

Study of Pancreatitis: A Life-Threatening Disease

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ABSTRACT

Pancreatitis is a matter of considerable public health importance on a global scale, and its consequences in the context of India are no exception. Pancreatitis, a medical condition characterized by inflammation of the pancreas, has been documented to demonstrate a substantial rise in worldwide prevalence, illustrating an exponential development trend. The primary objective of this research study is to give a comprehensive analysis of pancreatitis. This study encompasses several aspects such as the epidemiology, etiology, causes, clinical presentation, diagnosis, treatment and preventions associated with pancreatitis.

INTRODUCTION

The pancreas is a sizable gland located posterior to the stomach and next to the small intestine. The pancreas has two primary functions. Firstly, it secretes potent digestive enzymes into the small intestine, facilitating the process of food digestion. Secondly, it releases insulin and glucagon into the bloodstream. These hormones play a crucial role in regulating the body's utilization of food for energy. Pancreatitis (AP) is defined as the inflammation of the pancreatic tissue,

characterized by parenchymal edema and necrosis caused by auto-digestion by its own glandular enzymes leading to multi-organ failure or death (Sakorafas and Tsiotou, 2000). Its clinical presentation includes the occurrence of moderate to severe abdominal discomfort, nausea, vomiting, indigestion, weight loss, and steatorrhea (fatty stool) (Baig et al., 2008). A clinical description of acute pancreatitis was first presented in 1652 by the Dutch anatomist Nicholas Tulp. In the late 19th and early 20th century, Reginald Fitz,

Nicholas Senn, Eugene Opie, and others contributions influence our present understanding of acute pancreatitis (Rustgi, 2013).

Types of Pancreatitis:

In pancreatitis, the pancreas becomes inflamed and damaged by its own digestive chemicals. Swelling and death of tissue of the pancreas can result. There are two forms of pancreatitis are acute and chronic.

1. **Acute pancreatitis** is a sudden inflammation that lasts for a short time. It can range from mild discomfort to a severe, life-threatening illness. Most people with acute pancreatitis recover completely after getting the right treatment. In severe cases, acute pancreatitis can cause bleeding, serious tissue damage, infection, and cysts. Severe pancreatitis can also harm other vital organs such as the heart, lungs and kidneys.
2. **Chronic pancreatitis** is long-lasting inflammation. It most often happens after an episode of acute pancreatitis. Another top cause is drinking lots of alcohol for a long period of time. Damage to the pancreas from heavy alcohol use may not cause symptoms for many years, but it may suddenly have severe pancreatitis symptoms.

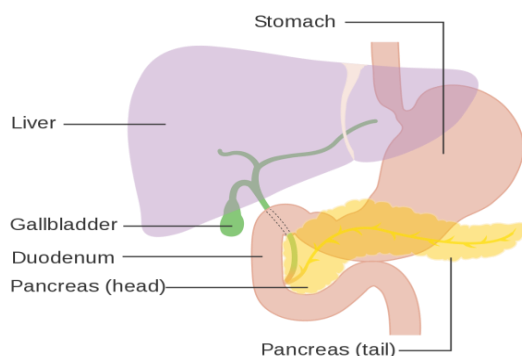


Fig. 1 Structure of stomach showing pancreas

Causes of pancreatitis:

The two most common causes of acute pancreatitis are a gallstone blocking the common bile duct after the pancreatic duct has joined and use of heavy alcohol (Kingsnorth and O'Reilly, 2006). Other causes include autoimmune diseases, drinking lots of alcohol, infections such as mumps, gallstones, certain medications, metabolic disorders, surgery and trauma. Up to 15% of acute pancreatitis patients have unknown causes. Chronic pancreatitis may develop as a result of acute pancreatitis. Chronic pancreatitis causes include Cystic fibrosis, family history of pancreas disorders, gallstones, high triglycerides, long-time alcohol use and medications. In about 20% to 30% of cases, the cause of chronic pancreatitis is unknown. People with chronic pancreatitis are usually men between ages 30 and 40. African-Americans are more likely to have pancreatitis than other racial groups in the U.S.

The symptoms of acute pancreatitis include:

1. Fever
2. Heart rate increase (Bradycardia)
3. Vomiting and nausea
4. Stomach swelling and tenderness
5. Upper abdominal pain that extends to the back and shoulders.
6. Food especially fatty foods can worsen pain.

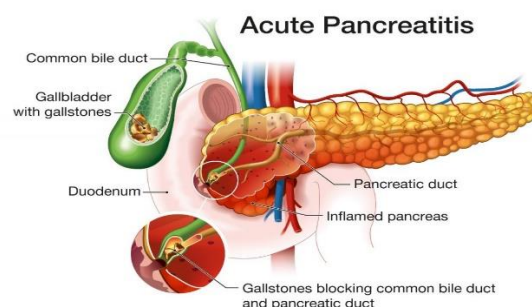


Fig. 2 Acute pancreatitis

The symptoms of chronic pancreatitis include:

Chronic pancreatitis has identical symptoms to acute pancreatitis. One may also have:

1. Constant upper excruciating abdominal ache radiating to the back. Stomach upset, vomiting, diarrhoea and severe weight loss results from insufficient pancreatic enzyme release for meal digestion.
2. If insulin-producing cells are damaged, pancreatitis can induce diabetes, pancreas infection, kidney failure, and malnutrition due to a lack of digesting enzymes.

Pancreatitis can lead to some complications:

- Pancreatic cancer, pancreatic necrosis resulting in tissue death due to insufficient blood flow to the pancreas, pseudocysts i.e. fluid accumulation in pancreatic pockets. They can infect and rupture.

Diagnosis of Pancreatitis:

1. In order to ascertain the presence of pancreatitis, X-rays or imaging examinations, such as an Ultrasound, CT scan or MRI may be employed to assess the potential calcification of the pancreas.
2. The collection of blood samples and a blood examination is conducted to assess the levels of two vital digestive enzymes, viz., amylase and lipase. Elevated levels of these two enzymes may indicate a potential diagnosis of acute pancreatitis.
3. The examination of the stool is conducted to assess for the presence of excessive fat, which may indicate insufficient production of pancreatic enzymes for fat digestion.
4. The patient may undergo an examination for diabetes.

Treatment for acute pancreatitis

1. Acute pancreatitis often requires severe pain medications and a tube may need to be inserted into the nose of patient in order to empty their stomach. Fluids and nutrients may be given intravenously, if

the attack lasts for an extended period of time.

2. If the pancreas is infected, antibiotics may be prescribed and given intravenous (IV) fluids.
3. Fasting or a low-fat diet is preferred in order to heal the pancreas.
4. Topical analgesics are administered for high fever.
5. Gallstones that are obstructing the bile or pancreatic ducts may require more invasive procedures such as endoscopic retrograde cholangio-pancreatography (ERCP), if gallstones are responsible for pancreatitis, then gallbladder gets removed.
6. Surgery to remove fluid, dead tissue, or damaged pancreatic tissue.

Treatment for chronic pancreatitis

1. In chronic pancreatitis, the doctor will focus on treating pain guarding against possible addiction to prescription painkillers.
2. Mostly patients may be placed on a pancreatic enzyme replacement therapy to restore the digestive tract's ability to digest nutrients.
3. Insulin to treat diabetes.
4. Injection of anaesthetics into the nerves near the spine may give pain relief.
5. Surgery or procedures to relieve pain, help with drainage, or treat blockages.

Prevention from Pancreatitis:

Due to the etiological association between alcohol abuse and numerous instances of pancreatitis, preventive measures are to quit

alcohol consumption and to practice healthy life style.

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