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COMATOSE PATIENT REGAINS CONSCIOUSNESS AFTER BIOSYNTHETIC “GLUE” SEALS SPINAL FLUID LEAK

LOS ANGELES (May 25, 2007) – Neurosurgeons and neuroradiologists at Cedars-Sinai Medical Center injected a biosynthetic “glue” to seal off a spinal fluid leak and restore a comatose patient to consciousness. An article describing the case appears in the April 21 issue of the British medical journal, *The Lancet*.

It is the first known report of a situation in which a patient’s coma was reversed by the injection of glue, according to Wouter I. Schievink, M.D., Director of the Neurovascular Surgery Program at Cedars-Sinai and the article’s lead author.

When Algis Bliudzius, of Los Angeles, was referred to Cedars-Sinai Medical Center in a coma after experiencing headaches for two days, physicians first suspected that the blood thinners he was taking had caused hematomas – collections of blood clots – inside the dura, the membrane surrounding the brain and spinal cord. In fact, subdural hematomas did appear on diagnostic CT scans.

But in initial interviews with the patient’s wife, the doctors quickly learned that his headaches occurred only when he was upright and they resolved when he reclined. Additional diagnostic exams confirmed the new diagnosis: spontaneous intracranial hypotension (low intracranial pressure) caused by a small hole in the dura through which spinal fluid leaked. This allowed the brain to sag when the patient changed positions.

The first, most common treatment approach, called a blood patch – an injection of the patient’s own blood into the space between the dura and the spinal column – temporarily corrected the problem and Bliudzius regained consciousness. Forty-eight hours later, however, his condition deteriorated into a widely fluctuating level of consciousness.

Franklin G. Moser, M.D., director of Clinical and Interventional Neuroradiology at the S. Mark Taper Foundation Imaging Center at Cedars-Sinai, then led a team that used CT scan guidance to carefully place a needle and inject a commonly used glue directly to the site of the leak. Moser also serves as vice-chairman for Radiology Research.

A spinal fluid leak may be suspected if a patient has undergone a spinal fluid tap, but leaks sometimes occur spontaneously, the result of an underlying weakness of the dura, possibly

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coupled with a previous minor injury. The fluid leaks into the tissues of the body, where it is absorbed, providing no visible evidence of the condition.

Physicians once thought spontaneous spinal fluid leaks were extremely rare, but Schievink sees several patients a year who come through Cedars-Sinai's emergency room, and patients are referred to him from around the world.

Symptoms vary, according to Schievink, but they typically include a headache. It may be constant, occurring later in the day or associated with exertion. It may occur when the patient is standing or, in some cases, lying down. There may be no headache at all, or it may be superseded by additional problems, such as coma. Symptoms also may mimic those of dementia or Parkinson's disease.

"Some patients have been on bed rest for three or six months before they are referred for further treatment," Schievink said. "If there is a subdural hematoma – especially if the patient is comatose – a neurosurgeon may surgically remove the blood clot. But if they don't recognize that there's an underlying spinal fluid leak and fix it, there's a high chance that the subdural hematomas will come back or even get worse."

Bliudzius, now 69, said he doesn't remember being transferred to Cedars-Sinai or conversations with friends who say they came to see him in the hospital. Today he's back to leading an active life, walking at Griffith Park and taking three-mile treks around the path at Silver Lake, near his home.

"In this case, if not for the fact that we knew he had a significant positional headache, we would have ascribed his subdural hematomas to the blood thinner he was taking," Schievink said. "This emphasizes the importance of careful history taking."

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Citation: *The Lancet*, April 21, 2007, "Reversal of coma with an injection of glue"

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