

ARAD COUNTY EMERGENCY CLINICAL HOSPITAL'S EXPERIENCE IN PANCREATIC SURGERY

Faur Flaviu Ionut¹, Nati Ionel Daniel¹, Ardelean Andrei², Goldis Dan Silviu³, Rosu Mihai², Neamtu Carmen^{3*}, Totolici Bogdan³

¹ "Vasile Goldis" Western University,

²Department of general surgery, SCJU Arad

³ "Vasile Goldis" Western University, Arad, Faculty of Medicine,
General Surgery Department, SCJU Arad

ABSTRACT: The history of pancreatic cancer surgery, though fraught with failure and setbacks, is punctuated by periods of incremental progress dependent upon the state of the art and the mettle of the surgeons daring enough to attempt it. Surgical anesthesia and the aseptic techniques developed during the latter half of the 19th century were instrumental in establishing a viable setting for pancreatic surgery to develop. Pancreatic cancer continues to pose a major public health concern and clinical challenge. The incidence of the disease is nearly equivalent to the death rate associated with the diagnosis of pancreatic cancer. Thus, there exists a need for continued improvement in the diagnostic, therapeutic and palliative care of these patients. Cephalic duodenopancreatectomy (CDP) is the treatment of choice in cancer of the head of the pancreas. However, it continues to have a high post-surgical morbidity and mortality. Pancreatectomies are difficult operations and need an adequate surgical training and team to be performed. Actually in the western countries the resections of the pancreas are performing only in specialised and regional surgical centers. From the first pancreatectomies performed by Kausch and Whipple, a lot of modified techniques were described.

Keywords: Whipple, morbidity, mortality, complications.

INTRODUCTION

Pancreatic tumors represent a global problem because of their aggressivity and advanced stage at the time of the diagnosis. Pancreatic ductal adenocarcinoma covers approximately 90% of the exocrine tumors and it is extremely aggressive. When diagnosed, the tumor is limited at the area of the pancreas in less than 10% of the cases; in 40 % of the cases it invades the surrounding organs and in 50%, it is accompanied by metastases. Mortality is more than 95%, even after curative surgery, length of survival being only 18-20 months (Principles of surgery – by Seymour I. Schwartz, Josef E. Fischer, John M. Dali, Aubrey).

Most frequent location of the pancreatic tumors is at the level of the head of the pancreas (75%), the remaining 25% is located at the level of the pancreatic body and tail. The symptoms of the pancreatic head carcinoma are represented in 70% of the cases by obstructive jaundice, weight loss (on average 9.6 kg) and deep abdominal pain. Jaundice can be persistent, but in 10% of the patients it fluctuates; it can be associated with pruritus, but cholangitis is rare (10% of the cases). Pain, localized in the lumbar region (in 25% of the cases), is associated with a worse outcome and is a sign of the retroperitoneal invasion of the tumor. Sudden onset of diabetes mellitus is encountered in 20% of the cases (Tratat de Chirurgie

Generală, sub redactia Irinel Popescu, Ed. Academiei Române).

Tumors of the pancreatic body and tail induce late symptoms and they are in advanced stage at the moment of the diagnosis.

MATERIAL AND METHOD

This retrospective study is based on our experience in pancreatic cancer surgical therapy and lasted for 4 years, between 2012-2016 ; it included 82 patients: 36 fwomen (43.9%) and 46 men (56.1%). The purpose of the study is to analyze the type of the surgical intervention performed, curative or palliative, as well as the number of each type of the intervention.

The curative surgical procedure is represented by the cephalic duodenopancreatectomy associated with lymph nodes resection (Whipple procedure). The Whipple procedure involves the removal of the head of the pancreas along with the duodenum, gallbladder, distal portion of the common bile duct and distal part of the stomach. We followed the next steps to perform this procedure:

- 1) preoperative evaluation and assessment of the patients;
- 2) review of the local anatomy and anatomical variations of the hepatic artery and superior mesenteric artery;
- 3) proper dissection and ligation of the vascular pedicles

- 4) attain a good pancreatic digestive anastomosis; Roux en Y anastomosis is the main procedure for the reconstruction of the gastrointestinal tract.

The pancreaticojejunal and cholodchojejunal anastomosis must be performed in the proximal portion, at approximately 45-50 cm from the gastrojejunostomy (Jurnal de Chirurgie, Iasi, 2005, Volum 1, nr. 3).

Extended lymphadenectomy was performed in 12 of the cases, but the resection of the venous confluence was not performed in any of the cases.

Examples of palliative surgery include: any type of biliodigestive derivation (cholecystoantrostomy, cholecystojejunostomy, choledochoduodenostomy, choledochojejunostomy), exploratory laparotomy with incisional biopsy. This procedures realise a direct communication between the cholecyst or the choledoch and other structures of the digestive system with the purpose of bypassing the sub-anastomotic segment.

General postoperative complications include:

- hemorrhagic shock, hepatic failure and renal failure which can lead to exitus;
- cardiovascular complications with maximum incidence in the 6th decade of life;

- pulmonary complications (atelectasis, bronchopneumonia);
- thromboembolic disorders (prevention by using low molecular weight heparins).

Local postoperative complications include:

- hemorrhage, in case the ligature slide off the vessel;
- lymphatic drainage loss, in case of extensive dissections and decollations;
- fistulas at the level of the pancreatic remnant; these can be minor or major when they can cause death; usually, they remit on conservatory treatment and rarely require surgical reintervention;
- biliary fistulas caused by anastomosis dehiscence;
- double fistulas, pancreatic and biliary;
- localized peritonitis .

RESULTS

Our study shows that 43.9% of the 82 patients were women and 56.1% were men.

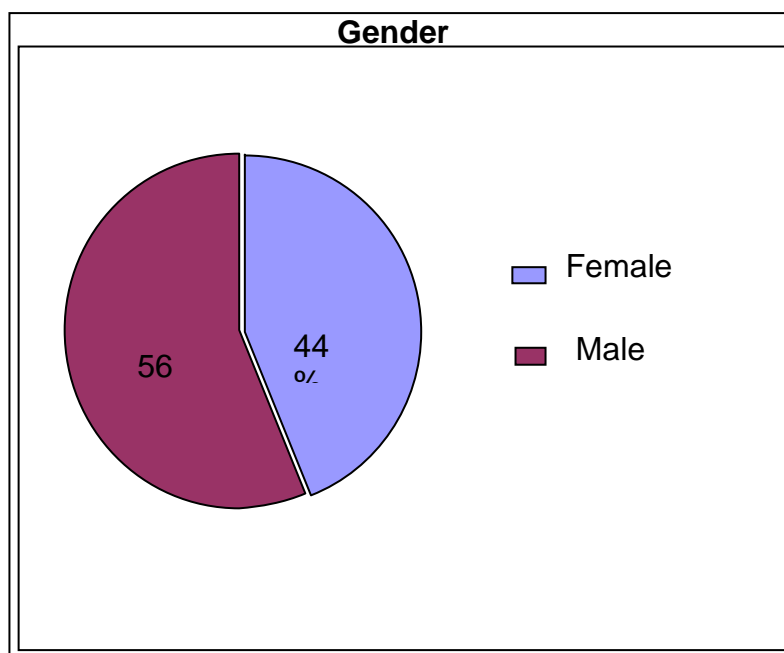


Fig. 1

Radical surgery was performed in 14.63% of the cases and in 85.37% of the cases it was performed palliative or diagnostic surgery.

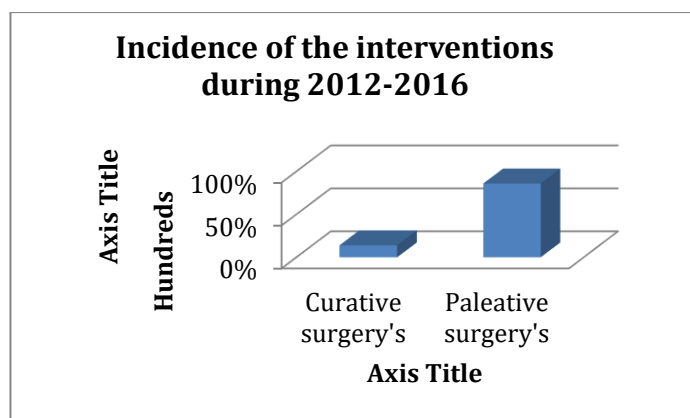


Fig. 2

In 10% of the cases the tumor is diagnosed in early stages (intraglandular stage) and curative surgery was performed for this patients (14.63% of the surgical procedures for 12 patients). As it can be observed, there is a correlation between the early diagnosis of the pancreatic head tumors and curative surgery.

Palliative surgery included the following procedures:

- Cholecystectomy with choledochoduodenostomy;
- Cholecystogastrostomy;
- Gastroeneteroanastomosis:

- transmesocolic, isoperistaltic side-to-side gastrojejunal anastomosis on the posterior gastric wall (Stiles procedure);

- ventral pecolic gastroenteroanastomosis (Wolfer procedure, omega anastomosis with Braun jejuno-jejunostomy);

- dorsal precolic gastroeneteroanastomosis (Brenner procedure);

- Exploratory laparotomy;
- Other invasive procedures.

Palliative procedures were performed in 85.37% of the cases, and the distribution of the surgical procedures is showed in Fig. 3.

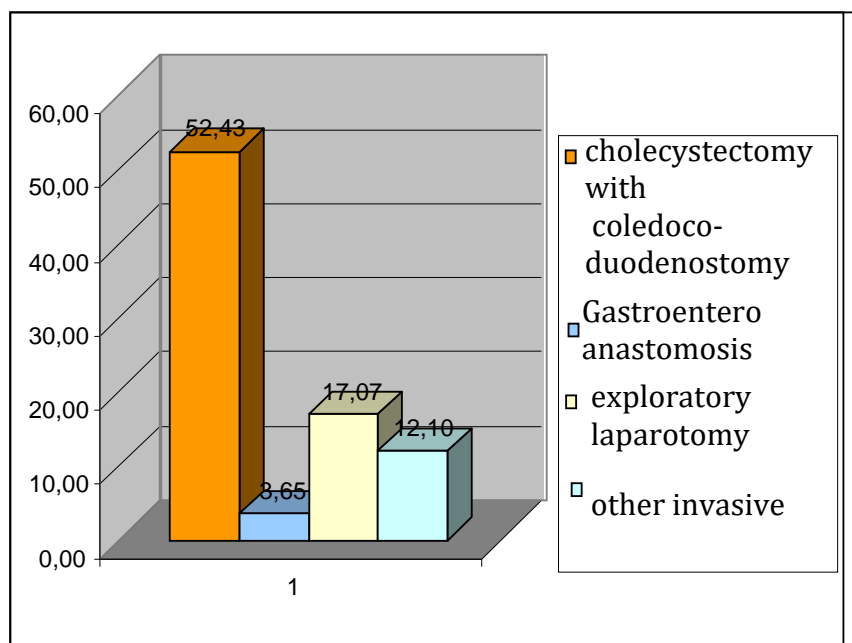


Fig. 3

When palliative procedures were performed, cholecystectomy with coledocoduodenostomy is the most used procedure (52.43% of the cases). In 3.65% of the patients we used gastroenteroanastomosis, exploratory laparotomy in 17.07% and other invasive procedures in 12.1% of the cases.

This analysis show that identifying the tumor in a late stage limits the possibility to perform curative surgery and amplifies the number of the palliative procedures. The higher incidence of the surgical procedure – cholecystectomy with coledocoeneterostomy (52.43%), reveals that the location of the tumors is more common at the level of

the head of the pancreas, accompanied by biliary symptomatology.

To most patients with pancreatic carcinoma who have had tumor resection the prognosis is correlated with the presence of the lymph nodes metastasis. Positive lymph nodes biopsy lowers the 5-year survival rate to less than 10%. In patients without lymph nodes involvement, 5-year survival rate is about 35% (Principles of surgery – by Seymour I. Schwartz, Josef E. Fischer, John M. Dali, Aubrey).

Postoperative morbidity after duodenopancreatectomy represents an important issue.

When curative surgery was performed, most important complication was pancreatic fistula, revealed in 2 of the cases. This complication was produced by the dehiscence of the pancreatico jejunostomy and by acute pancreatitis at the level of the remnant organ (using blood samples, ecography and computed tomography). We used conservatory treatment for this complications, without the necessity of surgical reintervention.

DISCUSSIONS

A study in America from 2015 showed that 43.920 citizens were diagnosed with pancreatic adenocarcinoma and 37.390 from them were dying in less than 1 year from the diagnosis. On American continent, the incidence of this condition is on a rise and by 2050 it will represent the main cause of death by cancer, also because of the higher incidence of the contributory factors like obesity and diabetes mellitus. Annual, around the world, there are about 265.000 new diagnosed cases, 74% of them die within 1 year from the diagnosis and 5-year survival rate is 6%.

In 2015 Department of Surgery, Stanford University School of Medicine, USA, published a 10 years study (January 2000-December 2010) on classic and laparoscopic surgery of the pancreas. This study included 15.547 patients diagnosed with pancreatic adenocarcinoma. They performed 681 laparoscopic cephalic duodenopancreatectomies (Whipple procedure) (4.4%) and for the remaining cases they used open surgery (95.6%). This study shows a postoperative mortality rate of 4% in the group of patients who underwent laparoscopic surgery and 5% in those with open surgery; 5-year survival rate was 6% of the total number of cases.

Despite the lower mortality rate and higher 5-year survival rate with 1% more than the latest years, many researchers claim that pancreatic ductal adenocarcinoma is a cureless form of cancer. This statement is revealed by the statistics of studies made by specialised cancer treatment centres, where 5-year survival rate is the highest; they found that in a group of patients with margin resections R0, local recurrence or metastatic cancer were imminent and most of the subjects died.

CONCLUSIONS

Our study shows a higher incidence of pancreatic cancer in males (56.1%) and also an advanced stage of the cancer in the moment of diagnosis. This fact limits the quality and radicality of

tumor excision. Despite a national, European and worldwide progress in pancreatic cancer surgery, morbidity and mortality remain high; this is due to the time of the tumor diagnosis (histologic type and tumor stage – TNM classification).

Making a comparison between our statistics and worldwide statistics, it can be seen that postoperative survival rates in pancreatic adenocarcinoma are low (5-year survival rate is 4-6% and 1-year survival rate is 20%).

This study marks out the importance of a national screening program, to early diagnose the malignant pancreatic tumors, which would facilitate the curative surgery and improve 5-year survival rates of the patients.

REFERENCES

1. Principles of surgery – by Seymour I. Schwartz, Josef E. Fischer, John M. Dali, Aubrey.
2. Official Journal of the Society of American Gastrointestinal and Endoscopic Surgeons European Association for Endoscopic Surgery Volume 30 number 5 May 2016.
3. Tratat de Chirurgie Generala, sub redactia Irinel Popescu, Ed. Academiei Romane.
4. Freeman M, Werner J, van Santvoort HC, et al. Interventions for necrotizing pancreatitis: summary of multidisciplinary consensus conference. *Pancreas* 2012.
5. Aldridge MC, Williamson RC. Distal pancreatectomy with and without splenectomy. *Br J Surg* 1991.
6. PEDRAZZOLI, S., BEGER, H.G., OBERTOP, H. - A surgical and pathological based classification of resective treatment of pancreatic cancer. *Dig. Surg.*, 1999, 16:337-345.
7. WAGNER, M., FRIESS, H., BUCHLER, M.W. - Conservative versus radical resections of pancreas. In "Pancreatic cancer" sub redactia lui Blackwell S., Ed. 1996, pag. 248-270.
8. Juvara I., Setlacec D., Radulescu D., Gavrilescu S. "Tehnici chirurgicale Vol. II; chirurgie cailor biliare extrahepatice" Ed. Medicala, Bucuresti 1989.
9. Ionescu M., Duodenopancreatectomia cefalica-operatie de rutina?", *Revista Chirurgia, Bucuresti*, Vol. 98, 2, 2003, pp. 103-108.
10. Caloghera C. (sub red.), "Chirurgia de urgenta", Editura Litera, Bucuresti 1980.
11. *Jurnal de Chirurgie*, Iasi, vol. 1, nr. 3.
12. Popescu I., Ciurea S., Sabau D.; Duodenopancreatectomia cefalica. *Enciclopedia de Chirurgie*, 1(2005): 1-10.
13. Giuvara I., Pancreatectomia dreapta in chirurgie pancreasului, sub red. Giuvara I., Fux I., Priscu Al., Editura Medicala Bucuresti 1957, pag 97-111.

14. Howard JM, Hess W. History of the pancreas: mysteries of a hidden organ, Kluwer

Academic, New York, 2002:235.