

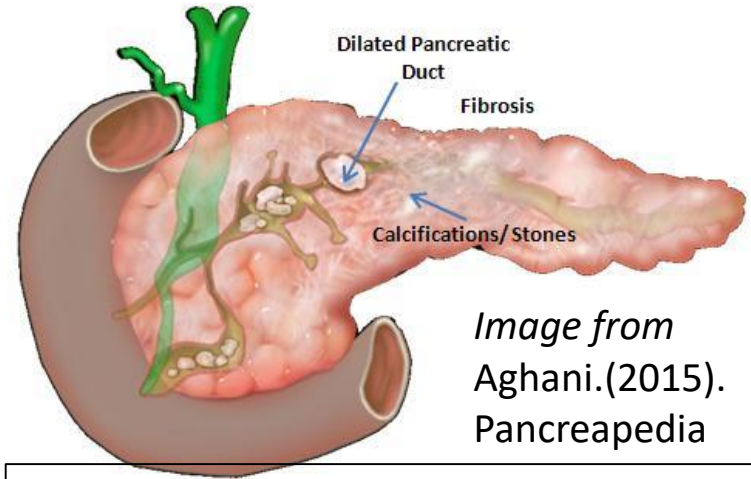
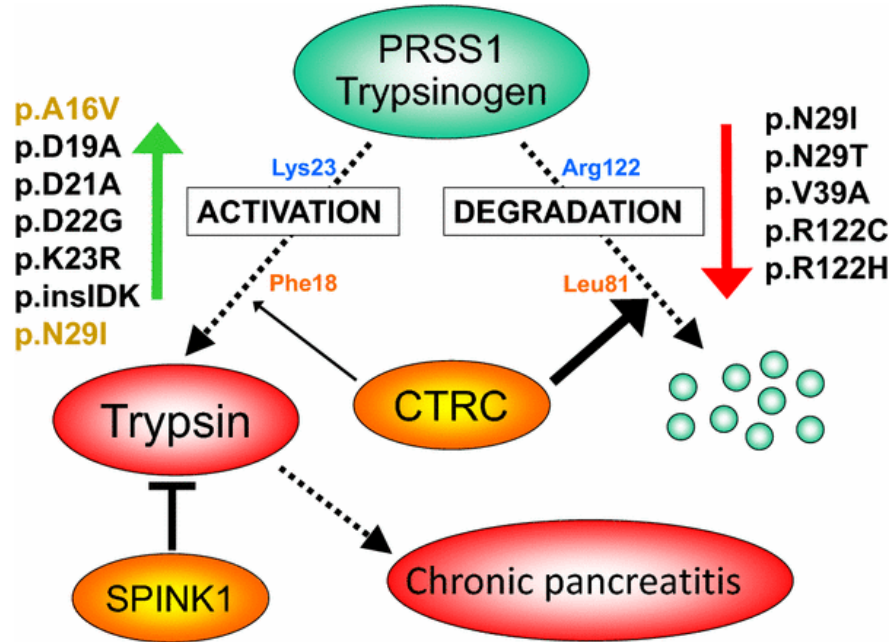
Pancreatitis in Children

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What causes pancreatitis in children?



Obstruction (~33%)

Pancreas Divisum
Gallstones
Other congenital malformation

Image from Hegyi & Sahin-Tóth. Dig Dis Sci (2017) 62.

Genetic Risk Factors (50-75%)

Trypsin Pathway: PRSS1, SPINK1, CTRC
Ductal Pathway: CFTR
Others: CPA1



Toxins (~20%)

Medications
↑ Triglycerides

Acute Complications & Symptoms

- **Pain!** –episodic or constant
 - Opioids for pain management
 - Pain may be under-treated
 - Nausea, vomiting
- Hospitalizations
 - 2 ED visits, 1 hospitalization/year
 - Some with dozens of admissions in childhood
- Missed school
 - 2-3 days /month
- Unable to make life plans
 - Vacations, special events, college planning
- Psychological impact
 - Depression, anxiety, social isolation



Long-Term Complications

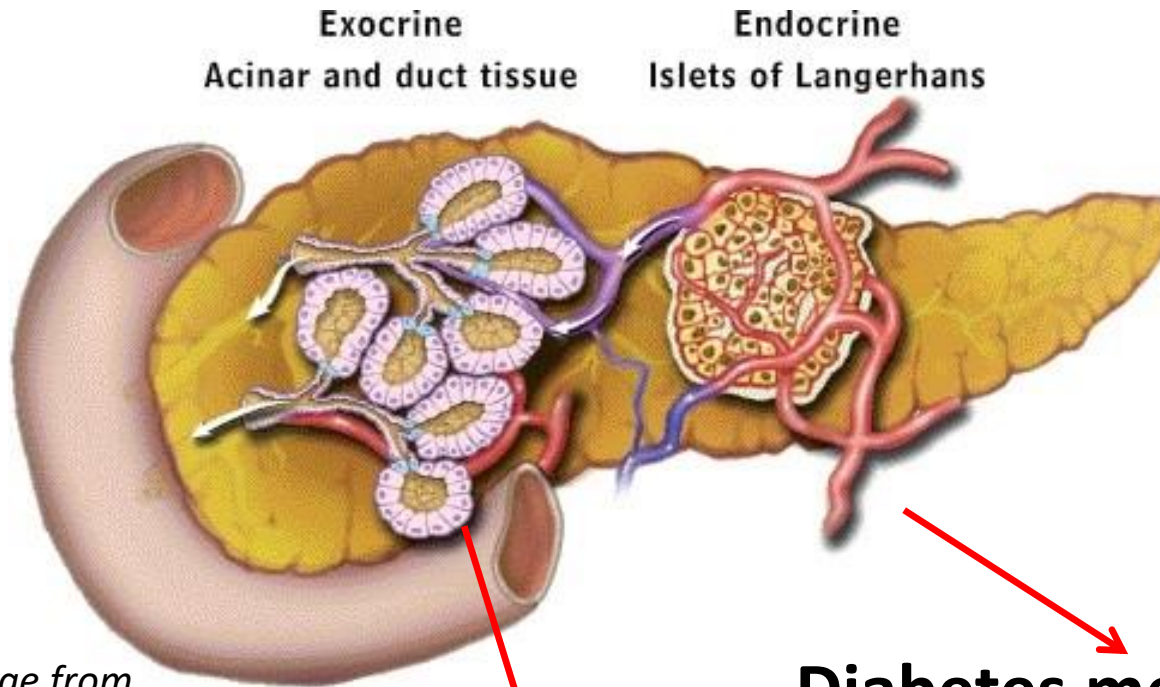
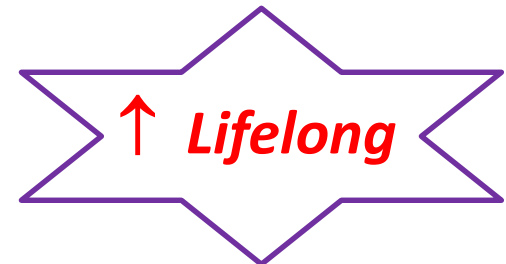


Image from
[http://www.pancreapedia.org/reviews/
pancreatogenic-type-3c-diabetes](http://www.pancreapedia.org/reviews/pancreatogenic-type-3c-diabetes)

**Exocrine Pancreatic
Insufficiency (33%)**

Diabetes mellitus (6%)



Treatment: Medical

- **Symptomatic management of episodes**
 - Pain medications (opioid and non-opioid)
 - IV fluids
- **Comprehensive pain management program**
 - Pharmacologic & non-pharmacologic
 - Health psychologist
 - Physical therapy
- **+/- Treatments to ↓ pancreatic stimulation**
 - Dietary: Fat restriction avoided for growing kids
 - Enteral feeds (Jejunal)
 - Pancreatic enzymes (non-enteric coated)
- **Antioxidants**

Treatment: Procedures

ERCP: stone removal, stents for ductal strictures

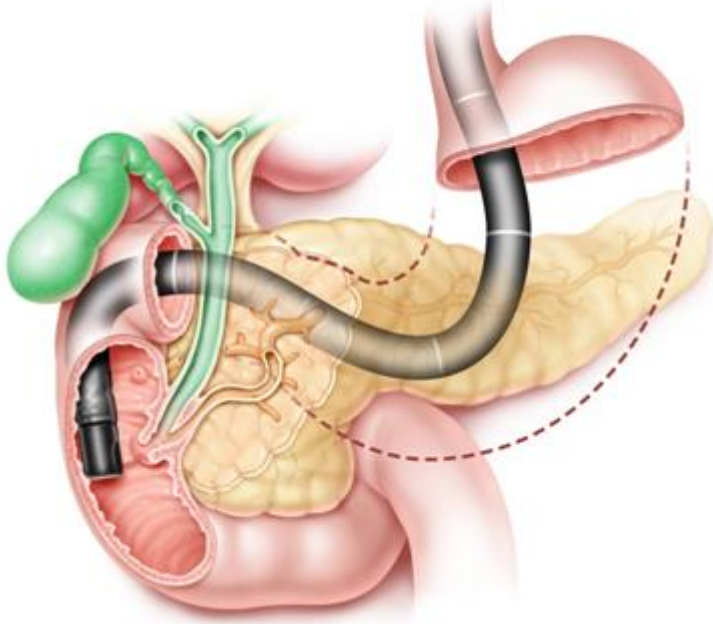
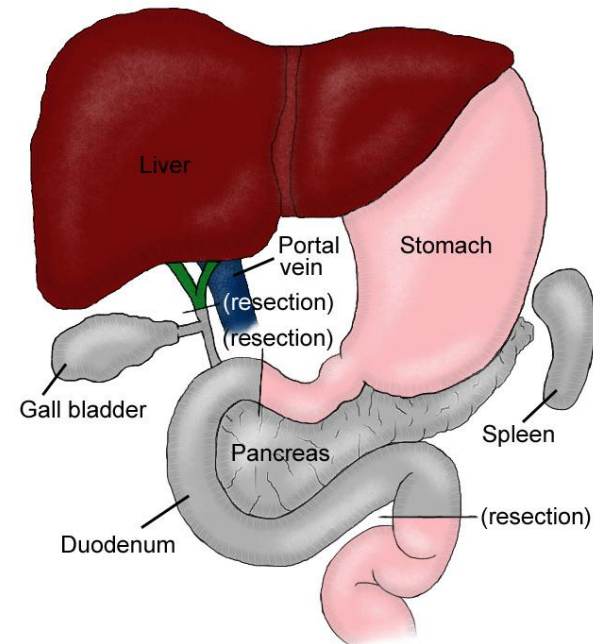


Image from <https://gi.org/topics/ercp-a-patients-guide/>

Pancreas Surgery, including Pancreatectomy with IAT

Total Pancreatectomy with Islet Auto Transplant (TP-IAT)



*Grey colored organs are removed

Barriers to Treatment for Children

- Misconceptions that delay diagnosis or result in under-treatment of symptoms:
 - “Children don’t get pancreatitis”
 - “Your lipase is not elevated; it is not the pancreas”
 - “You (your child) must have been drinking”
 - “You don’t look sick [in pain]”
 - “He/she is drug seeking”
- Few treatment options
- Few experts in pediatric pancreatitis → challenge to reach experienced care facility

There is no curative therapy for recurrent pancreatitis:

- Options are to treat symptoms or remove the pancreas
- All treatments are associate with lifelong morbidities
 - Symptomatic treatment= disease persists
 - Surgical resection= residual pain, diabetes, exocrine insufficiency