Abdominal Pain and Leg Weakness

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Case History

A reportedly previously healthy 57 year old female presented with a 4 month history of right sided lower abdominal burning pain associated with low to mid back pain ipsilaterally. Weight loss of 45 pounds occurred within 3 months of the onset of symptoms. Within 1 month, weakness of both legs began and became progressive leading to several falls. Pain began to affect both legs beginning in the lateral thighs and extending down to the toes. There were no symptoms in the upper extremities or bulbar muscles. There were no changes in bowel or bladder function. Her past medical history is negative. Review of systems is positive for weight loss, decreased appetite, shortness of breath, abdominal pain, trouble walking and back pain. All other systems were reviewed and were negative. Her only medicines at the time were gabapentin 300 mg 4 times daily, Ultram and acetaminophen. These medicines have not helped significantly with her pain. She denied any drug allergies. She denies smoking or drinking alcohol.

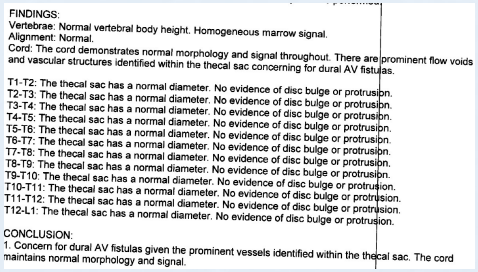
Neurologic Examination

Examination revealed normal mental status, cranial nerves and upper extremity motor and sensory function. In the legs, strength was graded as follows, right/left: Iliopsoas 2, quadriceps 3+/3, hamstrings 3+-4-, tibialis anterior 4-4-/4-, EHL 4, gastrocnemius 4/4-, toe flexors 4+/4, adductors 3/0. There was only minimal reduction of vibration at the toes. Pin prick was reduced on the right lateral and left anterior and medial thigh. Light touch and pin were normal in the feet and legs. Reflexes were absent at the knees and 2 at the ankles.

Electrodiagnostic Study

Nerve conduction studies showed normal sural sensory conduction. The left peroneal motor amplitude was reduced but the right peroneal and bilateral tibial amplitudes were normal. There was abnormal spontaneous activity on EMG that was 4+ in the left rectus abdominis, 3+ in the tibialis anterior, 2+ in the quadriceps and 1+ in the gastrocnemius. High amplitude motor units and reduced recruitment were seen in the quadriceps, severely reduced recruitment (discrete) in the tibialis anterior and normal motor unit morphology and recruitment in the gastrocnemius. The deltoid had chronic reinnervation without active denervation and the triceps and orbicularis oris were normal

Results



FINDINGS:
Vertebrae: Normal vertebral body height. Homogeneous marrow signal.
Alignment: Normal.
Cord: The cord demonstrates normal morphology and signal throughout. There are prominent flow voids and vascular structures identified within the thecal sac concerning for dural AV fistulas.

T1-T2: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.
T2-T3: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.
T3-T4: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.
T4-T5: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.
T5-T6: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.
T6-T7: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.
T7-T8: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.
T8-T9: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.
T9-T10: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.
T10-T11: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.
T11-T12: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.
T12-L1: The thecal sac has a normal diameter. No evidence of disc bulge or protrusion.

CONCLUSION:
1. Concern for dural AV fistulas given the prominent vessels identified within the thecal sac. The cord maintains normal morphology and signal.

Interveentional neurosurgeon did not feel the imaging was suggestive of a dural AV fistula.

Other History, Treatment and Disease Course

On review of outside labs blood sugar noted to be as high as 394 and urinalysis showed 4+ glucose. Patient admitted to being previously told she was “pre-diabetic” and took metformin briefly with improved blood sugar so she discontinued

No treatment administered for weakness but the patient was referred to Endocrinology for glucose management
Phone follow-up reported improved lower extremity function but persistent neuropathic pain in spite of Gabapentin

Conclusions

1. Diabetic lumbosacral radiculoplexus neuropathy (diabetic amyotrophy) often presents early in the course of diabetes and many have only modestly elevated hemoglobin A1C.[1]
2. Involvement of the thoracic or even cervical nerves is not rare[1]
3. Thoracic involvement presents with pain and/or abdominal muscle protrusion[2]
4. Prognosis is excellent even without treatment in many cases but immunotherapy may reduce pain and possibly reduce time for recovery[1]

References

1. Twydell, Paul . Diabetic amyotrophy and idiopathic lumbosacral radiculoplexus neuropathy. UpToDate 2019
2. Anderson T, Carroll G, Avery S. Combined diabetic thoracic radiculopathy and amyotrophy. N Z Med J. 1991 Nov 13;104(923):475-6.