

Introduction

An isolated increase in serum aspartate aminotransferase (AST) can be attributed to many conditions, including alcoholic liver disease, myocardial injury or skeletal muscle injury. Persistent elevations in AST without an obvious source can lead to diagnostic confusion. When evaluating such a patient, one must consider macro-enzyme aspartate aminotransferase (macro-AST). Macro-AST is an uncommon, yet benign condition in which a macro-enzyme is formed from self-polymerization of AST molecules or by the formation of a complex with other serum proteins such as immunoglobulins (Ig). These macro-enzymes circulate in the blood stream and can lead to an accumulation along with decreased clearance from the blood stream. Below, is an example of a woman without suggestive symptoms found to have persistently elevated AST.

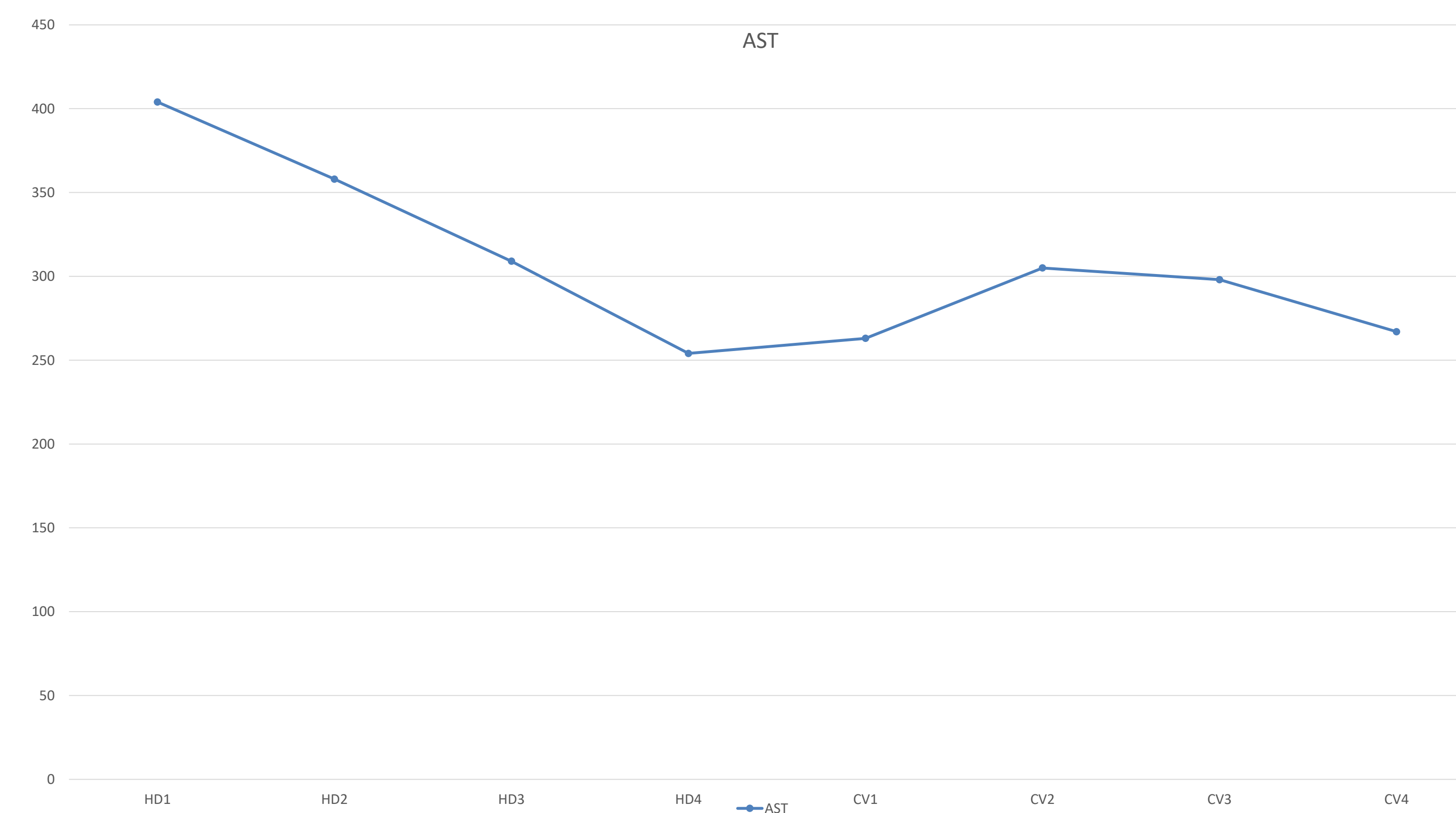
Case Presentation

The patient is a 60-year-old Hispanic female with hypothyroidism, hypertension who presented to the emergency room with complaints of lower back pain.

Case Presentation

Initial blood work revealed an AST of 404 U/L (normal 8-34 U/L) without other significant laboratory abnormalities. A computed tomography (CT) scan of the abdomen and pelvis with intravenous (IV) contrast showed lumbar spinal stenosis without other abnormalities. A right upper quadrant abdominal ultrasound with Doppler showed a normal appearing liver, biliary tree and patent vasculature. She denied any changes in her medications or use of supplements.

Trend in AST Level



AST plot points reflect values obtained during hospitalized days (HD) and during clinic visit (CV)

Case Presentation

She denied any history of liver disease, alcohol use or a family history of liver disease. Acetaminophen, ethanol and urine drug screens were negative. Testing for viral hepatitis, autoimmune hepatitis, ceruloplasmin, alpha-1-antitrypsin, ferritin, creatinine kinase, troponin I, Celiac disease and thyroid function tests were all unremarkable. Her AST level remained persistently elevated throughout hospitalization and after discharge. Given unremarkable workup and chronic AST elevation, macro-AST was the likely diagnosis.

Discussion

Macro-AST is a benign cause of persistently elevated AST. Though its prevalence is not well known, some reports suggest that they can be seen across a wide age range and have no genetic basis as relatives of the patients have normal AST levels. Some cases have suggested a means of confirming the diagnosis via polyethylene glycol precipitation or electrophoresis. As these elevations can persist for over ten years, it is important for clinicians to be aware of this entity to avoid unnecessary procedures or testing.