

Pre-Workout Pancreatitis

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Background

- The use of dietary supplements, including pre-workout formulations, has gained widespread popularity among individuals engaged in sports and fitness.
- This case report presents a unique instance of pre-workout-induced pancreatitis in a previously healthy young adult.
- Pre-workout supplements contain a blend of stimulants, amino acids, and other metabolic ingredients designed to enhance exercise and muscle performance.
- Ingredients such as amino acids, induce metabolic chain reactions which may damage pancreatic cells.
- This case prompts an examination of the potential adverse effects of pre-workout supplements, highlighting the need for increased vigilance among healthcare providers and consumers alike

Case

- 35-year-old male with no prior medical history presented with 8/10 epigastric pain radiating to his back. Patient maintains a healthy lifestyle, avoids greasy foods, and exercises regularly. Patient denies all typical inciting factors for pancreatitis.
- Started a new pre-workout supplement about two weeks ago.
- Labs showed lipase over 3,000, lipid panel and liver enzymes within normal limits. Autoimmune pancreatitis IgG4 was within normal limits.
- Gallbladder ultrasound showed no cholelithiasis or acute findings. MRCP revealed mild peripancreatic fluid, indicating pancreatitis (Figure 1). Gallbladder, common bile duct, and pancreatic duct were normal.
- Total hospitalization time was under 48 hours and he was discharged with close PCP follow-up.

Conclusion

- Healthcare professionals should consider less common or emerging causes of pancreatitis.
- The increasing use of dietary supplements, including pre-workout ones, requires awareness of their potential adverse effects.
- The combination of ingredients in these supplements may increase the risk of pancreatitis and other organ damage.
- Identifying alternative causes, like supplement-induced pancreatitis, should be standard in evaluating young adults with abdominal pain.
- Workout supplements are not FDA regulated
- Further research is needed to investigate the connection between pre-workout supplements and pancreatitis.

Imaging

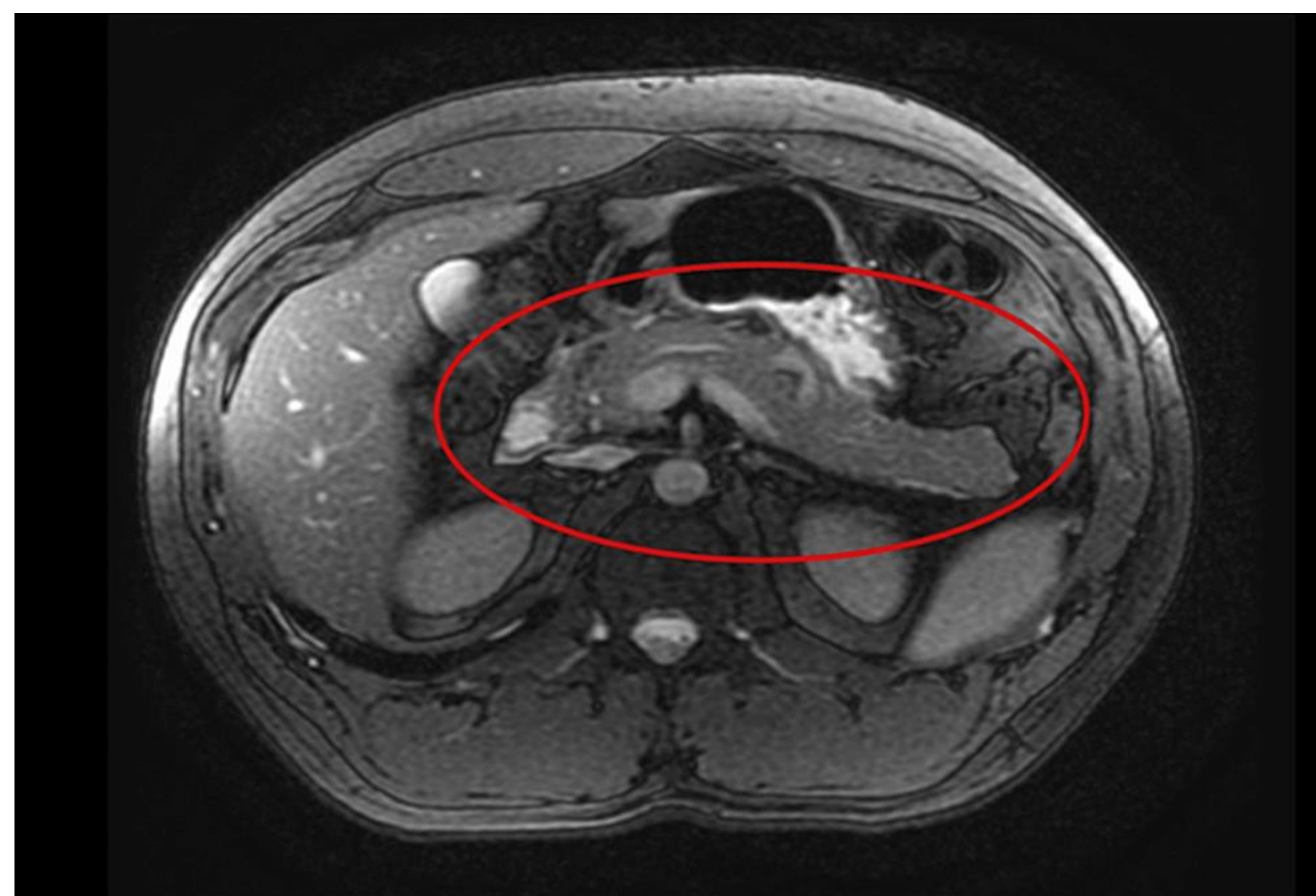


Figure 1: Magnetic resonance cholangiopancreatography
Magnetic resonance cholangiopancreatography (MRCP) shows mild peripancreatic fluid suggestive of pancreatitis within the red circle

Discussion

- Younger patients with abdominal pain should consider atypical causes of pancreatitis. Limited research exists on supplement-induced organ failure.
- Pre-workout supplements are gaining popularity and lack FDA regulation. These supplements aim to enhance muscle contractility and endurance.
- L-arginine can cause pancreatic edema and excessive insulin secretion as well as pancreatic necrosis and increased thrombopoietin (TPO).
- Beta-alanine can lead to pancreatic beta-cell desensitization and reduced insulin release.
- L-lysine combined with ADP inhibits ATP synthesis in pancreatic cells.
- Alpha-ketoglutarate, when combined with other amino acids and enzymes, can promote pancreatic cell proliferation.
- These ingredients collectively pose a risk for inflammation and pancreatic necrosis.
- Pre-workout supplements typically contain many untested ingredients in combination.

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