"Doc, what's happening to my body?"

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Joseph, a 64-year-old retired carpenter, presents with complaints of abdominal pain, nausea, vomiting and diarrhea (with pale-coloured stool) along with a 20 lb weight loss over the last five months and general fatigue.

Medical history

Joseph's medical history reveals that:

- He is a widower. His wife died four years ago and he has been very depressed ever since; consequently, he has been drinking heavily
- He has smoked 20 to 30 cigarettes a day for the last three years
- He has not been eating regularly and his appetite is now poor
- His last physical exam was five years ago and it is interesting that his family history is unremarkable

Physical examination

A physical examination notes the following:

- BP: 164/94 mmHg
- Pulse rate: 102 bpm
- Respiratory rate: 28 breaths per minute
- He is thin, clinically anemic and appears unwell
- Chest exam: single wheezing over both sides of chest
- Cardiovascular exam: heart sounds are regular at 102 bpm with no cardiac murmurs
- Abdomen: liver is enlarged at 1.5 cm below the right costal margin. His abdomen is firm, smooth and tender. There is slight epigastric tenderness
- There is no peripheral edema or rash

Clinical investigations

Clinical investigations show:

- Hemoglobin (Hb1C): 117 g/L
- Sedation rate: 25 mm/hour
- Fasting blood glucose: 8.2 mmol/L
- Glycosylated (or glycated) Hb1C: 9.1% of total Hb1C
- Potassium (serum): 3.0 mmol/L
- Iron: 2 µmol/L
- Ferritin: 9 µg/L
- Vitamin B12: 58 pmol/L
- Liver function test:
  - Alanine aminotransferase: 145 U/L
  - Aspartate aminotransferase: 98 U/L
  - γ-glutamyl transpeptidase: 425 U/L
- Lipase: 256 U/L
- Chest x-ray: lungs show evidence of emphysema. The heart size is normal
- A CT scan of the abdomen is taken (Figure 1)

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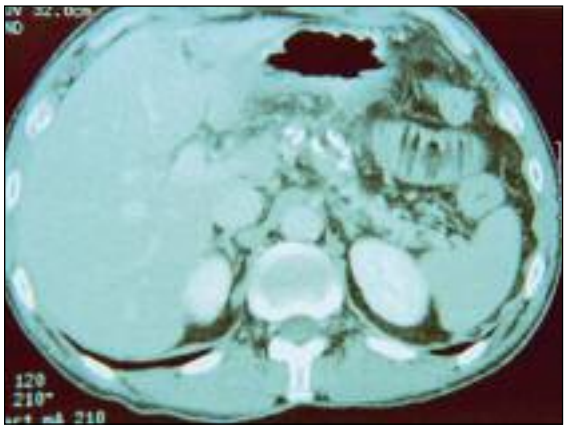

Figure 1. Abdominal CT scan.

What's your diagnosis?

a) Pancreatic cancer, alcoholism, diabetes and anemia
b) Liver cancer, alcoholism, diabetes and anemia
c) Chronic pancreatitis with extensive calcification of the pancreas, diabetes, alcoholism and anemia
d) Acute pancreatitis, diabetes, alcoholism and anemia

Answer: C
Chronic pancreatitis with extensive calcification of the pancreas, diabetes, alcoholism and anemia

Chronic pancreatitis with calcification of the pancreas

Chronic pancreatitis is a syndrome involving progressive inflammatory changes in the pancreas that results in permanent structural damage, which leads to the impairment of exocrine and endocrine function.

Several variants of chronic pancreatitis were defined,[1] including:

- Chronic calcified pancreatitis (the most common form) which is commonly caused by excessive alcohol intake
- Chronic obstructive pancreatitis (caused by long-standing pancreatic duct obstruction)
- Chronic inflammatory pancreatitis (associated with inflammatory and, particularly, autoimmune diseases)

Alcohol is the cause of chronic pancreatitis in 70% to 90% of all cases.

Presentation

Pain is a predominant symptom in about 90% of patients. It may take the form of recurrent acute attacks, often superimposed on a background of low-grade abdominal pain or relatively constant pain, usually aggravated by food ingestion.

The pain is:

- typically epigastric,
- often radiates to the back,
- is occasionally associated with nausea and vomiting and
- may be relieved by sitting upright or leaning forward.

Only a minority of patients with chronic pancreatitis have no pain. In these patients, the disease may be suspected on the basis of the development of exocrine insufficiency (*i.e.*, steatorrhea, weight loss and malnutrition), or endocrine insufficiency (*i.e.*, diabetes mellitus).

Diabetes

Diabetes can develop in 70% to 90% of patients with chronic calcific pancreatitis. Diabetes

tends to be brittle in these patients, probably due to the lack of both insulin from the pancreas and glucagon from the liver. However, patients with chronic pancreatitis-associated diabetes are less prone to complications, such as retinopathy, nephropathy, atherosclerosis and ketoacidosis than patients with primary diabetes. On the other hand, neuropathy and myopathy can occur in one-third of patients with chronic pancreatitis-associated diabetes.

Only a minority of patients with chronic pancreatitis have no pain. In these patients, the disease may be suspected on the basis of the development of exocrine or endocrine insufficiency.

A high-fat diet and smoking may also contribute to pancreatic disease in alcoholics. Smoking adversely affects pancreatic bicarbonate and water secretion, induces oxidative stress and increases the rate of pancreatic calcification.

Between 2% and 4% of all patients with pancreatic calcification have coexisting pancreatic carcinoma; it appears that alcoholism and chronic pancreatitis in some way predispose to the development of pancreatic malignancy. Dx

Reference
1. Draganov P, Forsmark CE: Diseases of the Pancreas: Definitions of Disease Presentations. ACP Medicine Online. WebMD Professional Publishing, Danbury, Connecticut. http://www.medscape.com/viewarticle/535109.