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Review Article

Chronic pancreatitis: The case for surgery

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Abstract

Treatment of pain in chronic pancreatitis includes medical, endoscopic and surgical therapy. Medical treatment may involve the use of analgesics, pancreatic enzymes, antioxidants and removal of risk factors. However, a substantial number of patients do not experience pain relief with medical treatment, and those with local complications cannot be treated medically indefinitely. These require endoscopic or surgical therapy. Endoscopic therapy has involved the use of a) pancreatic sphincterotomy, b) stent placement, c) nasopancreatic drainage, d) pseudocyst drainage, e) extra corporeal shock wave lithotripsy (ESWL), and f) dilatation of strictures. The current options for surgical therapy include: a) partial pancreatic resections, b) extended pancreatic drainage procedures (which involve additional subtotal resection of the head or a deep coring out of the head, or c) pure pancreatic drainage procedures. In effect surgical procedures provide a more thorough drainage of the ductal system than pancreatic stent placement. This is especially true in the complex ductal arrangement of the head of the pancreas, where simple drainage of the duct or stent placement by endoscopy is unlikely to provide thorough drainage and relief of symptoms.

Key words

Chronic pancreatitis, pancreatic resections, pancreatic drainage procedures, endoscopic therapy

Background

The term "chronic pancreatitis" implies irreversible changes in the ductal and parenchymal elements of the pancreas. The two commonest etiological factors are alcohol abuse (AIP), and idiopathic (or tropical, TCP) cause. The disease manifests itself in many forms: a) fibrocalcific pancreatic diabetes (FCPD) where the main thrust in on management of diabetes mellitus, b) as steatorrhea and malnutrition, where the mainstay of treatment is pancreatic enzyme replacement, and most commonly, c) abdominal pain and local complications, not the least of which is pancreatic adenocarcinoma.

Treatment of pain in chronic pancreatitis may be a) medical, b) endoscopic, or c) surgical.

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Medical treatment may involve the use of analgesics, pancreatic enzymes and antioxidants. In addition, removal of risk factors such as alcohol abuses may help in aborting the disease or minimizing symptoms. However, a substantial number of patients do not experience pain relief with medical treatment, and those with local complications cannot be treated medically indefinitely. These require endoscopic or surgical therapy.

Endoscopic therapy has involved the use of a) pancreatic sphincterotomy, b) stent placement, c) nasopancreatic drainage, d) pseudocyst drainage, e) extracorporeal shock wave lithotripsy (ESWL), and f) dilatation of strictures.

The current options for surgical therapy include: a) partial pancreatic resections, b) extended pancreatic drainage procedures (which involve additional subtotal resection of the head or a deep coring out of the head, or c) pure pancreatic drainage procedures.

In effect surgical procedures provide a more thorough drainage of the ductal system than pancreatic stent placement. This is especially true in the complex ductal arrangement of the head of the pancreas, where simple drainage of the duct or stent placement by endoscopy is unlikely to provide thorough drainage and relief of symptoms.

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Results of surgical treatment for chronic pancreatitis

Many reports of pancreatic ductal drainage operations, extended drainage operations and head resections now describe long-term pain relief, improvement in quality of life, hospitalization, and a change in the natural history of the disease.[1-8] Further, there is evidence that surgical drainage may improve pancreatic function and delay the onset of pancreatic insufficiency.[9-11]

What is the evidence?

There have been two randomized controlled trials comparing endoscopic stenting with surgical therapy. The first was published from the Czech Republic, where 72 patients were randomized to Surgery or endoscopic therapy consisted of resection (80%) and drainage (20%) procedures, while endotherapy included sphincterotomy and stenting (52%) and/or stone removal (23%).[12] In the entire group, the initial success rates were similar for both groups, but at the 5-year follow-up, complete absence of pain was more frequent after surgery (37% vs. 14%), with the rate of partial relief being similar (49% vs. 51%). In the randomized subgroup, results were similar (pain absence 34% after surgery vs. 15% after endotherapy, relief 52% after surgery vs. 46% after endotherapy). The increase in body weight was also greater by 20-25% in the surgical group, while new-onset diabetes developed with similar frequency in both groups (34-43%), again with no differences between the results for the whole group and the randomized subgroup. The second randomized trial came from Holland, and was a multicenter study comparing 19 endotherapy cases with 20 surgical drainage cases. Four patients in the endotherapy group were converted to surgery. The complications were similar in both groups, and there was no mortality. The pain relief was 32% following endotherapy and 75% following surgery. The Izbcick scores and SF 36 quality of life scores were also superior in the surgery group, and the study was terminated.[13] This provoked widespread response from the endoscopic community and also an editorial. The resultant observations established serious concerns regarding the present state of endoscopic therapy.

a. Lack of uniformity of the duration of stenting, some preferred short-term stenting while others suggested long-term stent placement.
b. Controversy regarding the extent of stricture dilatation.
c. Controversy regarding the use of stents with or without side holes.
d. Some endoscopists preferred to dismiss the results of the trial as insignificant (too few patients) or due to the possibility that long-term symptomatic patients may have been included in the endoscopy group.

Currently endoscopic therapy for intractable pain in chronic pancreatitis is plagued by the following problems:

a. Lack of any uniformity of approach in terms of size, type, and duration of stent placement.
b. A recent study has recommended that endotherapy should not be done, and that pancreatic stone ESWL should alone be performed. This is in direct contravention to the principle that establishment of cannulation of the pancreatic duct by endoscopy must be a prerequisite to proceed to ESWL.[14]
c. Most reports of endoscopic therapy describe short-term or "medium-term results".[15-19] It is possible that there can be a sham effect for short-term pain relief in an episodic disease such as chronic pancreatitis. A study is currently on to compare endoscopic therapy to sham procedure and the results should throw light on this issue.[20]

The three criteria for evaluation of a therapeutic procedure are:

a. Applicability: Chronic pancreatitis may occur with dilated ducts, narrow ducts or mass lesions. Endoscopic therapy is efficacious only in dilated (large duct disease), and the results in small duct disease and in mass lesions are poor. Surgical drainage is efficacious in patients with narrow ducts, and also in mass lesions, where operative biopsy and frozen section helps to rule out cancer, following which various methods of head resection or coring can be used to treat the condition.[21,22]
b. Efficacy: This has been addressed earlier.
c. Safety: there exists a concept that endoscopy is to be applied as a first intervention in chronic pancreatitis as surgery has considerable morbidity and the risk of mortality. However, surgical results have improved and morbidity has lowered. Further, endoscopic therapy does predispose to the introduction of infection into the pancreatic ductal system and that may result in increased complications following a subsequent surgical treatment.[23,24]

Endoscopic therapy: The surgical perspective

Endoscopic therapy is to be recommended in the following situations:

a. Pancreatic ductal disruptions such as pancreatic pleural effusions and ascites, pseudocysts are eminently treatable by endotherapy, provided the ductal disease is not severe and there are no tight strictures between the disruption and the ampulla.
b. Isolated head strictures, and ampullary stenosis, are treatable by endotherapy, and the resultant pain-free interval may be long lasting and avoid surgery altogether.
c. Biliary stenting is suitable for patients who have indeterminate pancreatic head masses in chronic pancreatitis who also have cholangitis and poor general condition.
d. Overall, endoscopic therapy is more suitable to patients with alcohol abuse where abstinence provides a modifiable risk factor which may act on the patient's behalf and provide long-term amelioration of symptoms.

Conclusion

Surgical therapy (drainage and resection) remains the current gold standard for treatment of intractable pain and complications

of chronic pancreatitis. The long-term results of pain relief are in excess of 80% and there may be functional benefit in terms of preservation of pancreatic function in the long term.

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