Cocaine-Induced Focal Myositis Mimicking a Paraspinal Abscess

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Introduction

- Cocaine is the most commonly reported illicit drug in the emergency department in the United States.
- Muscle damage from cocaine use can manifest as mild elevations in creatine phosphokinase to rhabdomyolysis with acute renal failure.
- Despite its known toxic effect on skeletal muscle, it is very unusual for cocaine myotoxicity to present as a focal area of myositis.
- We present a case of cocaine induced paraspinal myositis mimicking a paraspinal abscess.

Case Presentation

- Patient is a 25 year-old-male who presented to the emergency department with a one-day history of sharp, stabbing leg pain associated with numbness of both feet and bilateral lower extremity weakness.
- Physical exam revealed 3 / 5 strength in bilateral hip flexion, knee flexion, and knee extension, and 1 / 5 strength in bilateral ankle dorsiflexion and plantar flexion. Sensation was diminished to pinprick in both feet. The patient had lumbar paraspinal muscle tenderness.
- Urine toxicology screening was positive for cocaine. On further questioning, the patient admitted to snorting cocaine 2 days prior to the onset of symptoms.
- Rhabdomyolysis was diagnosed based on the CPK level and myoglobinuria.
- Results of an emergent thoracolumbar MRI showed high signal changes within the left sided dorsal paraspinal muscles from L3 to S2 compatible with myositis, as well as phlegmon / early abscess formation noted at the L4-L5 level.
- CT guided core needle paraspinal muscle biopsy results showed patchy myonecrosis with myophaocytic inflammatory reactions and myofiber atrophy.
- The patient was treated with Prednisone 20 mg daily for 10 days. After 3 days of inpatient treatment with Prednisone his symptoms improved significantly and he was discharged home with neurology follow-up for outpatient EMG/NCV.

Laboratory Data

White Blood Cells	22.03 K/uL	CRP	6.84 mg/dL
CK	94250 U/L	ANA	Negative
LDH	1678 U/L	Acute hepatitis	Negative
AST	1069 U/L	HIV	Negative
ALT	369 U/L	COVID-19 PCR	Negative
ESR	24 mm/Hr	Blood cultures	Negative

Figure 1. Relevant laboratory data

Imaging

Figure 2. Contrast-enhanced computed tomography angiography of the abdominal aorta and bilateral lower extremities.
Axial contrast-enhanced computed tomography angiography scans of the legs revealing patchy bilateral intramuscular signaling abnormalities and left gluteus medius myotendinous swelling extending into the sciatic notch, approximated to be 8 x 3.7 x 7.5 cm.

Discussion

- Cocaine causes peripheral vasoconstriction via alpha adrenergic stimulation. The resulting muscle ischemia and subsequent tissue reperfusion leads to free-radical formation and lipid peroxidation, further exacerbating muscle injury. The resulting muscle damage results in creatinine kinase release, which is often detected even in the absence of muscle pain.
- In review of the literature, only two previously reported cases of cocaine induced focal myositis have been described. Our case was unique in that drug-induced myositis was localized to a specific region of the spine, with inflammatory changes that required a diagnostic biopsy to rule out an infectious etiology.

Conclusions

- Although muscle injury is common in those who use cocaine, it is often missed from the initial history and physical exam, and laboratory evidence of elevated CPK should raise suspicion for drug-induced causes of muscle injury.
- When considering systemic causes of focal myositis, a thorough social history is imperative in all patients.
- Cocaine induced myositis can have an acute focal presentation mimicking an infectious etiology.
- A diagnostic biopsy should be part of the diagnostic algorithm in cocaine users who present with focal inflammatory changes on MRI and acute onset of symptoms. This is crucial to appropriate treatment given the urgent need for antibiotics in the setting of paraspinal abscess vs steroids in the setting of myositis.

References

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