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CDC Health Advisory

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Outbreak of Suspected Fungal Meningitis in U.S. Patients who Underwent Surgical Procedures under Epidural Anesthesia in Matamoros, Mexico

Summary

The Centers for Disease Control and Prevention (CDC) is issuing this Health Alert Network Health Advisory about an outbreak of suspected fungal meningitis among U.S. patients hospitalized in Texas after undergoing cosmetic procedures under epidural anesthesia in the city of Matamoros, state of Tamaulipas, Mexico. It is currently unknown which organism(s) is causing the outbreak. A fungal etiology is suspected based on elevated cerebrospinal fluid (CSF) levels of the fungal biomarker (1,3)-beta-D-glucan in at least one patient. As of May 12, 2023, five patients have been diagnosed with suspected fungal meningitis; all have been hospitalized, and one has died. All these patients received epidural anesthesia and underwent cosmetic procedures. Affected patients underwent procedures in at least two clinics in Matamoros, Mexico, including River Side Surgical Center and Clinica K-3. Other facilities might be identified through further investigation.

Healthcare providers and the public should be aware that patients who underwent medical or surgical procedures under epidural anesthesia in Matamoros, Mexico, and who have developed signs or symptoms of possible meningitis (e.g., fever, headache, stiff neck, nausea, vomiting, photophobia, altered mental status) should promptly seek evaluation by a healthcare provider and convey that medical history.

Background

On May 8, 2023, CDC, the Texas Department of State Health Services, and the Cameron County Health Department were notified through the Emerging Infections

Network of two female patients hospitalized in Texas with symptoms consistent with meningitis (e.g., headache, fever, photophobia, stiff neck) that began approximately 2–4 weeks after receiving cosmetic procedures under epidural anesthesia at River Side Surgical Center in the city of Matamoros, state of Tamaulipas, Mexico. Two additional female patients hospitalized in Texas developed suspected fungal meningitis 1–8 weeks after undergoing cosmetic procedures under epidural anesthesia at Clinica K-3 in Matamoros, Mexico. CDC, the Texas Department of State Health Services, and the Cameron County Health Department are investigating additional cases that may be associated with this outbreak.

Presenting symptoms included fever and new or worsening headache. Some patients initially had mild symptoms. **The causative organism(s) is currently unknown for this outbreak.** Multiple pathogens can cause healthcare-associated fungal meningitis, and infections may involve multiple pathogens at once.[1] Initial cultures of CSF and blood from the affected patients have been negative for fungi and other pathogens; however, CSF values were notable for significantly elevated white blood cell counts and, in one patient, elevated levels of (1,3)-beta-D-glucan, a biomarker for fungal infection.

Recommendations for Healthcare Providers

- For patients who underwent a medical or surgical procedure under epidural anesthesia in Matamoros, Mexico, after January 1, 2023, and who have developed symptoms consistent with fungal meningitis (e.g., fever, headache, stiff neck, nausea/vomiting, photophobia, altered mental status), healthcare providers should perform brain imaging (i.e., computerized tomography [CT] or magnetic resonance imaging [MRI]) and a diagnostic lumbar puncture (LP) unless contraindicated (e.g., because of skin infection over the puncture site, brain mass causing increased intracranial pressure).
    - Because some patients with fungal meningitis may initially present with mild or non-specific symptoms, healthcare providers should have a low threshold for performing brain imaging and LP.
- Healthcare providers can consider ordering bacterial and fungal cultures of CSF fluid, as well as serum and CSF levels of (1,3)-beta-D-glucan.[2] Healthcare providers can consider ordering other diagnostic tests including serum and CSF *Aspergillus* galactomannan and fungal polymerase chain reaction (PCR) testing.[3]
- If fungal meningitis is suspected, treatment should be initiated as soon as possible after obtaining CSF; treatment should not be withheld because of negative fungal culture or (1,3)-beta-D-glucan results. Consultation with an infectious disease specialist is recommended.
- Treatment should involve broad-spectrum antifungal medications that have adequate central nervous system penetration. Dual agent antifungal therapy can be considered and has been used in previous fungal meningitis outbreaks.
- Although vaccines are available to prevent certain types bacterial and viral meningitis, no vaccine is available to prevent fungal meningitis.[4]

- Healthcare providers should immediately report suspected fungal meningitis cases, including those possibly related to this outbreak, to their state or local health department. Contact information for jurisdictional healthcare-associated infection program coordinators is available here.
    - Public health officials who are concerned about potential cases of fungal meningitis associated with this outbreak should contact CDC's Mycotic Diseases Branch (fungaloutbreaks@cdc.gov) during regular business hours and CDC's Emergency Operations Center (eocreport@cdc.gov; 770-488-7100) outside of regular business hours for assistance with recommendations and testing.

Recommendations for Clinical Laboratories

- Fungal and bacterial cultures of CSF should be performed to identify the causative organism; clinical laboratories should be aware that cultures may be negative or take up to 14 days to become positive.
- At this time, no specific pathogen has been identified in this outbreak; however, one patient had very high levels of (1,3)-beta-D-glucan in CSF, which strongly suggests a fungal etiology.[5] This test can be performed both in blood and CSF but is more sensitive in CSF for diagnosing meningitis.[6]
- The fungal biomarker (1,3)-beta-D-glucan can help in the diagnosis of fungal meningitis; however, this test has several limitations, including:
    - the inability to identify the specific fungal species causing infection,
    - cross-reactivity with certain bacteria and medications,
    - false positivity due to specimen contamination, and
    - the inability to detect certain fungal pathogens.
- PCR testing of CSF for fungal species can be considered; this testing may not be available at most laboratories.
- *Aspergillus* galactomannan testing of serum and CSF can be considered.

Recommendations for the Public

- Patients who had a medical or surgical procedure involving epidural anesthesia in Matamoros, Mexico, since January 2023, should monitor themselves for symptoms (e.g., fever, headache, stiff neck, nausea, vomiting, photophobia, altered mental status) and consider consulting a healthcare professional.
- If patients had a procedure in Matamoros, Mexico, that involved injection of an anesthetic agent into the area around the spinal column (i.e., epidural) since January 2023 and have developed these symptoms, patients should immediately go to a hospital emergency room and tell them about their procedure in Matamoros, Mexico and where they traveled.
- Cancel any elective procedure that involves an epidural injection in Matamoros, Mexico, until there is evidence that there is no longer a risk for infection at these clinics.

- Patients should be aware that unsafe injection practices can be a serious threat to their health.
- All medical and surgical procedures carry some risk, and complications can occur regardless of where treatment is received. If patients travel to another country for a procedure, they should not delay seeking medical care if they suspect any complication during travel or after returning home. Immediately obtaining medical care can lead to earlier diagnosis and treatment and a better outcome.
- Learn how to minimize risks if patients are considering traveling to another country for medical care.

For More Information

Information about meningitis:

- Meningitis
- Fungal Meningitis

Health information for travelers:

- Mexico Traveler Health
- Fungal Infections Following Surgical Procedures in Mexico - Alert - Level 2, Practice Enhanced Precautions - Travel Health Notices | Travelers' Health | CDC
- Medical Tourism CDC Yellow Book 2024 (clinicians)
- Traveling Abroad for Medical Care (travelers)

References:

1. Smith RM, Schaefer MK, Kainer MA, et al. Fungal Infections Associated with Contaminated Methylprednisolone Injections. N Engl J Med. 2013;369(17):1598-1609. doi:10.1056/NEJMoa1213978

2. Serological Assays for the Detection of Beta-Glucan - Class II Special Controls Guidance Document for Industry and FDA Staff. U.S. Food & Drug Administration. Accessed 17 May 2023. Available at: https://www.fda.gov/medical-devices/guidance-documents-medical-devices-and-radiation-emitting-products/serological-assays-detection-beta-glucan-class-ii-special-controls-guidance-document-industry-and.

3. Klont RR, Mennink-Kersten MASH, Verweij PE. Utility of Aspergillus Antigen Detection in Specimens Other than Serum Specimens. Clinical Infectious Diseases. 2004;39(10):1467-1474. doi:10.1086/425317

4. Meningitis - Resources for Healthcare Professionals. Centers for Disease Control and Prevention. Accessed 17 May 2023. Available at: https://www.cdc.gov/meningitis/clinical-resources.html.

5. Karageorgopoulos DE, Vouloumanou EK, Ntziora F, Michalopoulos A, Rafailidis PI, Falagas ME. -D-Glucan Assay for the Diagnosis of Invasive Fungal Infections: A Meta-analysis. Clinical Infectious Diseases. 2011;52(6):750-770. doi:10.1093/cid/ciq206

6. Lyons JL, Roos KL, Marr KA, et al. Cerebrospinal Fluid (1,3)-β- d -Glucan Detection as an Aid for Diagnosis of Iatrogenic Fungal Meningitis. J Clin Microbiol. 2013;51(4):1285-1287. doi:10.1128/JCM.00061-13

DHEC contact information for reportable diseases and reporting requirements

Reporting of **Fungal Meningitis** is consistent with South Carolina Law requiring the reporting of diseases and conditions to your state or local public health department. (State Law # 44-29-10 and Regulation # 61-20) as per the DHEC 2023 List of Reportable Conditions available at:
https://www.scdhec.gov/sites/default/files/Library/CR-009025.pdf

Federal HIPAA legislation allows disclosure of protected health information, without consent of the individual, to public health authorities to collect and receive such information for the purpose of preventing or controlling disease. (HIPAA 45 CFR §164.512).

Regional Public Health Offices – 2023

Mail or call reports to the Epidemiology Office in each Public Health Region

MAIL TO:

Lowcountry	Midlands	Pee Dee	Upstate
4050 Bridge View Drive, Suite 600 N. Charleston, SC 29405 Fax: (843) 953-0051	2000 Hampton Street Columbia, SC 29204 Fax: (803) 576-2993	1931 Industrial Park Road Conway, SC 29526 Fax: (843) 915-6506	352 Halton Road Greenville, SC 29607 Fax: (864) 282-4373

CALL TO:

Lowcountry	Midlands	Pee Dee	Upstate
Allendale, Bamberg, Beaufort, Berkeley, Calhoun, Charleston, Colleton, Dorchester, Hampton, Jasper, Orangeburg	**Aiken, Barnwell, Chester, Edgefield, Fairfield, Kershaw, Lancaster, Lexington, Newberry, Richland, Saluda, York**	**Clarendon, Chesterfield, Darlington, Dillon, Florence, Georgetown, Horry, Lee, Marion, Marlboro, Sumter, Williamsburg**	**Abbeville, Anderson, Cherokee, Greenville, Greenwood, Laurens, McCormick, Oconee, Pickens, Spartanburg, Union**
Office: (843) 441-1091 Nights/Weekends: (843) 441-1091	Office: (888) 801-1046 Nights/Weekends: (888) 801-1046	Office: (843) 915-8886 Nights/Weekends: (843) 409-0695	Office: (864) 372-3133 Nights/Weekends: (864) 423-6648

For information on reportable conditions, see
https://www.scdhec.gov/ReportableConditions

DHEC Bureau of Communicable Disease Prevention & Control
Division of Acute Disease Epidemiology
2100 Bull St · Columbia, SC 29201
Phone: (803) 898-0861· Fax: (803) 898-0897
Nights / Weekends: 1-888-847-0902

Categories of Health Alert messages:

Health Alert	Conveys the highest level of importance; warrants immediate action or attention.
Health Advisory	Provides important information for a specific incident or situation; may not require immediate action.
Health Update	Provides updated information regarding an incident or situation; unlikely to require immediate action.
Info Service	Provides general information that is not necessarily considered to be of an emergent nature.