Pseudo-infarction Pattern in Pancreatic Disease

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BACKGROUND: T wave inversion is a well recognized phenomenon within the spectrum of pancreatic and gallbladder disease. Most notably, acute pancreatitis is the entity in which the most instances have been noted.

CASE REPORT The patient is a 60 year old female with no significant past medical history who presented to the Emergency Department with a chief complaint of abdominal pain and nausea.

She had not sought medical attention in several years. Her only contact with the medical community was at local health fairs at which she had her blood pressure and cholesterol checked. Since these were within normal range she had no reason to seek attention from a physician. Over the last 4-6 months she noticed a 20 pound weight loss inappropriate to her exercise and caloric intake. The nausea and abdominal pain complaint was a subacute finding, starting approximately one week prior to admission. A CT Scan of the abdomen with intravenous contrast was done in the Emergency Department because of her impressive abdominal pain. A 4X4 cm mass at the head of the pancreas was identified by the emergency medicine staff and a general surgery admission was obtained. The patient initially had an amylase and lipase of 1106 and 5577 mg/dL.

Her clinical course was notable for very rapid resolution of her abdominal pain and amylase and lipase elevations. The patient was noted to have deep T wave inversions on telemetry by the surgical intensive care staff after surgical exploration. A postoperative ECG was done and compared to the admission ECG.

Of note, the patient was not experiencing any chest discomfort, abdominal discomfort, diaphoresis, or dyspnea.

When queried, the patient did not admit to any complaints whatsoever. Cardiology consultation was obtained to assess the cause for the deep symmetric T wave inversions. Again, the patient was asked for any symptoms of discomfort, dyspnea, diaphoresis, etc. without change in response from the patient.

Physical exam was essentially unrevealing including a non-focal neurological exam. A 2D echo was obtained immediately because of the acute T wave inversions. 2D echo revealed right and left ventricular ejection fractions of 55 percent and an LVEDD of 4.6cm. LVH in a concentric pattern was noted and the diastolic function was assessed by several methods as normal. Pulmonary artery pressure was elevated at 59mmHg (systolic). No wall motion abnormalities were noted. Troponin I was <0.01 on three samples eight hours apart. Definitive testing was requested by the surgical team in order to rule out ischemia. Dobutamine stress echo was performed rather than coronary arteriography. There were no segmental wall motion abnormalities and the contractile reserve was normal. Because these changes are often seen in intracranial processes a MRI of the brain was done to rule out metastatic spread of the pancreatic carcinoma. The MRI was within normal limits exhibiting age related changes only. The T wave inversion persisted through the day of discharge.

DISCUSSION: Abnormal ECGs are not infrequent in the presence of pancreatic and gallbladder disease. A European study done by Pezzilli et al studied 56 consecutive patients with acute pancreatitis and no history of cardiac disease. Most studied had mild signs and symptoms but 27 percent had severe pancreatitis.
Admission ECG and laboratory investigation on all showed that 48 percent of the group had normal electrocardiograms and electrolytes. The remaining patients had bradycardia (14%), ST segment or T wave abnormalities (25%), and intraventricular conduction delay (12.5%). Less frequently seen were left anterior hemiblock, complete left bundle branch block, left anterior hemiblock, incomplete right bundle branch block; and first degree atrioventricular block.

Rarely, case reports have described segmental wall motion abnormalities in the absence of angiographic coronary disease (2,3). Prior studies also note that perhaps persons who exhibit abnormal ECGs in the face of pancreatic disease often have prior cardiac abnormalities. Mautner et al noted that within a 50 episode database of acute pancreatitis most abnormalities occurred with prior ECG abnormalities. Ten episodes of acute pancreatitis occurred in eight patients with normal prior ECGs. Nonspecific ST-T changes were recorded in only two of them. In the remaining 40 episodes, 33 episodes were not associated with significant ECG changes. The seven people that were found to have ST and T changes had abnormal ECGs as a baseline (4).

CONCLUSIONS: This patient was asymptomatic and had no segmental wall motion abnormalities at rest or with dobutamine stress echo evaluation. A rational approach to these situations may not warrant a cardiac catheterization in all situations. However, the marked T wave changes were very suggestive of active coronary heart disease.

The negative history, physical exam, and laboratory testing lead to further investigation using noninvasive imaging including MRI of the brain and dobutamine stress echocardiography, which were normal. In cases such as the one described a non-invasive functional study such as dobutamine stress echocardiography or nuclear perfusion scan can be a viable option to exclude significant coronary heart disease.

Fig. below shows nuclear stress test abnormalities in real acute MI.
Evaluation of Osteopathic Manipulative Treatment as an Adjunct Measure to Life Style modification in Patients with Pre-Hypertension

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Introduction: Approximately 60% of American adults have prehypertension or hypertension. JNC7 has defined prehypertension as blood pressure measurements of (130 mmHg ≤ SBP ≤ 139 mmHg and/or 85 mm Hg ≤ DBP ≤ 89 mmHg) in two different instances. Hypertension is often been postulated to have a multifactorial etiology. Most patients with essential hypertension demonstrate vascular and cardiac hyperactivity to sympathetic stimuli. The neuromusculoskeletal system plays a vital role in OMT. Close associations between spinal vertebrae and the autonomic nervous system, via the sympathetic trunk and ganglia, is believed to be one of the mechanisms by which musculo-skeletal system changes can affect other organs (somatovisceral reflex) or allow visceral pathology to manifest as abnormalities in musculoskeletal tissue texture and intervertebral joint motion (viscerosomatic reflex). Based on the physiologic mechanisms described above, we feel that OMT supports homeostasis and should be effective in reducing the activity of the sympathetic nervous system in patients with prehypertension.

Aim: We thought to evaluation of OMT as an adjunct measure to life style modification in patients classified with pre-hypertension according to JNC 7 classification.

Patient Population: We enrolled 25 patients in this pilot study, 52% females with mean age 49±16 and 48% males with mean age 47±16.2, p=0.71. Patients were all identified as prehypertensives according to JNC 7 criteria with mean systolic pressure (SBP) (136.28±2.89), and mean diastolic pressure (DBP) (83.84±5.94).

Method: All patients (group A) were advised about life style modification (LSM) including diet and exercise for one month. OMT were implemented in conjunction to LSM (group B), for another month with a weekly session. The primary outcome was decrease of Blood pressure (BP) toward normal value 120/80. The pre and post treatment difference in blood pressure was evaluated using paired sample t-test. P value was considered significant at <0.05.

Results: At the end of the first month with life style modifications only, the average change in SBP was (-1.41) and (-1.75) in DBP p=NS. After implementation of OMT the average change in SBP was 9.85 and 4.13 in MDP.

The concurrent change in HR in the OMT group was (8.58±5.53, Is this decrease in HR or increase…expand the abbreviation HR) p<0.0001. There were no significant difference between men and women treated with OMT, also age had on significance between the two groups. In comparison to Phase I, Phase II had a significant drop in the MSP (9.853±5.14) p<0.0001, and in MDP (4.133±6.77) p<0.02

Conclusion: In our pilot study, Osteopathic Manipulative treatment significantly reduced the systolic and diastolic blood in patients with pre-hypertension, more than achieved by life style modification alone.