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Case report (includes case series that include 5 or fewer patients)

**Title:** Bupropion-Disguised Chest Pain Presenting In A Middle Aged Male

**Description:** A rare case of highlighting the need to assess for all etiologies of chest pain, including medication-induced causes. This case describes a middle age gentleman who presented with recurrent chest pain secondary to bupropion. The pathophysiological mechanism of bupropion-induced chest pain is highlighted and discussed.

## Bupropion-Disguised Chest Pain Presenting In A Middle Aged Male

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**Background:** Chest pain is one of the most prevalent complaints amongst individuals presenting in healthcare settings, encompassing a broad spectrum of etiologies<sup>1</sup>. Workup for chest pain often focuses on excluding life-threatening conditions prior to the consideration of atypical causes<sup>1</sup>.

**Case Presentation:** A 47-year-old male with a past medical history of tobacco use and depression presented to the emergency department (ED) with persistent left-sided chest pain that radiated to his left arm and jaw pain. Of note, he had undergone an exercise echocardiogram two months prior for the same complaint of chest pain, which was unremarkable. Vitals on arrival were notable for the patient being mildly hypertensive and two consecutive high-sensitivity troponins were unremarkable. An electrocardiogram showed normal rhythm with no ischemic changes noted. Due to the atypical presentation of chest pain, the patient's home medications were reviewed and his bupropion was discontinued due to concern for medication-induced chest pain. The patient was discharged from the ED and presented two days later to the cardiology clinic endorsing complete resolution of his chest pain symptoms.

**Clinical Discussion:** Bupropion is commonly prescribed by healthcare providers for depression and smoking cessation<sup>3</sup>. While the specific mechanisms of bupropion are not fully understood, bupropion is known to inhibit the reuptake of both dopamine and norepinephrine<sup>3</sup>. Previous investigations have shown bupropion to be associated with chest pain, with resolution noted after discontinuation<sup>4</sup>. The etiology of chest pain is likely sympathomimetic in nature, as bupropion has shown to exhibit positive inotropic effects on myocardial tissue, propagated by catecholamine release<sup>5</sup>. Chronic musculoskeletal pain has also been associated with elevations in catecholamines, amplified by increased levels of norepinephrine<sup>6</sup>. Worsening symptoms of angina have been noted with bupropion use, a phenomenon that can be attributed to its cellular structure known to be similar to vasoconstrictors, phenylethylamine and amphetamine, suggesting a mismatch between increased myocardial demand and decreased oxygen supply as a contributory component<sup>5,7,8</sup>.

**Conclusion:** Patients taking bupropion may present with atypical chest pain, likely multifactorial in etiology. Medication discontinuation may be beneficial in alleviating symptoms.

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