyzes were performed with SPSS v23 (IBM Corp, NY, USA).

III. RESULTS

For 29 months, 45 patients were enrolled, including 23 men and 22 women with a sex ratio of 1.04. The average age is 61 ± 10.9 years. Seven patients (16%) had a history of diabetes, 7 patients (16%) had a history of smoking, 4 patients (9%) had a history of alcoholism, 27 patients had no history. All patients were presented with cholestatic jaundice and 17 patients (37.7%) with abdominal pain. Thirty-six patients (80%) benefited from an abdominal ultrasound, which showed the pancreatic tumor with a double duct sign in 78% of cases ($n = 28$), in 22% of cases ($n = 8$) ultrasound had shown isolated dilation of the intra and extrahepatic bile ducts without any evidence of obstacle. Abdominal computer tomography (CT) had diagnosed pancreatic cancer in 100% of cases ($n = 45$) showing direct and indirect signs. MRI (Magnetic resonance imaging) had been done in 27% of cases ($n = 12$) and allowed to detect hepatic metastases that were not seen on abdominal CT in 4 patients (8.8%). Endoscopic Ultrasound was performed in 44% of patients ($n=20$) to obtain histological proof. After the morphological assessment, we define the resectability of the tumor according to the presence or absence of a locoregional or metastatic extension; Five patients (11%) had a resectable tumor, ten patients (22%) a borderline tumor, 12 patients (27%) had a locally advanced tumor, and 18 patients (40%) had a metastatic tumor. Ten patients (22%) had grade I cholangitis, thirty patients (67%) had grade II cholangitis, one patient (3%) had grade III cholangitis. Thirty-eight patients (84%) had a metallic biliary stent and seven patients (16%) had a plastic biliary stent. Biliary drainage associated with antibiotic therapy allowed controlling cholangitis in 98% of cases, only one patient (2%) died after drainage from sepsis. The average bilirubin level before biliary drainage was 19.7 mg/dl and 4.8 mg/dl at 2 weeks post drainage ($P = 0.51$), which represented a decrease of 76%.

IV. DISCUSSION

Surgery is considered as the only curative treatment for pancreatic cancer, but biliary drainage is indicated in cases of jaundice associated with the following conditions: cholangitis, severe hyperbilirubinemia (greater than 15 mg/dL), and renal failure linked to hyperbilirubinemia, or when chemotherapy is indicated. The endoscopic retrograde approach should be preferred due to its lower immediate morbidity [5]. Endoscopic biliary drainage involves the placement of a self-expanding metal stent or a plastic stent during an endoscopic retrograde cholangiopancreatography (ERCP); this procedure is often associated with a sphincterotomy that facilitates insertion of the stent or its potential change; randomized studies have shown that endoscopic stent placement is feasible in more than 90% of cases with morbidity of 5% [5]. Complications consist of cholangitis (35%), acute pancreatitis (29%), hemorrhage (23%), perforation (6%) and early stent migration (3%) [6-8].

In our study, endoscopic biliary drainage was provided respectively by the metallic stent and plastic stent in 84% and 16% of patients and allowed with antibiotic therapy to control cholangitis in 98% of cases, only one patient (2%) has died after drainage from sepsis. Short-term efficacy is defined by regression of jaundice, pruritus, and a decrease of more than 20% of bilirubinemia in the first week [5]. Khashab M *et al.*, had defined the clinical efficacy criteria by a 50% reduction of bilirubinemia at 2 weeks post-drainage and below 3 mg/dL at 4 weeks post-drainage, a value that allowing the initiation of chemotherapy [6]. The majority of publications define clinical success as a reduction of 30% and more in total bilirubin after 1 week or a reduction of 75% and more in total bilirubin after 1 month [1, 9]. In our study, we found a decrease in total bilirubinemia of 76% at 2 weeks after drainage. Plastic and metal stents provided the same results in terms of immediate efficacy (80% of cases), morbidity, mortality, and improvement of quality of life. If patients developed cholangitis or if bilirubin did not drop by 20% within the first week after stent insertion, the patency and position of the stent should be verified [5].

Several randomized studies all confirm a longer patency period for metallic stents than plastic stents, in particular beyond 4 to 6 months, leading, after this period, to the number of readmissions and ERCPS [7, 10, 11]. Therefore, a metallic stent should be considered first, unless imminent death is foreseeable [12-15].

V. CONCLUSION

Retrograde endoscopic drainage is the treatment of choice for removing the obstruction in pancreatic adenocarcinoma. Most of our patients (89%) had an unresectable pancreatic tumor. Drainage was provided respectively by the metallics tent and plastic stent in 84% and 16% of the patients and provided very satisfactory short-term efficacy with a decrease of 76% bilirubinemia at 2 weeks after drainage.

DISCLOSURES

Author Contributions: Mohamed Borahma designed, drafted, and revised the manuscript. Aimé-Parfait Irambona collected Data and wrote the manuscript and is the article guarantor. Emna Benour, Fatima Zahra Chabib, Imane Benelbarhdadi, and Fatima Zahra Ajana approved the final manuscript.

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