CASE STUDY: IDENTIFYING LAMBERT-EATON MYASTHENIC SYNDROME (LEMS)

A rare neuromuscular disorder presenting in a patient with ophthalmic symptoms[1]

Medical History and Initial Complaints

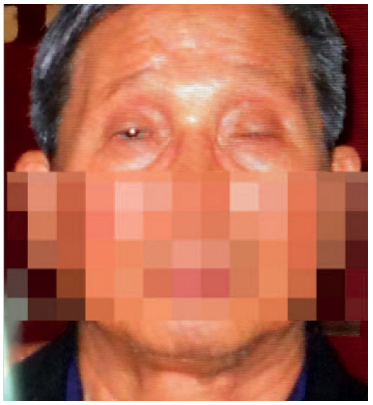
- Male, age 50, experiencing double vision, poor night vision, and occasional droopiness of both eyelids for the past month
- Patient also complains about experiencing the following for the past 6 months:
  - **Dry, itchy eyes***
  - Fatigue, "no energy to exercise"
  - **Dry mouth***
- Tobacco smoker

Clinical Presentation

- Ophthalmic signs and symptoms include:
  - Diplopia and disconjugate gaze (most appreciable on lateral gaze bilaterally)
  - **Poor pupillary response***
  - Bilateral ptosis (right: 3 mm; left: 2 mm)

Neuro-ophthalmologist Assessment

- Suspects a neurologic syndrome may be causing symptoms
- **Orders myasthenia gravis (MG) panel**
  - **Test result is negative for MG-associated antibodies**
- **Orders anti-voltage-gated calcium channel (anti-VGCC) antibodies testing, both PQ and N-type, based on autonomic involvement**
  - **Test result is positive, PQ antibody titer: 105 pmol/L**
- Neuro-ophthalmologist consults with a neuromuscular specialist regarding a suspicion of LEMS
  - Electrodiagnostic testing is ordered
    - EMG findings are consistent with LEMS, confirming the diagnosis



Example of bilateral ptosis in a patient with LEMS.[2]

This image of an actual patient is being used for illustrative purposes only.

LEMS vs MG

While oculobulbar symptoms commonly occur with MG, the presence of autonomic intraocular features can help differentiate patients with LEMS.[3,4]

Patient initiates LEMS treatment with FIRDAPSE® (amifampridine)

*Autonomic symptoms.

NOTE: This is a hypothetical case study for illustrative purposes.

Please see additional Important Safety Information on page 4 and full Prescribing Information.

DIFFERENTIATE LEMS FROM MG FOR A TIMELY DIAGNOSIS

LEMS is a progressive, immune-mediated neuromuscular disorder that is often misdiagnosed. Left undiagnosed and untreated, it can negatively impact your patients' muscle strength, mobility, vision, activities of daily living, and sense of well-being.[3,5,6]

About 50% of patients with LEMS also present with oculobulbar symptoms[3]

In a study of LEMS, **more than 1/3** of diagnosed LEMS patients were **previously diagnosed as having MG.**[3]

LEMS patients have a **high prevalence of autonomic intraocular symptoms** such as pupillary dysfunction and dry eye.[4]

In LEMS patients, these symptoms present as mild and generally late-onset compared with early and prominent involvement in patients with MG.[7]

Neuro-ophthalmologists can play a vital role in identifying, diagnosing, and treating LEMS.
Scan the code to visit firdapsehcp.com and learn more.

IMPORTANT SAFETY INFORMATION

INDICATIONS AND USAGE:

FIRDAPSE is a potassium channel blocker indicated for the treatment of Lambert-Eaton myasthenic syndrome (LEMS) in adults and pediatric patients 6 years of age and older.

Keys to a differential diagnosis of LEMS vs MG[7]

LEMS[7]		MG[7]
Caudal-to-cranial pattern of spread, symmetrical weakness		Craniocaudal pattern of spread, initial asymmetrical weakness
Late-onset and mild oculobulbar involvement		Early and prominent oculobulbar involvement
Absent or diminished tendon reflexes		Preserved tendon reflexes
Autonomic dysfunction[8]		No autonomic dysfunction
Transient improvement of muscle strength with exercise, with fatigue that follows		Muscle weakness worsens with exercise
Antibodies to VGCC are usually found		Autoantibodies to AChR or MuSK are usually found

AChR=acetylcholine receptor.
MuSK=muscle-specific kinase.

As soon as you suspect LEMS, test with an antibody test.[3]
Scan the code to learn more about diagnosing LEMS.

Please see additional Important Safety Information on page 4 and full Prescribing Information.

FIRDAPSE® (amifampridine) Tablets 10 mg

FIRDAPSE® (amifampridine) is the recommended first-line therapy for LEMS[9]

FIRDAPSE is the only FDA-approved, evidence-based treatment for patients with LEMS.[9,10]

FIRDAPSE has been tested in more than 70 clinical and nonclinical studies, including **two positive Phase 3 studies**, over a 9-year period.[1,10]

In both Phase 3 trials, FIRDAPSE demonstrated **clinically meaningful preservation in muscle strength**[8,10,11] and **functional mobility**[8] as well as a statistically significant **improvement in patients' perception of physical well-being.**[8,10,11]

FIRDAPSE is an oral medication that comes in 10-mg scored tablets supplied in bottles as well as blister packs.[10]

A suspension formulation can be prepared for patients who have trouble swallowing a tablet or who have dosing adjustments <5 mg. Please see the Medication Guide for instructions on suspension preparation.[10]

FIRDAPSE **maximum daily dose is approved for up to 100 mg/day**. Please refer to full Prescribing Information on dosing and titration.[10]

Visit firdapsehcp.com to learn more about FIRDAPSE.

INDICATION AND IMPORTANT SAFETY INFORMATION

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FIRDAPSE is a potassium channel blocker indicated for the treatment of Lambert-Eaton myasthenic syndrome (LEMS) in adults and pediatric patients 6 years of age and older.

CONTRAINDICATIONS
FIRDAPSE is contraindicated in patients with:
- A history of seizures
- Hypersensitivity to amifampridine phosphate or another aminopyridine

WARNINGS AND PRECAUTIONS
Seizures: FIRDAPSE can cause seizures. Consider discontinuation or dose-reduction of FIRDAPSE in patients who have a seizure while on treatment.

Hypersensitivity: If a hypersensitivity reaction such as anaphylaxis occurs, FIRDAPSE should be discontinued and appropriate therapy initiated.

ADVERSE REACTIONS
The most common (> 10%) adverse reactions are: paresthesia, upper respiratory tract infection, abdominal pain, nausea, diarrhea, headache, elevated liver enzymes, back pain, hypertension, and muscle spasms.

Please see full Prescribing Information for additional Important Safety Information.

To report SUSPECTED ADVERSE REACTIONS, contact Catalyst Pharmaceuticals at 1-844-347-3277 (1-844-FIRDAPSE) or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

References: 1. Data on file, Catalyst Pharmaceuticals, Inc. **2.** Tang Y, Wang K, Chen Z, et al. Ophthalmoplegia associated with lung adenocarcinoma in a patient with the Lambert-Eaton myasthenic syndrome: a case report. *Medicine.* 2017;96(22):1-5. **3.** Titulaer MJ, Lang B, Verschuuren JJ. Lambert-Eaton myasthenic syndrome: from clinical characteristics to therapeutic strategies. *Lancet Neurol.* 2011;10(12):1098-1107. **4.** Young JD, Leavitt JA. Lambert-Eaton myasthenic syndrome: ocular signs and symptoms. *J Neuroophthalmol.* 2016;36(1):20-22. **5.** Harms L, Sieb J-P, Williams AE, et al. Long-term disease history, clinical symptoms, health status, and healthcare utilization in patients suffering from Lambert Eaton myasthenic syndrome: results of a patient interview survey in Germany. *J Med Econ.* 2012;15(3):521-530. **6.** National Organization for Rare Disorders (NORD) website. Rare disease database: Lambert-Eaton myasthenic syndrome. Accessed November 30, 2023. https://rarediseases.org/rare-diseases/lambert-eaton-myasthenic-syndrome/. **7.** Merino-Ramírez MÁ, Bolton CF. Review of the diagnostic challenges of Lambert-Eaton syndrome revealed through three case reports. *Can J Neurol Sci.* 2016;43(5):635-647. **8.** Shieh P, Sharma K, Kohrman B, Oh SJ. Amifampridine phosphate (FIRDAPSE) is effective in a confirmatory phase 3 clinical trial in LEMS. *J Clin Neuromuscul Dis.* 2019;20(3):111-119. **9.** Yoon CH, Owusu-Guha J, Smith A, Buschur P. Amifampridine for the management of Lambert-Eaton myasthenic syndrome: a new take on an old drug. *Ann Pharmacother.* 2020;54(1):56-63. **10.** Full Prescribing Information for FIRDAPSE (amifampridine). Catalyst Pharma; 2024. **11.** Oh SJ, Shcherbakova N, Kostera-Pruszczyk A, et al; LEMS Study Group. Amifampridine phosphate (FIRDAPSE®) is effective and safe in a phase 3 clinical trial in LEMS. *Muscle Nerve.* 2016;53(5):717-725.

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