

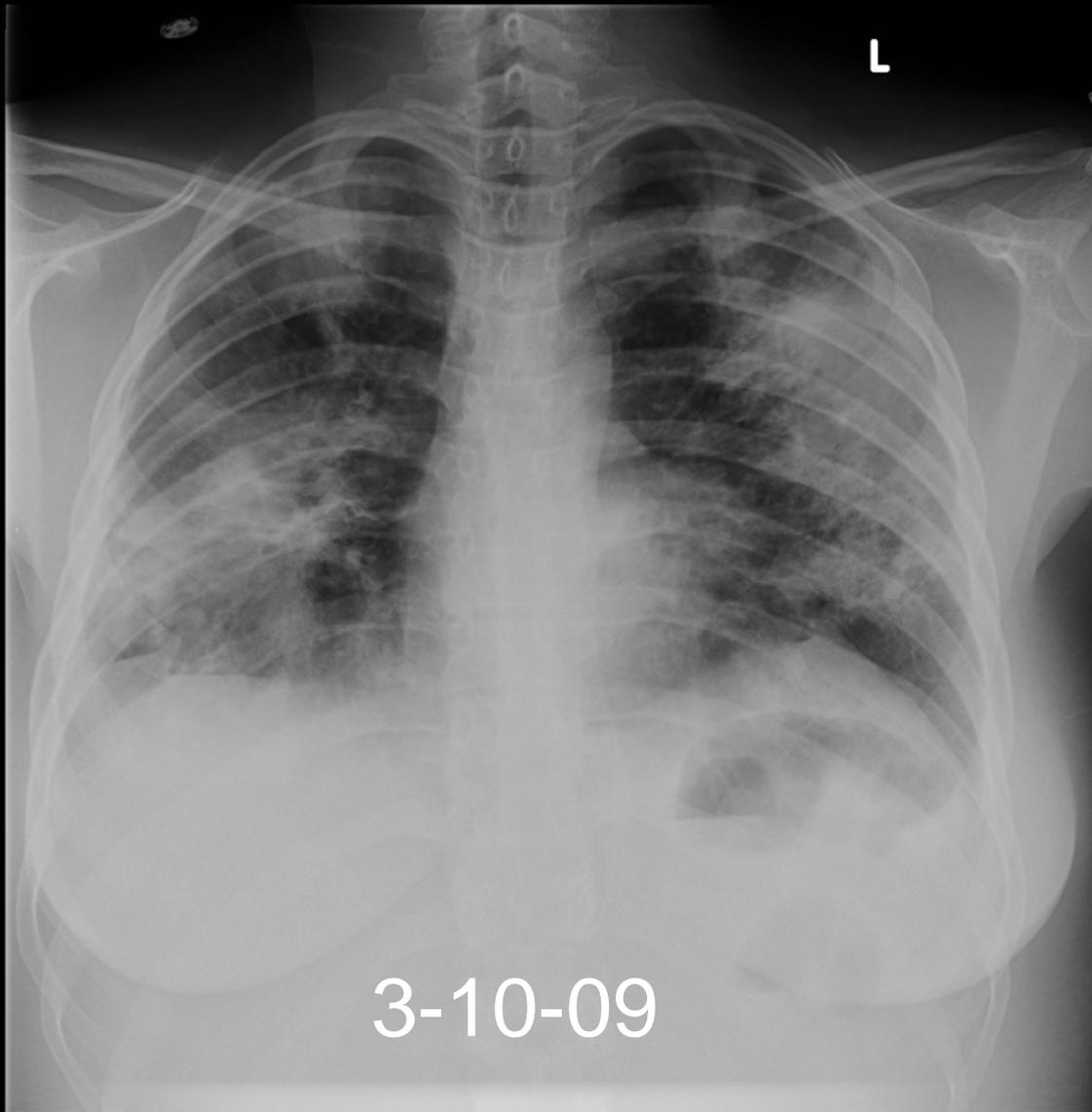
INH Induced Pancreatitis

Sheila M. Roit, RN

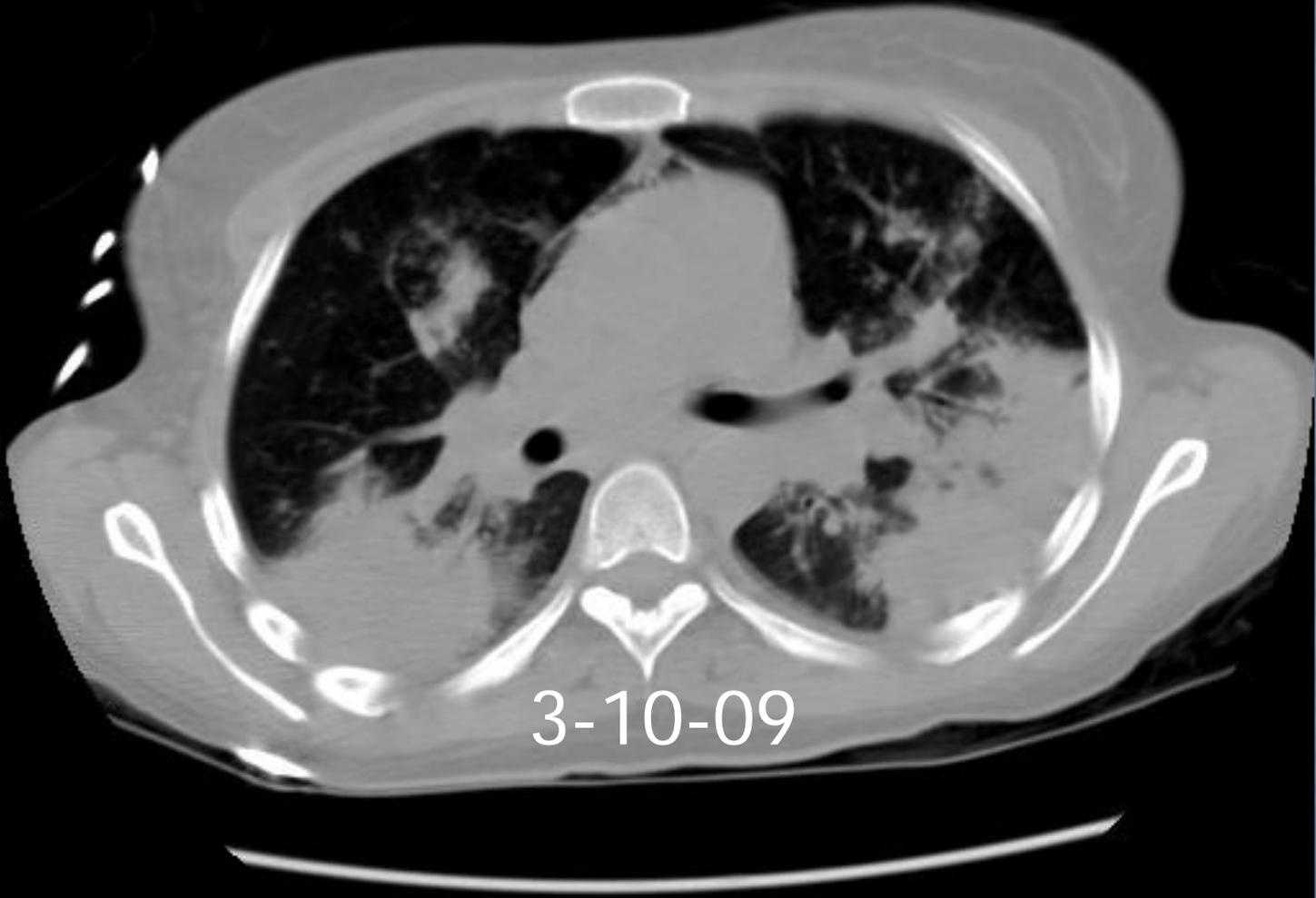
SDO

Background / First Hospitalization (1 week)

- 26 y/o, 5'11" Kenyan female, student
- 3-4 month history of cough (excessive sputa with occasional hemoptysis), fever, chills, SOB, fatigue, night sweats, loss of appetite, and 70lb wt. loss)
- Family became concerned with cough and weight loss and brought client to the ER.
- Client was admitted for one week and diagnosed with Pulmonary TB and depressed CD4 count (client refused HIV test).



3-10-09



3-10-09

Post Hospitalization / Initial Health Department workup

- Came to SDO 3/13, wt 126.5 lbs.
- During first home visit, client consented to an HIV test (results came back on 3/31...**after** second admission to INOVA).
- Over the next two weeks, client had persistent N/V with abdominal pain.
- On 3/31 client was unable to walk or get out of bed, had intractable vomiting and was sent to INOVA Fairfax.

Second Hospitalization (7 weeks)

- Client was on calorie count with IV hydration; PPN; then a g-tube was placed, wt 94.6 lbs.
- G-tube placed via Invasive Radiology as GI did not want their staff exposed to TB. During g-tube placement, client developed a right pneumothorax, had a chest tube inserted and remained on a ventilator for 1 week.
- While on the ventilator, an endoscopy and colonoscopy were performed.
- Final discharge diagnosis – disseminated TB and AIDS, wt 115 lbs.

Post hospitalization

- Client did poorly over the next 4 weeks with persistent N/V, worsening RUQ abdominal pain, decreased mentation, and profoundly decreased motor ability.
- Five days prior to third admission, client became confused, aphasic, ataxic, and had a 10lb wt loss, wt 104 lbs.

Third hospitalization (5 weeks)

- Client was readmitted for wt loss, failure to thrive, and inability to perform ADLs.
- PPN and then TPN given along with calorie count. G-tube was discussed, but client refused.
- Pancreatitis secondary to HIV medications was ruled out per ID and Juniper-HIV physicians.
- In addition to pancreatitis, client developed severe peripheral neuropathy, initially thought to be compartment syndrome, which was ruled out.

Third hospitalization (cont)

- Clinical signs, lab data and CT indicated acute pancreatitis.
- INH was thought to have caused an increase in serum calcium, in turn leading to pancreatitis and the INH was stopped.
- Symptoms resolved within 48 hrs of INH withdrawal, appetite increased and wt on discharge was 113 lbs up from 95lbs.
- CT prior to discharge showed mild uncomplicated pancreatitis.

Follow up

- Client developed herpes zoster 72hrs after discharge that have resolved.
- She is eating well, diet consists of buffalo wings, doughnuts, muffins, yogurt, and veggies.
- Wt is 127lbs, but client appears to be gaining fat stores in buttocks, thighs, and pectoral area.
- Resumed menstrual cycle at the end of July.
- Still has some Right foot pain, but walks ½ hr daily with family, drives to MD appointments.



3-10-09



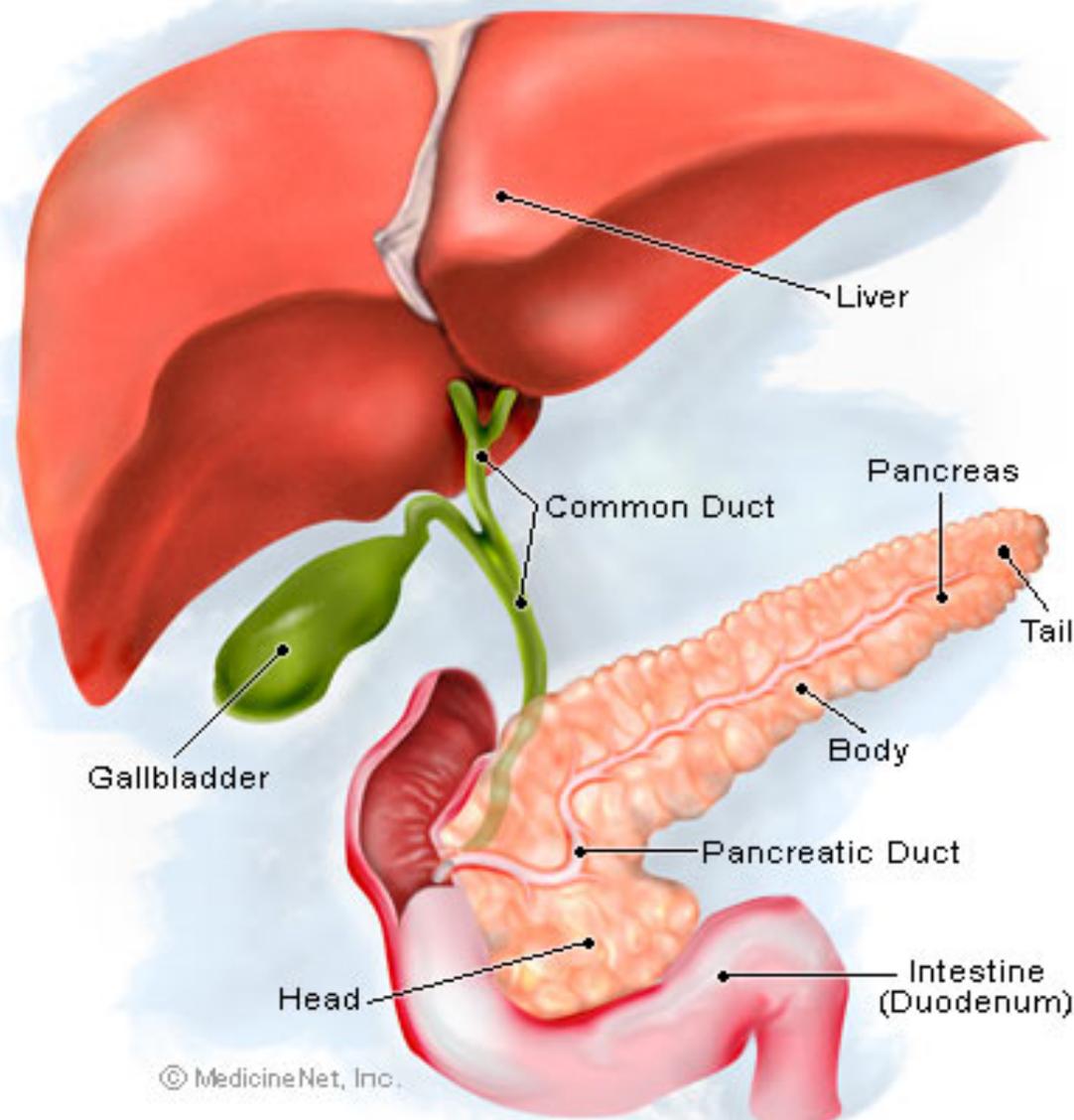
8-6-09

Shingles
(Herpes
zoster)



What is the pancreas?

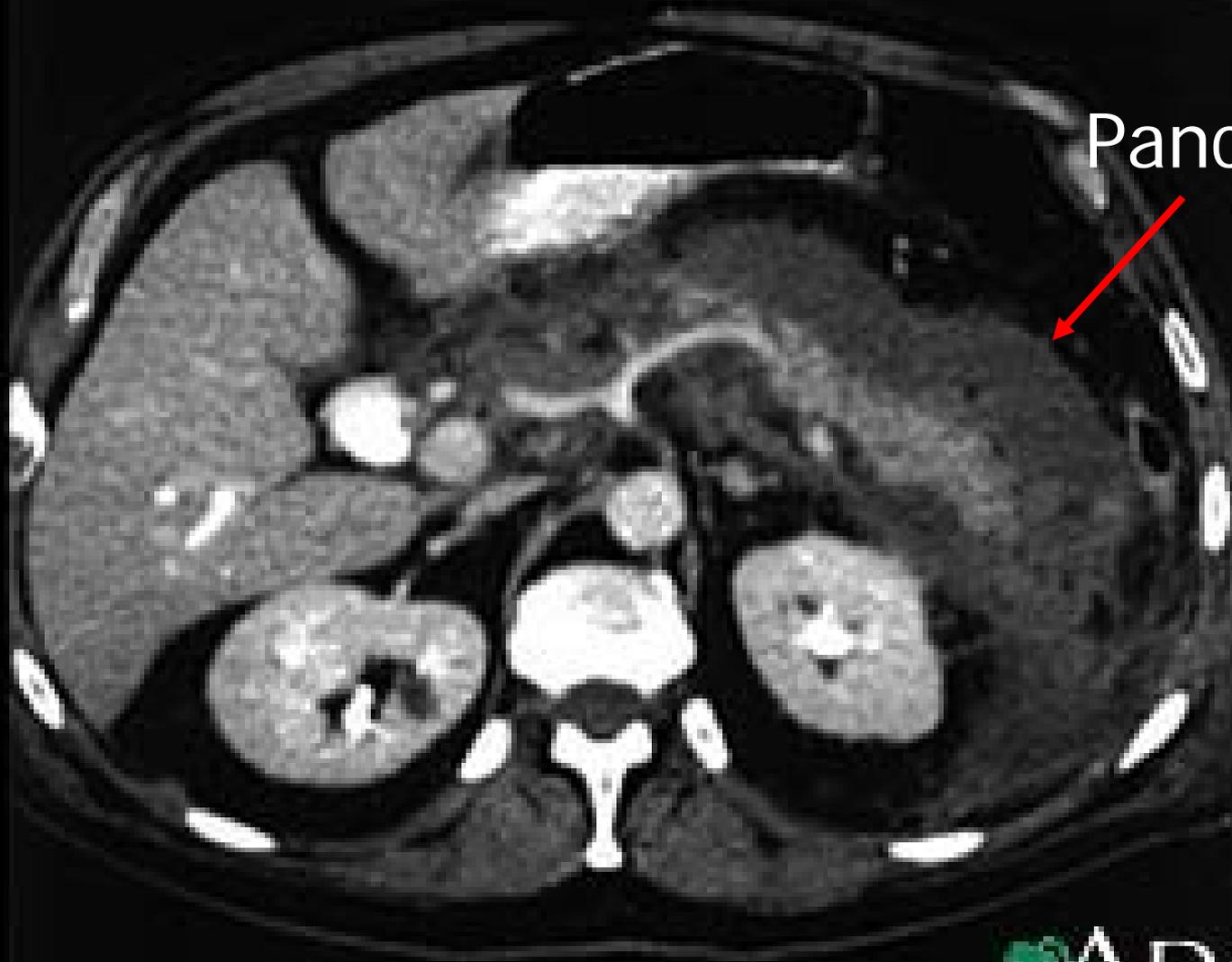
- The pancreas is a small fish-shaped, spongy grayish-pink organ, approximately six inches long, located in the upper abdomen, and adjacent to the small intestine.
- It stretches across the back of the abdomen, toward your back.
- Because it is so deep, doctors have difficulty diagnosing disease in the pancreas.



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Pancreatitis

- There are two types of Pancreatitis
 - Acute (80%)
 - Chronic (20%)
- In about 15% of cases of acute pancreatitis and 40% of cases of chronic pancreatitis, the cause is never known.



Pancreatitis

ADAM.

CAT scan of Abdomen



Inflamed
pancreas

7-1-09

Acute Pancreatitis

- Acute pancreatitis – Is a sudden inflammation of the pancreas. (Overall mortality range is 2-10%)
 - Mild cases (80%) are often successfully treated with conservative measures, such as NPO and IV fluid rehydration. Some people have only one attack, while others may have several attacks.
 - Severe cases (20%) may require admission to the ICU or even surgery (often requiring more than one intervention) to deal with complications of the disease process as well as a high mortality despite treatment.
 - Estimated 25-33% mortality in severe cases.

Symptoms

- The most common symptom of acute pancreatitis is pain.
 - It may be sudden or gradual.
 - It is usually centered in the upper middle or upper left part of the abdomen, radiating through the back
 - It may worsen when laying supine.
 - May often begin or worsen after eating.
- Besides pain, other symptoms and signs include:
 - Nausea and vomiting
 - Fever, chills, or both
 - Swollen abdomen, tender to the touch
 - Rapid heartbeat.

Symptoms (cont)

- In *very severe cases* with infection or bleeding, a person may become dehydrated and have low blood pressure, in addition to the following symptoms:
 - Weakness or feeling tired (fatigue)
 - Feeling lightheaded or faint
 - Lethargy
 - Irritability
 - Confusion or difficulty concentrating
 - Headache

Causes of Acute Pancreatitis

- Main causes (80% of cases)
 - Alcohol use (30%)
 - Gallbladder (biliary) disease (10%) and gallstones (50-60%)
- Other causes include (20%)
 - Toxic (medications, certain chemicals)
 - Metabolic (hypercalcemia)
 - Injury / abdominal trauma (car accident or bad fall)
 - Common bile duct or pancreatic surgical procedures
 - Viral infection (mumps, coxsackievirus B, mycoplasma pneumonia, and campylobacter)
 - Hereditary disease or abnormalities of the pancreas or intestine
 - High fat levels in the blood (hypertriglyceridemia)

Drug Induced Pancreatitis (DIP)

- Potential Mechanisms
 - Hypersensitivity reactions
 - 4-8 weeks after starting medication, not dose related
 - On re-challenge, pancreatitis recurs
 - Accumulation of toxic metabolites
 - Onset occurs after several months
 - Hypertriglyceridemia
 - Intrinsic toxicity (i.e. overdose)

Drugs associated with pancreatitis

- Amiodarone, amlodipine
- Antibiotics (macrolides, sulfa, FQ's, Rifampin)
- Antiepileptics (carbamazepine, valproic acid, topiramate)
- Hyperlipidemic drugs
- Antineoplastic agents
- Antipsychotics (risperdal)
- Antiretrovirals: all types
- Diuretics
- GI agents: H2 blockers, PPI's
- Glucocorticoids
- NSAIDS
- ASA
- Other – estrogens, corticosteroids, thiazide diuretics, and azathioprine

INH (Isonicotinic Hydrazide)

- In recent years, a resurgence of *Mycobacterium tuberculosis* (mainly LTBI) has occurred in the United States, resulting in a marked increase in the use of antituberculous drugs.
- Isoniazid is a first-line drug in the treatment of tuberculosis and is increasingly being used as a chemoprophylactic agent.
- Severe adverse reactions with Isoniazid have been observed; these include hepatitis, peripheral neuropathy, skin rashes, neurologic disturbances, and hematologic alterations.

INH Induced Pancreatitis

- The development of acute pancreatitis during treatment of *M. tuberculosis* is commonly attributed either to the underlying illness or to medications other than Isoniazid.
- Patients w/AIDS are at an increased risk for developing acute pancreatitis, which is usually blamed on the use of medications, opportunistic infections, or HIV itself.
 - The recognition that Isoniazid-induced acute pancreatitis can occur is of particular relevance to these patients because other medications known to cause acute pancreatitis, such as pentamidine and didanosine, may be implicated and discontinued

INH Induced Pancreatitis – Case Studies

- INH induced Pancreatitis is rare compared to INH hepatitis and less well described. Here are several recent cases
 - 2001 – 42 y/o Asian male diagnosed with TB of the spine, started on RIPE. Within 11 days, developed N, V, and severe epigastric pain. Pancreatitis suspected, ALL TB meds stopped, symptoms resolved over the next 5 days. Medications restarted one-by-one, when INH was added symptoms returned w/in 8 hrs.
 - 2001 – 80 y/o M with diagnosis of vertebral TB started on RIPE, within 2 days developed hiccups, epigastric pain and vomiting. Pancreatitis diagnosed, meds stopped 2 days later. PZA was reintroduced after 1 wk, then Rifampin, with normalization of labs. INH was not reintroduced.

INH Induced Pancreatitis – Case Studies

- 2002 – 28 y/o F from Santo Domingo, in US for 13 yrs, on wk 3 of INH for +TST presented with epigastric pain radiating to RUQ, with anorexia, N&V. Markedly elevated labs which returned to near normal within 3 days of stopping INH and completely normal within two months.
- 2004 – 25 y/o Chinese pt with lupus and renal failure and TB in the Urine, begun on RIPE. Within 3 wks developed acute, severe, epigastric pain with elevated lab values. Only INH was withdrawn and symptoms resolved. Client received cadaver kidney and had chronic rejection syndrome.
 - Twelve 12 yrs later had a reactivation of TB, pulmonary. Started on INH, Rifampin, and Levoquin. Within 3 weeks developed severe epigastric pain and tenderness with clinical symptoms of Pancreatitis. Within 72 hrs after withdrawal of INH, symptoms resolved.

Tests for pancreatitis

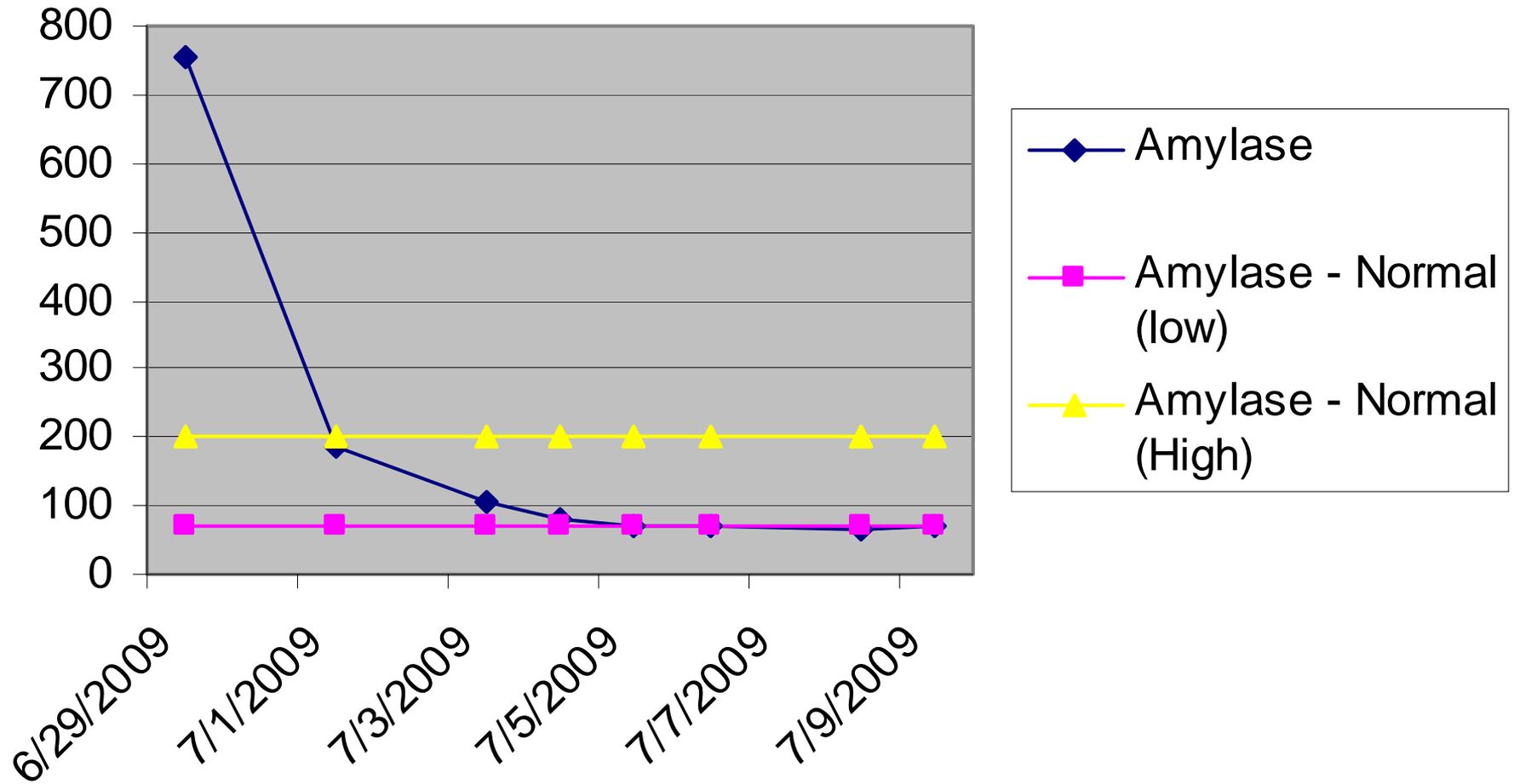
- Tests that show release of pancreatic enzymes:
 - Elevated serum amylase
 - Elevated serum lipase
 - Elevated urine amylase
- Other blood tests:
 - CBC
 - Glucose test
 - Serum calcium
- Test that show inflammation of the pancreas:
 - Abdominal CT scan
 - Abdominal MRI
 - Abdominal ultrasound

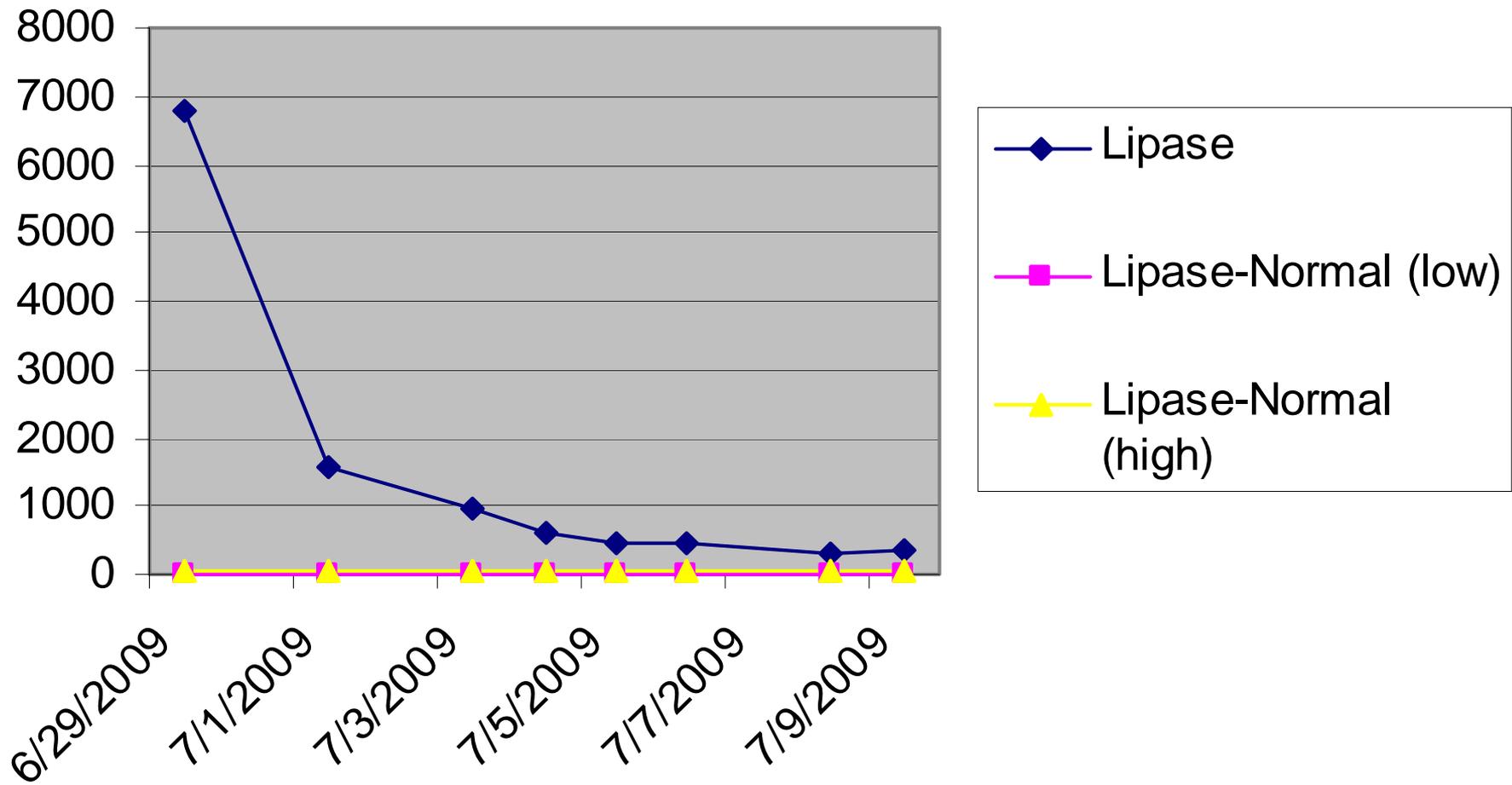
Lab values

	Amylase	Lipase
■ 06/29/09	754	6771 (INH stopped 6/30)
■ 07/01/09	186	1589
■ 07/03/09	105	976
■ 07/04/09	78	627
■ 07/05/09	71	465
■ 07/06/09	70	468
■ 07/08/09	66	320
■ 07/09/09	72	332

Normal values

- Plasma amylase: 70-200 U/L.
- Plasma lipase: 7-58 U/L.





Prognosis

- Most cases go away in a week. However, some cases develop into a life-threatening illness. It is common for the condition to return.
- The death rate is high with:
 - Hemorrhagic pancreatitis
 - Liver, heart, or kidney impairment
 - Necrotizing pancreatitis

Isonicotinic Acid Hydrazide Induced Pancreatitis

- 8 patients described in 10 papers
- 2 females/6 males
- Onset within 0.5 to 21 days after start INH
- If rechallenged, onset of symptoms:
2hours, 6 h, 8h, 5 days and 21 days
- Mechanism felt to be hypersensitivity reaction

Questions

- 1. Which of the following are common causes of pancreatitis
 - A. infection
 - B. Gallstones
 - C. ETOH
 - D. Drugs
 - E. all of above

Answer

- 1. Which of the following are common causes of pancreatitis
 - A. infection
 - B. Gallstones
 - C. ETOH
 - D. Drugs
 - E. *all of above*

Questions

- 2. Which of the following are complications of pancreatitis:
 - A. ARDS
 - B. Shock
 - C. pancreatic insufficiency
 - D. pleural effusions
 - E. all of above

Answer

- 2. Which of the following are complications of pancreatitis:
 - A. ARDS
 - B. Shock
 - C. pancreatic insufficiency
 - D. pleural effusions
 - *E. all of above*

Questions

- 3. True or false: many meds can cause pancreatitis?
- 4. True or false: There is no single lab test that can reliably diagnose pancreatitis?

Answers

- 3. True or false: Many meds can cause pancreatitis?
 - TRUE
- 4. True or false: There is no single lab test that can reliably diagnose pancreatitis?
 - TRUE

Contact Information

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