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## Internal Drainage Method for Treatment of Pseudopancreatic Cyst



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### A B S T R A C T

*Pseudo pancreatic cyst is the most common complication of Acute or Chronic pancreatitis. Pseudocyst (PC) of pancreas continue to pose a dilemma to the Surgeon alike when attempting to establish a rational means of management, although prudent studies have been made in the realm of diagnosis and follow up. The internal drainage is the desired method of the surgical management. Here with reviews of the articles we evoked special interest in the method of internal drainage procedure in terms of post-operative complication like Hemorrhage, sepsis, recurrence and mortality.*

**KEY WORD** Pseudo pancreatic cyst; Cystogastrostomy; cystojejunostomy(roux-en-y).

#### INTRODUCTION

Pseudocyst of the pancreas is defined as a collection of walled of fluid or necrotic material which is produced by the action of extravasated and activated pancreatic enzymes on tissue with which they come in contact. It may be located in the lesser sac of the peritoneum, in the peripancreatic cellular tissue or even within the pancreas itself. The wall consists of the adjacent viscera covered with fibrous tissue of varying degree of thickness and consistency. There is no epithelial lining. The content of the cyst is usually rich in pancreatic ferments [1, 2, 3].

#### INCIDENCE

Pseudocyst incidence is low 1.6-4.5% or 0.1-1 per 100000 adult per year [4]. Pseudocyst in chronic pancreatitis have a higher incidence as compare to acute pancreatitis[5]. They can be single or multiple but most cysts (90%) are single[6]. The other study suggest that it account two third of all pancreatic lesion and develop in 10-20% of acute pancreatitis and 20-40% of patients with chronic pancreatitis and 90 % of pseudocyst are single. However different authors quote an 11-18% incidence of multiple pseudocyst in patients with acute and chronic pancreatitis [7]. The one article suggest that the pseudocyst are

preceded by pancreatitis in 90% of cases and by trauma in 10% and Pseudocyst are located 85% in the body and tail of the pancreas and 15% in the head[8].

### ETIOLOGY

Pseudocyst formation is directly related to pancreatitis. Alcohol abuse is the major cause in most series accounting for 59-78% of Pseudocyst [9]. Trauma is another most common cause in other series [10] and in pediatric group. Pseudocyst is well recognized complication in children in pancreatitis and pancreatic trauma [11]. One study suggest the main cause of pancreatic Pseudocyst are chronic alcoholism 75%, and abdominal trauma 13%, with cholelithiasis, pancreatic carcinoma and idiopathic causes composing the remainder [6].

### INVESTIGATION

The Laboratory tests are of little help in its diagnosis. The WBC count, ESR, S. Amylase, S. Lipase is raised due to inflammatory response but these investigations are less important because they are rising in other inflammatory diseases

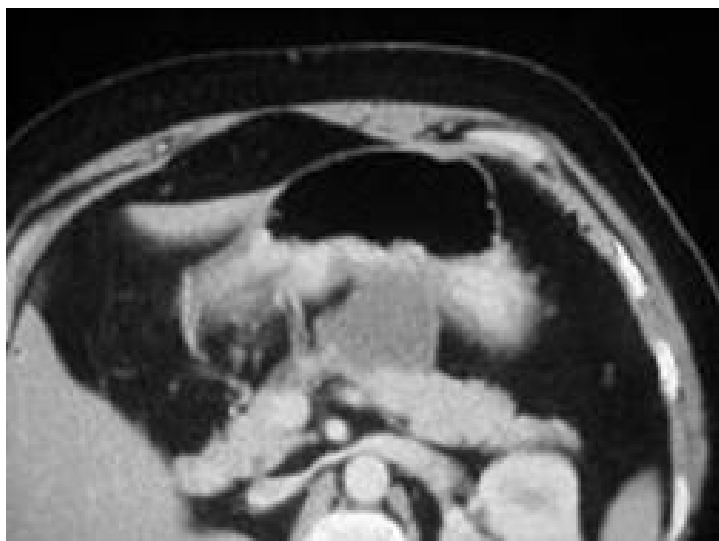


Fig 1: Pseudocyst in CAT Scan (Ref 30)

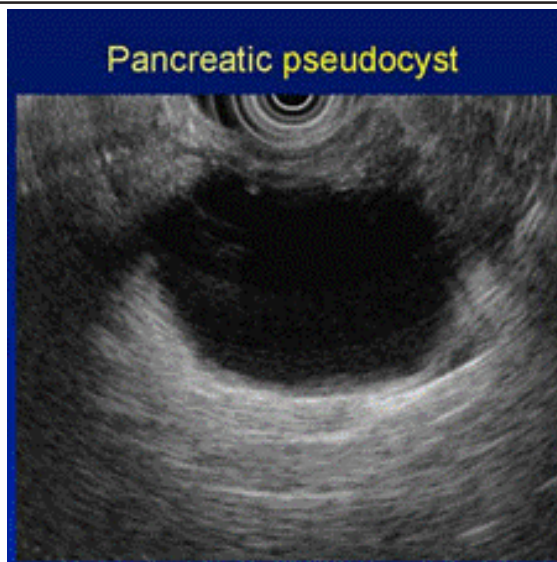


Fig 2: Pseudocyst in EUS (Ref 30)

also. S.Bilirubin can also raised due to CBD obstruction. In some cases plain x-ray Abdomen can show calcification of pancreatic region. The ultrasonography has been considered an important diagnostic tool for detection of pseudo cyst because it is noninvasive, easy to repeat, less costly and got high sensitivity 75-90% and specificity

[4]. The CT Scan is the superior method for evaluation of pseudo cyst as it provides precise preoperative anatomic detail [4,12].In one study it has detected pseudo aneurysm within the pseudo cyst wall in 10% of patients and are an important source of bleeding complication[13]. Endoscopy ultrasonography (EUS) is new modality to confirm the diagnosis and to locate, determine the wall thickness and drainage of pseudo cyst which may appear as anechoic, fluid filled lesion with in a well defined wall adjacent to the gastro-intestinal tract and pancreas [14]. The EUS also helpful to

distinguish pseudo cyst from other cystic lesion of pancreas [4].

#### COMPLICATION OF PSEUDO CYST

1. Rupture of pseudocyst can have either a favorable or an unfavorable outcome and this depends on whether it ruptures into the gastrointestinal tract, into peritoneal cavity or into the vascular system [15]. 2. Hemorrhage can cause high mortality [16]. 3. Infection occurs either spontaneously or after therapeutic or diagnostic manipulation [17]. 4. The Biliary complication occurs due to a large cyst in the pancreatic head region obstructing the common bile duct and resulting in obstructive jaundice [18].

#### MANAGEMENT

One theory supports that spontaneous resolution does indeed occur in a selective number of patients and if it is to occur so within 6 weeks of presentation of Pseudocyst [2]. The consensus of opinion regarding the principle of management of an uncomplicated pseudopancreatic cyst is in favour of surgery. Best recourse lies in keeping all the patient of immature pseudocyst, under close observation, if during observation, fever, toxemia, jaundice, ascitis or hemorrhage ensue, surgical intervention is indicated otherwise safer surgical procedure is advisable only when pseudocyst wall has matured, fibrosis has set in, inflammation has abated [2]. The aim of treatment is the avoidance of complication. The choice of drainage procedure depends on size, number, location, presence of absence of communication with pancreatic and bile duct, and presence or absence of infection [6]. Available surgical modalities are -1. External drainage. 2. Internal drainage- A) Cystogastrostomy B) Cystojejunostomy (Roux-en-Y) C) Endoscopy drainage.

#### EXTERNAL DRAINAGE

As it is easy to perform with minimal trauma, it is the choice of management in complex cases

like recent severe acute pancreatitis, complicated pseudocyst i.e. evidence of infection, haemorrhage or rupture. There is two method, tube external drainage and marsupurization. The common complication of this methods are failures of obliteration of cyst, fistula, electrolyte imbalance, excoriation of skin and hemorrhage. Some study is associated with a mortality rate of 6%, recurrence rate of 22% and external fistula in 10-29% [19, 20]. One study suggest, complication of resurgery 24.4%, mortality rate 3.1% [3]. Overall, this method is not a choice of surgery nowadays.

#### INTERNAL DRAINAGE

In 1915, Rudolph performed a successful internal drainage procedure [3]. Conventionally; large symptomatic and unresolved pancreatic pseudocyst is treated surgically by internal drainage [21, 22]. The internal drainage can be performed after 4 weeks of first presentation at that time cyst becomes mature and able to hold the anastomatic suture. These procedures are associated with mortality rate 2% and a recurrence rate of 5% [23]. The internal drainage can be performed into stomach, duodenum, or jejunum. The choice of procedure to perform depends upon surgeon's choice [2]. The internal drainage method is now commonly accepted as it is capable of adequate decompression and ultimate obliteration of the cyst and the same time permit reabsorbing of fluids, electrolytes and pancreatic enzymes into the gastro-intestinal tract; in addition there usually is opportunity for inspection of the interior of the cyst and for biopsy, frozen section of a portion of the cyst wall [3]. Disadvantage of this methods are 1. Stasis 2. The leakage or separation at the cystovisceral junction occurring chiefly due to the friability of the cyst wall. 3. Regurgitation with resultant stasis, infection and

activation of pancreatic enzymes. 4. Stenosis of stoma may cause inadequate drainage [3].

**CYSTODUODENOSTOMY** is usually only performed for small cyst in the head of the pancreas.

**CYSTOGASTROSTOMY** is simple and is suitable for most cysts, as they are usually adher-

ent to the posterior wall of stomach. This method can perform after opening of anterior wall of stomach, we takes stay suture through and through of posterior wall of stomach and cyst wall than we remove small portion of cyst wall and we sutured it with posterior wall of stomach with non-absorbent suture material. It's complications are recurrence 2.5% [2], re-surgery 24.4% [3] and mortality rate 2.8% [3], hemorrhage in 1% [24], pain in [24].

**CYSTOJEJUNOSTOMY (ROUX-EN-Y)** is performed first time by Koning in 1946 to create defunctionalized jejunal limb for decompression of cyst. This method can perform after making jejunum roux loop which will be anatomized with cyst wall side to side and again jejunostomy performed 45 cm distal to cysto-jejunosotomy end to side anastomosis. This method is very useful to prevent reflux and recurrence. Disadvantage is that it has two anastomosis and suitable for experienced surgeon and in large institute. It's complication rate are reoperation 4.3% [3], mortality 2.2% [3], recurrence in 1% [24], pancreatic abscess in 1% [24].

### ENDOSCOPY INTERNAL DRAINAGE

is a new promising method of dealing with pseudopancreatic cyst. It has advantage especially for recurrent cyst and in those patients unfit or not willing for surgery. It requires the cyst to be in direct continuity with the stomach and it

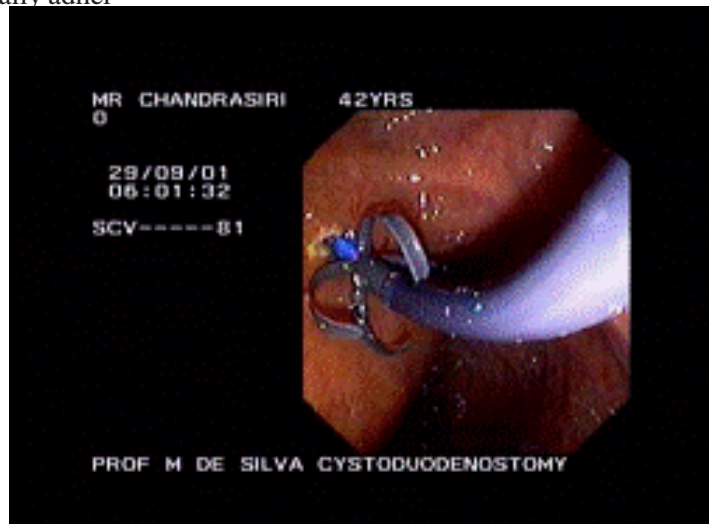


Fig 3a: Internal drainage with Endoscope (Ref 29)

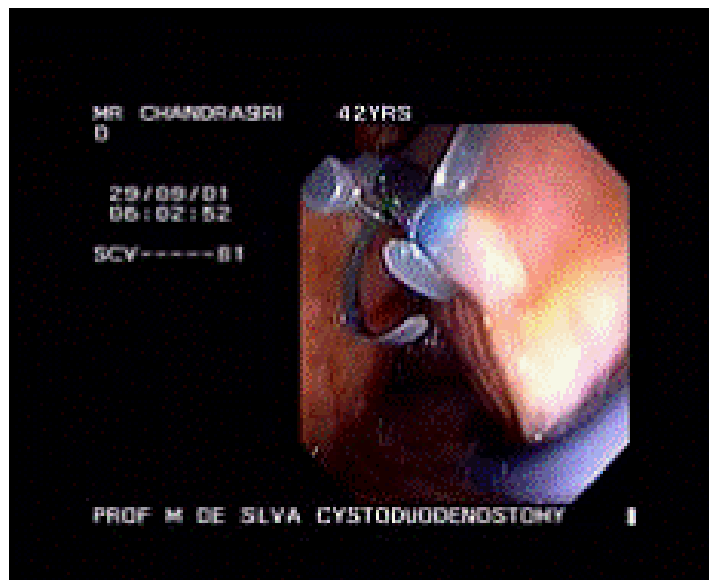


Fig 3b: Internal drainage with Endoscope (Ref 29)

showed bulge prominently at endoscope thus facilitating safe drainage. It can be done Trans papillary (via ERCP) or by transmural approach which depend upon location and bulge of cyst [25, 26]. It can be done with side viewing videoscope and 'needle-knife' is used to bore a hole into the cyst through which a cannula is introduced and a Zebra guide is passed in to the cavity. A 10fr outer sheath cannula is guided over wire to dilate the passage. A 10fr double layered polyethylene stent

is placed in the cyst cavity over the outer sheath [27]. Difficulties may arise when the copious initial escape of fluid may obscure the endoscopist view and prevent the formation of a large enough cysto-enterostomy before the cyst has collapsed [28].

**CONCLUSION** The internal drainage with new modality of Endoscopy is the choice for treatment of pseudocyst of pancreas. Among this cysto-jejunostomy (Roux-En-Y) is choice now days for most of surgeon.

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