

Disconnected Pancreatic Duct syndrome, Made Easy

Abstract:

Pancreatic Fistula is one of the complications of severe acute pancreatitis, chronic pancreatitis, trauma etc. DPDS is considered one of these complications but it is not as well known as them. It has to be dealt with in a separate manner than a simple pancreatic fistula, regarding careful diagnosis and management options in order not to harm the patient. The aim of this review is to provide the doctors the latest available data in a way to be quick and to the point in order to ease the process of recognizing and management DPDS.

Introduction:

Disconnected pancreatic duct system (DPDS) is defined as complete necrosis and injury of the main pancreatic duct, leaving a viable pancreatic segment distal to it.^{1,2}

No clear prevalence, just little of available data.

Most of the studies mentioned that pancreatic necrosis due to SAP as the major cause of DPDS 60%¹, and 34%-50% in another study². Chronic pancreatitis account for 31%-35%¹, and the remaining minority idiopathic, or traumatic.

Diagnostic importance:

In regard to diagnosis We like to stress on important tips,

- In most of the studies, the diagnosis was in retrospective fashion, plus there is always delay in the diagnosis reaching up to 9 months¹. Indicating, either difficult to diagnose or unawareness of the clinician/radiologist about the condition. Having missed it, leaving the patient suffering from multiple CTs, living a difficult life, due to persistence of the problem either non- resolving pseudocyst or continuous, un controlled fistula¹. Hence, the importance of diagnosing DPDS early on, in order not to treat wrongly, and exposing the patient to the possible complications of the drain catheter as it will not close (ineffective) in such case.
- The vast majority of the available data from the retrospective studies in which they review the CT findings of patients with confirmed DPDS, have agreed on certain criteria for the diagnosis^{1,3}:
 1. It has to be minimum 2 methods.
 2. By CT, distinct intra-pancreatic fluid accumulation along the anticipated course of the main pancreatic duct, and healthy pancreatic tissue distal to the fluid collection, the size of the collection is not a key, while the location in the neck arouse suspicion.

3. By ERCP: evidence of duct occlusion at the level of intra-pancreatic fluid collection, plus contrast leak, they advised to be done after 2 weeks of the acute attack.
4. One study stressed on an important radiological sign to clarify, since not all fluid collection means DPDS, the collection may compress the gland to the extent it appears as necrosed, but the presence of thin bridge of viable glandular tissue inferiorly or posteriorly excludes it³.
5. Secretin-MRCP: one article has reviewed it as a diagnostic modality, and they concluded, it is non-invasive, safe and effective even in visualizing the leak. But they advised to be done 3 weeks after the acute attack⁴.

Treatment:

The options to treat DPDS based on the latest data available are:

1- Somatostatin + TPN: not used for DPDS, used only in simple fistulas and help only to fasten fistula closure only⁵.

2-Embolization with N-butyl-2-cyanoacrylate:

In One study, they used it in 12 patients, it was successful in 8 out of them and helped to avoid surgery⁶.

Another 4-case report study, they concluded it is useful to treat complicated fistula⁷.

Lastly, one case report using the same method for DPDS, the patient was followed for one year, he remains symptom-free⁸.

3-ERCP and stent:

97 patients were reviewed after stent placement for DPDS, it was successful in 55%, unsuccessful in 36%⁹.

Another study for 12 patient with DPDS treated endoscopically with stent, the long-term follow up showed no recurrence of symptoms².

To keep or remove the stent:

One randomized trial of 28 patients followed over 27 months, 15 patients were the stents kept (group A), and 13 were the stent removed (Group B). 5 patients had a recurrence after stent removal in group B, whereas none of group A had a recurrence. They concluded that recurrence rate increased with removal of the stent¹⁰.

4-Surgery:

Tow options are available:

1-Roux-en-Y drainage: in one study, they treated 7 patient with internal drainage procedure and they followed them for a period of 4-5 months, only one patient needed distal pancreatectomy, and no patient developed exocrine insufficiency¹¹.

Another similar study, in which total of 27 patients, 13 managed with Roux-en-Y and 14 with distal pancreatectomy, the Roux-en-Y needed less operative time, blood loss, and transfusion requirements¹².

2-Distal pancreatectomy: this procedure is considered an option with good results in treating fistula, however, it needs a lot of dissection in inflamed area, in addition to that, removing part of pancreas and spleen is not justified¹³.

Conclusion:

DPDS is a recognized sequela of certain conditions such as SAP, and necrosis, chronic pancreatitis. Due to harmful complications that could happen if the diagnosis was missed, The clinician/radiologist has to increase the awareness about the criteria of diagnosis. In management DPDS, Embolization and ERCP and stenting are good options for old fragile patients, while surgical options are better for young fit patients. Internal drainage is considered the best surgical options compared to pancreatic resection.

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