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Research Article

Endoscopic Drainage of Pseudo Pancreatic Cyst at Fez University, Hospital, Morocco

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Abstract

Introduction: The pancreatic pseudocyst (PPC) is a complication of acute or chronic pancreatitis with frequent spontaneous regression. Drainage is reserved for symptomatic or complicated forms. Endoscopic treatment is the gold standard because it is less invasive than surgery, with less use of external radiological drainage and satisfactory long-term results. We report 26 observations of PPC endoscopic drainage and thus we report the experience of Hassan II CHU in Fez.

Methods: This is a prospective study conducted in the Hepatogastroenterology department of Hassan II University Hospital, including 26 patients over a period of 6 years and 3 months from January 2010 to March 2017.

Results: 26 patients underwent endoscopic drainage of PPC, with a sex ratio F/H of 3.3. The mean age was 47 years, 24 patients had a history of acute pancreatitis (92.3%). Abdominal CT scan was performed in all our patients. Fibroscopy showed a gastric bulge in 52% of patients (N = 23), a cysto-bulbar fistula in 2 cases and cystoduodenal fistula in 1 case. Echoendoscopy performed in 46% of our patients (N = 12), she had not objectified interposition of vessels. Endoscopic drainage was transmural and consisted of an infundibulotome incision with a purulent fluid in 6 patients. The implantation of double pigtail plastic stents was carried out in 84% of the cases, only one patient benefited from a Lumen-Apposing –Stent and two cases of a necrosectomy with setting up a naso-cystic drain. In 6 patients, dilatation of fistula with digestive system was used, followed by the placement of two double pigtail stent. The results were satisfactory, without immediate complications and with a good clinical and radiological evolution, in 21 cases (81%). The morbidity was estimated at 19.5%.

Conclusion: The success rate of endoscopic drainage was 81% which seems to be an interesting therapeutic alternative to surgery in the treatment of PPC.

Keywords: *Endoscopic Drainage; Pseudo Pancreatic Cyst; Acute Pancreatitis*

Introduction

Pancreatic fluid collections (PPC) are fluid collections in the pancreatic tissue or the adjacent pancreatic space. It surrounded by a well-defined wall and contains essentially no solid material. It's can develop as a result of acute pancreatitis, they can also occur in the setting of chronic pancreatitis, postoperatively, or after pancreatic trauma [1].

Pancreatic cystic lesions are frequent, they mainly include PPC (85 to 90% of cases), pancreatic cystic tumors (10 to 15% of cases) and real cysts, which are much rarer. The main problem of management is to differentiate a false cyst from a neoplastic cystic lesion characterized by its degenerative potential. For this reason, it is important to know the natural history of the PKP. If in doubt about the diagnosis, it is better to refrain from obtaining prior diagnostic confirmation by additional imaging, by discussing the file in a multidisciplinary consultation [2,3].

Therapeutic options for drainage of these collections include surgery, endoscopy, and/or imagery-guided percutaneous drainage. Endoscopic transmural drainage has emerged as the first-line therapy for PPC given its similar efficacy, shorter recovery times, fewer adverse events and improved cost-effectiveness when compared to surgical cystgastrostomy [4].

Purpose of the Study

The purpose of this work is to bring back the experience of our work in the endoscopic drainage of the PPC.

Methods

This is a prospective study conducted in the Hepatogastroenterology department of Hassan II University Hospital, including 26 patients over a period of 6 years and 3 months from January 2010 to March 2017.

We collected data from endoscopic ultrasound, oeso-gastro-duodenal fibroscopy registers, Hosix system and archived patient records. We included all patients who had endoscopic drainage of the pancreatic pseudocyst secondary to acute or post-traumatic pancreatitis and excluded from this study PPC secondary to chronic pancreatitis or asymptomatic PPC.

Results

Twenty-six patients with endoscopic CPP drainage, with an F/M sex ratio of 3.3. The average age was 47 years, 24 patients had a history of acute pancreatitis (92.3%) whose lithiasic origin represents 30% (8 cases). Other antecedents were noted, in particular one case for each; Caudal splenopancreatectomy, pancreatic cyst surgery and acute post-traumatic pancreatitis.

All of our patients who underwent endoscopic PPC drainage were symptomatic and had epigastralgia and vomiting in 23% of the cases. 85% of our patients with epigastric sensitivity, while SEPSIS was found in 7.7% (N = 2).

Average time between acute pancreatitis and diagnosis of PPC is 18 weeks with extremes between 4 weeks and 48 weeks. An abdominal CT scan was performed on all of our patients. The largest PCP was approximately 28 cm long. In addition to the PPC, low choledochous lithiasis was observed in 1 case, infection of the necrosis flow in two cases, hepatic subcapsular and inter-gastro-splenic fistulization with portal thrombosis in 1 case.

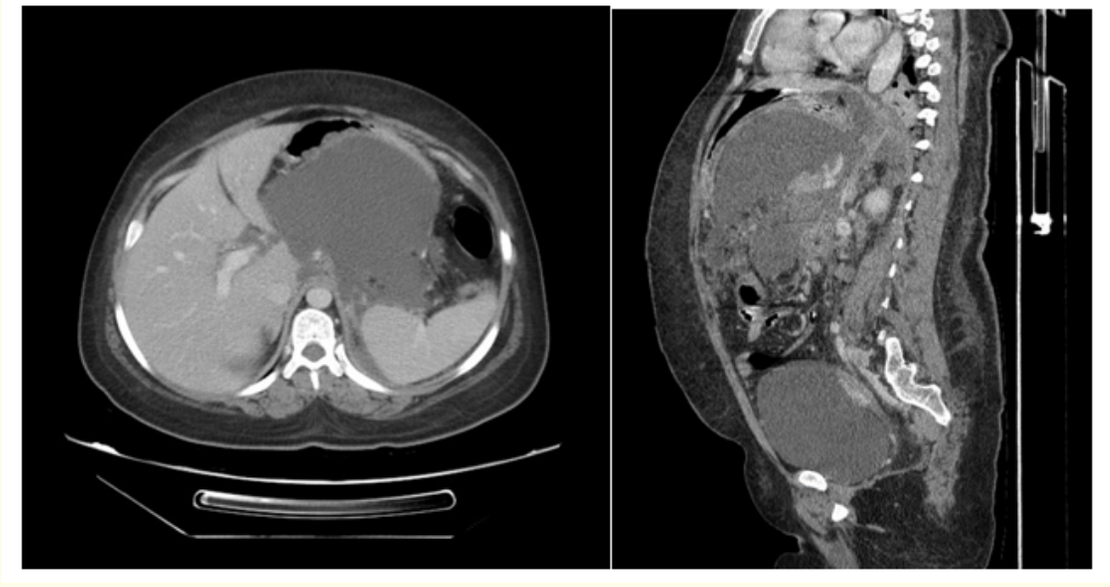

Figure 1: *CT sections: gastric bulging of pseudocysts of the pancreas.*

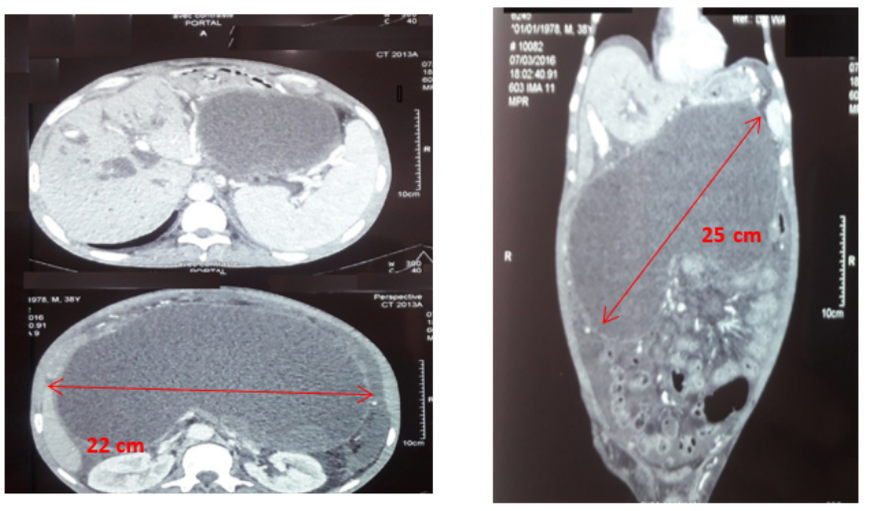

Figure 2: *T sections: voluminous pseudocyst of pancreas that is fistulated into hepatic sub-capsular and inter-gastrosplenic with portal thrombosis.*

Fibroscopy showed a gastric bulge in 52% of patients (N = 23) (Figure 3a), a cysto-bulbar fistula in 2 cases and cystoduodenal fistula in 1 case. US endoscopy performed in 46% of our patients (N = 12), she had not objectified interposition of vessels. Endoscopic drainage was transmural and consisted of an infundibulotome incision with a purulent fluid in 6 patients. The implantation of double pigtail plastic stents (Figure 3 and 4) was carried out in 84% of the cases, only one patient benefited from a Lumen-Apposing-Stent (Figure 5) and two cases of a necrosectomy with setting up a naso-cystic drain. In 6 patients, dilatation of fistula with digestive system was used, followed by the placement of two double pigtail stent. We have had two cases of endoscopic drainage failure with a case of intra-cavitary prosthesis migration with failure of endoscopic extraction, hence the use of surgery.

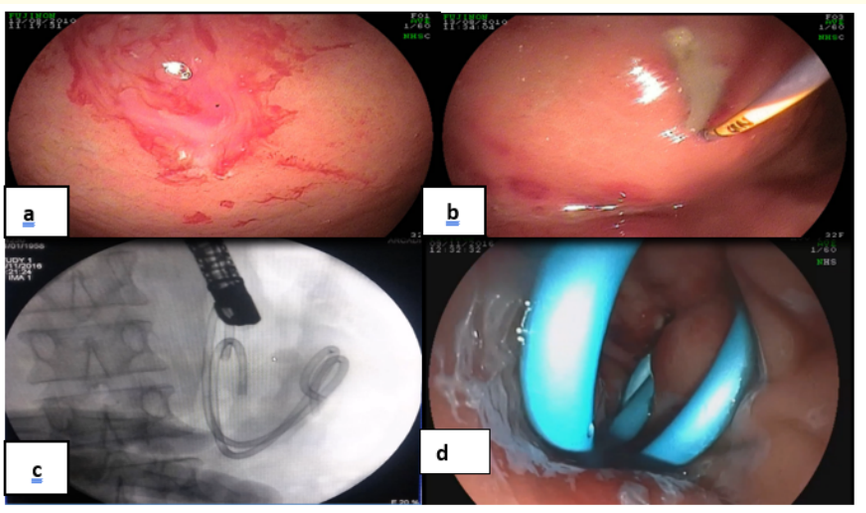

Figure 3: *Conventional transmural drainage by stent double pigtail.*
a: Endoscopic view: visualization of the gastric bulge. b: Endoscopic view: Introduction of cystotome with pus Double pigtail stent in place. c: Endoscopic view, d: radiological view.

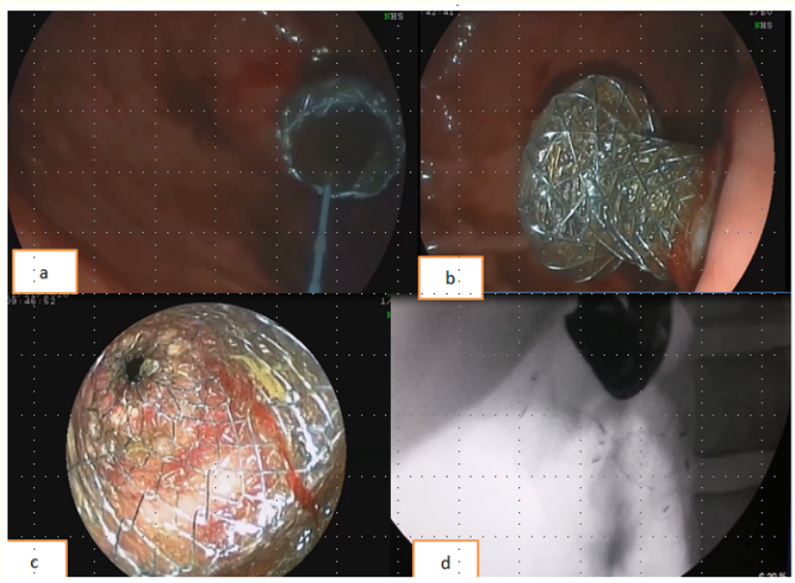

Figure 4: *a, b, c: Endoscopic view: Diabolo stent in place visualization of the gastric bulge. d. Radiological view: Diabolo stent in place.*

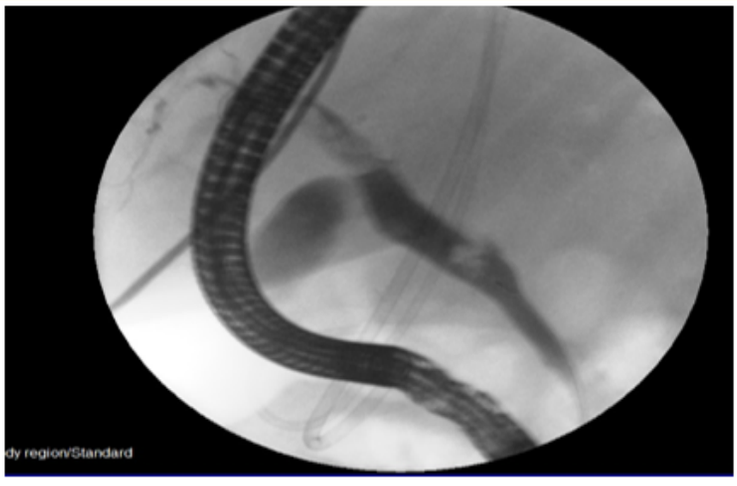

Figure 5: *Scopic view: Double pigtail stent in place with the presence of a choledochal lithiasis.*

The results were satisfactory, without immediate complications and with a good clinical and radiological evolution, in 21 cases (81%).

In our series we noted as complication: a case of haemorrhage and perforation having evolved well under medical treatment.

Two cases of prosthesis migration have been recorded; the first at the level of the cyst and which it was operated after failure of the endoscopic extraction. The 2nd case in the digestive lumen having benefited from a 2nd endoscopy drainage.

The persistence of a large left collection was noted in one case in which adjuvant percutaneous drainage was needed.

We recorded two cases of acute necrotizing pancreatitis in which endoscopic necrosectomy were performed. In one patient only surgical treatment was necessary.

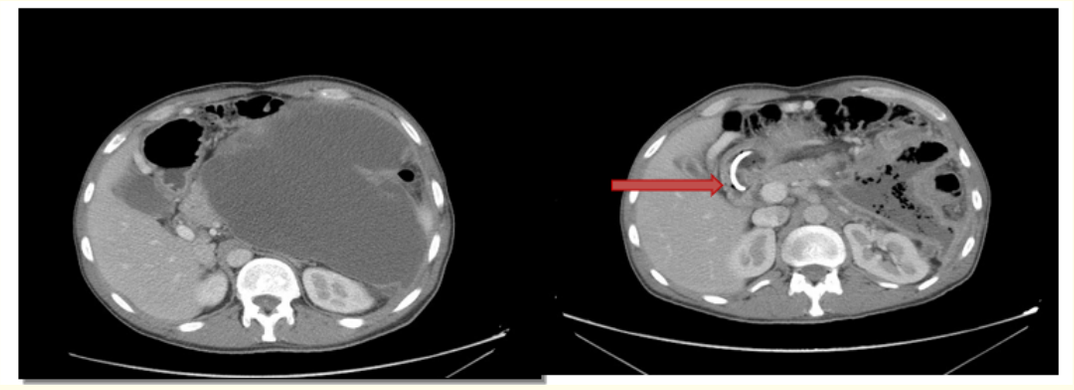

Figure 6: *a-CT scan: before endoscopic drainage; b-CT scan: decrease of the collection after endoscopic drainage with stent pigtail in place (fleche).*

In our series the average follow-up was twenty-nine month.

Epidemiological feature of our study	**26 patients**
Sex Ratio (F/H)	**3,34**
Average age	**47 years**
History	
• Acute pancreatitis	92,3%
• Gallbladder stone	25%
• Splenopancréatectomy caudal	1%
• Surgery of a cystic pancreas	1%
• Acute post traumatic pancreatitis	1%
• Radiological drainage failure	2%
Time between AP and PCP diagnosis	
Average time	18 week
Extreme delay	[4- 48 w]
Symptomatology:	
Abdominal pain	100%
Vomiting	23%
Clinical:	
Epigastric toave	85%
Sepsis	7%
Imaging:	**100%**
The largest PCP was 28cm high axis,	
• Portal Thrombosis	1cas
• Choledocian empierrement	1cas
• Overinfection of necrosis flows:	2cas
• FKP fistulised in liver capsular with portal thrombosis	1cas

Fibroscopy: Normal Gastric bulge Duodenal bulge Cystoduodenal fistula Cysto-bulbar fistula	 30,7% 53,8% 3,8% 3,8% 7,6%
Drainage under US-endoscopic control Drainage transmural	46% 42%
Endoscopic drainage of PPC: • One Double pigtail prosthesis • Two Double pigtail prosthesis • Necrosectomy with PEM of a naso-cystic drain • Diabolo prosthesis	 58,3% 29,16% 0,83% 0,4%
Evolution: • Success: • Fail	 80% 0,7%
Morbidity: • Hemorrhage and perforation: • Clogged prosthesis • Prosthesis migration • Persistence of a large left collection • Surinfection of PPC + flow of necrosis	19,3% 1cas 1cas 1cas 1cas 1cas
Mortality	0%
Medium recoil	29 months

Discussion

Pseudocysts may be asymptomatic or may present with a variety of symptoms such as pain, satiety, upper gastrointestinal bleeding, nausea, and vomiting [5]. The maturation period of pancreatic pseudocysts is reported to be approximately 2 to 6 weeks, and during this time, according to the studies between 20 and 70% of cysts are expected to spontaneously resolve. For this reason the treatment of pseudo cyst is only reserved for the symptomatic or complicated pancreas [6,7].

The therapeutic options are represented by percutaneous drainage often guided by ultrasound or CT scan, endoscopic treatment (by retrograde catheterization or endosonography) and surgical drainage. The disadvantages of radiological drainage are represented by the risk of cutaneous-pancreatic fistula, infection and the need to leave an external drain in place. Surgical treatment is certainly effective but remains associated with complications in 35% of cases with a mortality rate of around 10% [8].

Endoscopic transmural drainage has become the first-line therapy for PPC [9] given its efficacy, shorter recovery times, fewer adverse events and improved cost-effectiveness compared to surgical cystgastrostomy [10].

The aim of the treatment of endoscopic pseudocysts is the creation of a connection between the cystic cavity and the gastric or duodenal lumen. A treatment is proposed when favorable anatomical conditions are present: frank pseudocyst bulged in the digestive lumen, close contact between the pseudocyst and the digestive wall and absence of interposed vessels or intracystic hemorrhage [11].

Transmural drainage is responsible for two main complications. The risk of bleeding that occurs in 6 to 15% of cases, is related to the extent of parietal vascularization, the presence of segmental portal hypertension and the hemorrhagic content of the pseudocyst. The risk of perforation in the large cavity or retroperitoneum is correlated with the distance between the digestive lumen and the lumen of the cyst. To minimize this, this distance should not exceed 10 mm [12].

Thus, transgastric endoscopic EUS drainage or trans-duodenal becomes the preferred act in case of pseudocyst pancreas complicating an acute pancreatitis that this one is bulging or not [13]. Especially since it became possible to drain completely the pseudocysts by endoscopic ultrasound way, with the development of the linear endoscopic ultrasound interventional broadband operators with an erector [14,15].

In our series the choice between transmural drainage and EUS depended essentially on the availability of the echoendoscope. Thus, in the absence of endoscopic ultrasound, transmural drainage is performed in patients with a bulging digestive tract and absence of signs of portal hypertension or vascular interposition.

The majority of studies on endoscopic drainage of the pseudocyst of the pancreas were performed retrospectively. The formation of the pseudocyst was mainly on chronic alcoholic pancreatitis. Other etiologies are biliary, chronic pancreatitis post-ERCP and post-surgical pancreatitis, as well as post-traumatic ones [16-18]. In our series, the origin of PPCs was secondary to acute pancreatitis in 92.3% of cases, and of biliary origin in 25% of cases.

Clinical success is achieved in 85% of cases without surgery. The most frequently reported complications are: haemorrhage and perforation in 7 - 26% of cases. Most often these complications occur in the category of patients drained without EUS guidance or with no luminal bulge [19].

Percutaneous adjuvant therapy after endoscopic drainage was necessary in 40% of patients [19]. In our series only one case benefited from adjuvant radiological drainage given the persistence of a collection.

Treatment-related mortality is slightly less with the endoscopic treatment which remains lower 6% according to the different series [16-18]. Therefore, ESGE therefore recommends endoscopic treatment as the first-line drainage for PCP.

Conclusion

Interventional endoscopy appears to be an effective therapeutic route in the presence of symptomatic or complicated pancreatic collections. Echo-endoscopy can increase feasibility and possibly decrease morbidity.

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