

Commentary

CHRONIC PANCREATITIS FROM LOSING HEART TO ACTING SMART!

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Abstract

Background: Chronic pancreatitis is a progressive disease which complications lead to increased morbidity and social and professional problems.

Material and Methods: The authors analysed the current treatment options for chronic pancreatitis and compared it to the former treatment options.

Results: Historically surgical treatment options of chronic pancreatitis were associated with a high complication rate due to pancreatic surgery. Furthermore, inadequate assessment of outcome lead to the treatment approach of watchful waiting and endoscopic interventions. Improving experiences with pancreatic surgery (high volume, combination of resection and drainage, e.g. duodenum-preserving pancreatic head resection) in some centers combined to modern evaluation methods revealed a low mortality (<5%), acceptable perioperative morbidity (15-20%), low reoperation rate (10%) and in 80% of the patients complete freedom of pain.

Conclusion: A combination of drainage and resection tailored to the patient's need and performed early before developing endocrine insufficiency, seems to be the best medical care currently available to patients suffering from chronic pancreatitis.

Key words: Chronic pancreatitis-surgery; duodenum preserving pancreatic head resection

Treatment of chronic pancreatitis has seen an impetuous evolution over the decades. The risks of having complications related to pancreatic surgery initially were high. The pathophysiology of this disease was, and partially still is, poorly understood. An appropriate surgical procedure was therefore difficult to devise. The high risks and inadequate assessment of outcome resulted in a search for alternative approaches between watchful waiting and endoscopic interventions. After we have seen an improvement in reporting the outcome of treatment, we can now look at these efforts and compare them to the results surgical evolution has produced over the last decades.

Based on studies that have changed our and the patients' perspective, a new assessment is warranted:

- It became evident that it was unpredictable which patient, if only observed, would become pain free and when [1].
- Analgesia was eventually accompanied by endocrine and exocrine insufficiency [1].

- Early surgical intervention was able to halt the process of progressive pancreatic insufficiency [2].
- The risks of morbidity and mortality related to pancreatic surgery have decreased dramatically [3-5].

In many patients, occasional mild pain attacks are treated by non-opiate analgesics. A significant proportion of these patients will probably never develop any associated problem and they do not perceive a significant reduction in their quality of life by the disease. A problem remains that they are rarely seen by specialist surgeons or gastroenterologists; their number is obscure, their treatment and the final outcome has not been reported. These patients do not *suffer* from chronic pancreatitis.

Patients that suffer indeed from chronic pancreatitis still pose a therapeutic dilemma for gastrointestinal surgeons and gastroenterologists alike. Analgesia alleviates the most disturbing problem of many patients, but impedes the social function of these, often young, patients seriously. It was assumed that most patients with chronic pancreatitis will eventually burn out their pancreatitis, leaving them pain free. Later it was shown that the ratio of patients becoming pain free after up to 18 years is not more than 50% [1]. The average hospital stay in Europe for a modern surgical procedure for chronic pancreatitis with a success rate above 80% is below 18 days [3-5].

Other non-interventional options are scarce. Enzyme supplementation, nerve blockage or splanchnicectomy, and antioxidant therapy have been reported. Studies have shown contradictory effects, with very few of these being randomized and none has evaluated outcome in a validated fashion before and after treatment. Further studies will be needed before one of these options can be recommended.

A non-interventional approach to patients suffering from chronic pancreatitis falls, therefore, short of our aim in delivering quality of life.

Endoscopy can offer lithotripsy of calcifications, stenting of stenosed ducts, and drainage of fluid collections. Unfortunately, reports on this approach are so far limited to feasibility reports and retrospective studies with ill-defined entry criteria. No randomized study has shown its efficacy so far. Accordingly, the American Gastroenterological Association did not approve of endoscopic therapy as an established effective therapy for pain in chronic pancreatitis as long as the data are not substantiated [6].

Currently the pathogenesis of pain can be attributed to a multifactorial process, involving parenchymatous hypertension and neural alterations due to mechanical and chemical irritation [7, 8]. An efficient drainage of the second and third degree pancreatic ducts and the parenchyma seems to be important. The removal of tissue with severe neural alterations and effective drainage of the hypertensive pancreatic tissue is therefore the most promising approach [5].

The description of organ sparing operations for chronic pancreatitis has left us with optimized opportunities to tackle the problems of chronic pancreatitis [3-5]. These operations should deliver the following:

- low risk
- analgesia
- improved quality of life
- exclusion of a malignant tumor
- treatment of complications
- preservation of endocrine and exocrine tissue
- low relapse rates in long term follow-up.

This long list of challenges can currently be best addressed by duodenum preserving resections of the pancreas in its varieties.

A pylorus-preserving partial pancreatoduodenectomy can address many of these points. It is, however, associated with a significantly reduced quality of life in comparison to the duodenum preserving resections [9]. We, therefore, find it difficult to justify nowadays a pylorus-preserving partial pancreatoduodenectomy in a patient with chronic pancreatitis. A custom-tailored approach is important:

In patients with large ducts, the most proximal stricture has to be included in the resection as well as the dorsal duct. To the left, all strictures have to be divided and in order to avoid reocclusion, a ventral part of the pancreas has to be excised. For decompressing the more peripheral ducts and the uncinat process, the head of the pancreas, if diseased, has to be cored out. In patients with small duct disease, a combination of resection of the head and a v-shaped excision of the body and tail becomes necessary. Only very few patients have no ductular alterations in the head of the pancreas. Drainage of the left part will be sufficient for these few patients.

Evaluating this approach, we can achieve the following:

- A mortality well below 5 % [3-5, 9]. The perioperative morbidity is approximately 15 % to 20 %. Less than 10 % of these complications require reoperation.
- About 80 % of the patients can be expected to become completely free of pain in long term follow-up [3-5]. The average reduction of a validated pain score has been reproducibly above 90 % [5, 9, 10].
- In quantifying studies, overall quality of life increased by approximately 70 % [5, 9, 10].
- A malignant tumor can be excluded during surgery (fast frozen section mandatory).
- Professional rehabilitation can be achieved in 70 to 80 % of the patients [3, 5].
- Associated complications of neighboring organs are

solved permanently in over 90 % of the patients [5].

- Exocrine and endocrine function are not significantly disturbed by the operation [3-5, 9, 11].

A combination of drainage and resection tailored to the patients' needs and performed early, before the patient develops endocrine insufficiency, delivers the best medical care currently available to patients suffering from chronic pancreatitis.

REFERENCES

1. Lankisch PG, Lohr-Happe A, Otto J, Creutzfeldt W. Natural course in chronic pancreatitis: pain, exocrine and endocrine pancreatic insufficiency and prognosis of the disease. *Digestion* 1993;54:148-155.
2. Nealon WH, Thompson JC. Progressive loss of pancreatic function in chronic pancreatitis is delayed by main pancreatic duct decompression. *Ann Surg* 1993; 217:458-468.
3. Beger HG, Buechler M, Bittner RR, Oettinger W, Roscher R. Duodenum-preserving resection of the head of the pancreas in severe chronic pancreatitis. Early and late results. *Ann Surg* 1989; 209:273-278.
4. Frey CF, Amikura K. Local resection of the head of the pancreas combined with longitudinal pancreaticojejunostomy in the management of patients with chronic pancreatitis. *Ann Surg* 1994;220: 492-507.
5. Izbicki JR, Bloechle C, Knoefel WT, Kuechler T, Binmoeller KF, Broelsch CE. Duodenum-preserving resection of the head of the pancreas in chronic pancreatitis: a prospective, randomized trial. *Ann Surg* 1995; 221:350-358.
6. Warshaw AL, Banks PA, Fernandez-Del Castillo C. AGA technical review: treatment of pain in chronic pancreatitis. *Gastroenterology* 1998; 115:765-776.
7. Bockman DE, Buechler M, Malferteiner P, Beger HG. Analysis of nerves in chronic pancreatitis. *Gastroenterology* 1988; 94: 1459-69.
8. Ebbelohj N, Borly L, Buelow J, Rasmussen SG, Madsen P, Matzen P, Owre A. Pancreatic tissue fluid pressure in chronic pancreatitis. Relation to pain, morphology, and function. *Scand J Gastroenterol* 1990; 25: 1046-1051.
9. Izbicki JR; Bloechle C; Broering DC; Knoefel WT; Kuechler T; Broelsch CE. Extended drainage versus resection in surgery for chronic pancreatitis: a prospective randomized trial comparing the longitudinal pancreaticojejunostomy combined with local pancreatic head excision with the pylorus-preserving pancreatoduodenectomy. *Ann Surg* 1998; 228: 771-779.
10. Bloechle C, Izbicki JR, Knoefel WT, Kuechler T, Broelsch CE. Quality of life in chronic pancreatitis-results after duodenum-preserving resection of the head of the pancreas. *Pancreas* 1995;11: 77-85.
11. Malka D, Hammel P, Sauvanet A, Rufat P, O'Toole D, Bardet P, Belghiti J, Bernades P, Ruszniewski P, Levy P. Risk factors for diabetes mellitus in chronic pancreatitis. *Gastroenterology* 2000; 119:1324-32.

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