When Pain Relief Comes With Hiccups:
A Four-Patient Case Series of Singultus Following Lumbar Epidural Steroid Injection

Mahmoud Qandeel, MD[1], Ashraf Sakr, MD[2], Wael Elkholy, MD[2]
[1] Henry Ford Wyandotte Hospital, Michigan, USA [2] Precision Pain & Spine Institute, Edison, New Jersey, USA

ASRA PAIN MEDICINE
American Society of Regional Anesthesia and Pain Medicine
"Making Waves"
25th Annual Pain Medicine Meeting
November 5–7, 2026 | Tampa, Florida

BACKGROUND

- Lumbar epidural steroid injections (LESIs) are widely used for lumbar radiculopathy and are generally well tolerated.
- Singultus following epidural corticosteroid administration is rarely reported and underrecognized.
- Proposed mechanisms include corticosteroid-mediated central effects, stimulation of the hiccup reflex arc, and transient changes in cerebrospinal fluid dynamics.

AIM

- To characterize four cases of post-LESI singultus, highlighting differences in onset, severity, clinical course, management, and analgesic response.

METHODS

- Retrospective review of four patients who developed hiccups following LESI at a single interventional pain practice.
- Reviewed demographics, procedural indication, timing and duration of hiccups, associated symptoms, management, healthcare utilization, and post-injection pain response.
- Written informed consent was obtained from all patients. All protected health information was de-identified. Per institutional policy, this de-identified case series did not require IRB review.

PATIENT CHARACTERISTICS AND CLINICAL COURSE

Characteristic	Patient 1	Patient 2	Patient 3	Patient 4
Age / Sex	49 / M	53 / M	48 / M	53 / M
Lumbar pathology (imaging)	Multilevel disc disease	L4–5, L5–S1 herniations	L3–4, L4–5, L5–S1 herniations	L4–5, L5–S1 herniations; L5–S1 annular tear
EMG / NCS (if available)	Right S1 radiculopathy	Bilateral S1 radiculopathy	Right L5 radiculopathy	Bilateral S1 radiculopathy
Procedure	Lumbar ESI	Lumbar ESI	Repeat lumbar ESI	Lumbar ESI
Hiccup onset	Same day	Same day	Same day	Next day
Clinical course	Nausea, vomiting, dyspnea	Persistent hiccups	Persistent hiccups	Hiccups × 2 days; absent during sleep
Hospitalization	Yes	No	No	No
Pain improvement	Excellent	Substantial	~90% improvement	~70% improvement

KEY FINDINGS

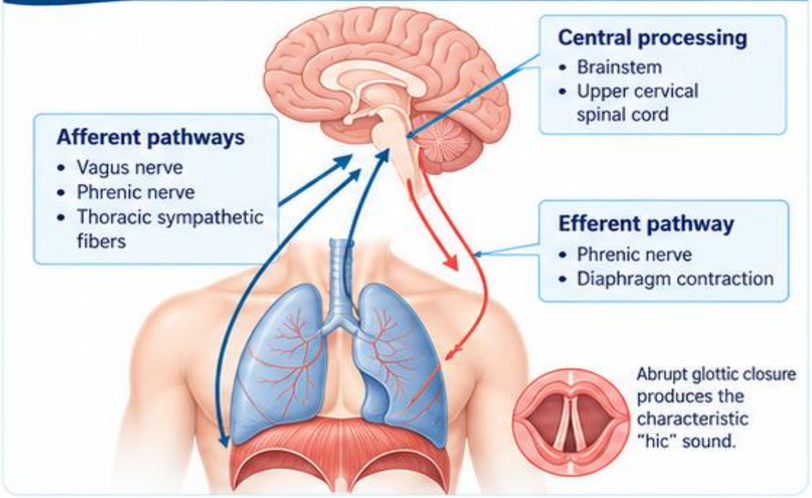
4 middle-aged men

Onset same day (n=3) or **next day** (n=1)

1 hospitalization (severe, with nausea, vomiting, dyspnea)

All patients achieved meaningful pain relief (≈70–90%)

THE HICCUP REFLEX ARC



DISCUSSION & CONCLUSION

- Post-LESI singultus is rare and likely underrecognized, with a heterogeneous clinical course.
- Proposed mechanisms include corticosteroid-related central effects, stimulation of the hiccup reflex arc, and transient changes in cerebrospinal fluid dynamics.
- All four patients were male, consistent with reported male predominance.
- Hiccups did not compromise analgesic efficacy.
- Awareness, appropriate counseling, and timely recognition may help clinicians manage this unusual complication.

REFERENCES

1. Mena S, Raj A, Caldwell W, Kaushal A. The Annoyance of Singultus: A Case Report of a Rare Adverse Effect After Epidural Steroid Injection. BMC Anesthesiol. 2024;24(1):302. doi:10.1186/s12871-024-02682-8.
2. Odonkor CA, Smith B, Rivera K, Chhatre A. Persistent Singultus Associated With Lumbar Epidural Steroid Injections in a Septuagenarian: A Case Report and Review. Am J Phys Med Rehabil. 2017;96(1):e1-e4. doi:10.1097/PHM.0000000000000526.
3. Abbasi A, Roque-Dang CM, Malhotra G. Persistent Hiccups After Interventional Pain Procedures: A Case Series and Review. PM R. 2012;4(2):144-151. doi:10.1016/j.pmrj.2011.09.005.
4. Steger M, Schneemann M, Fox M. Systemic review: the pathogenesis and pharmacological treatment of hiccups. Aliment Pharmacol Ther. 2015;42(9):1037-1050. doi:10.1111/apt.13374.
5. Colorado B, Decker G. Persistent Hiccups After an Epidural Steroid Injection Successfully Treated With Baclofen: A Case Report. PM R. 2017;9(12):1290-1293. doi:10.1016/j.pmrj.2017.06.006.