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Diagnostic Laboratory
\(VMDL\)](#)[CVM Employment](#)[Zalk Veterinary
Medical Library](#)[CVM Course Materials](#)[MyZou](#)[Home](#)

NEWS & EVENTS

Devastating Fracture Heals Thanks to Expertise of Veterinary Neurologist and Orthopedic Surgeon

Kevin and Sarah Smith don't know how their 7-year-old chocolate Labrador, Daisey, was injured. Sarah, studying to become a physical therapist assistant, was not at home. Kevin, a paramedic and firefighter, had been mowing the yard at their Pocahontas, Ark., home that Monday when a friend dropped by. Kevin and his friend went inside the house, leaving Daisey to romp in the yard with the visitor's dog.

Kevin said he heard a loud yelp and bolted out the door in time to see Daisey try to run toward him, only to stumble and roll under his truck. It took him a few minutes to get the dog out from under the truck, and while she had no visible injuries to explain the yelp or fall, she could not hold her head up. Concerned, he took Daisey to a local veterinarian who suspected a pinched nerve and prescribed steroids and pain management therapy.

For a couple of days, the Smiths observed their dog. Daisey could walk, but her neck continued to droop, and any kind of jolting movement, such as when she tried to leap into a vehicle, would elicit yelps of pain. After two days of treatment had yielded no improvement, Daisey was returned to the veterinarian's office. This time radiographs revealed a far more serious issue than a pinched nerve: Daisey had sustained a fracture to her C-2 vertebra, the bone in the spinal column that is second closest to the skull.

Daisey's veterinarian placed a brace on her to immobilize the neck and advised the Smiths that their best hope was 265 miles away at the



Kevin and Sarah Smith with their dog Daisey after her recovery.

University of Missouri Veterinary Medical Teaching Hospital.

Christine Sibigtroth, DVM, a neurology resident at the VMTH, was on-call when the Smiths arrived in Columbia that Saturday. She called in Joan Coates, DVM, service leader of neurology and neurosurgery at the veterinary hospital, to examine Daisey. It was recommended that Daisey undergo a computed tomography (CT) scan to provide the best possible view of the injured area.

"I knew it was a bad fracture," Coates said. But it was only after seeing the images from the CT scan that Daisey's veterinarians at the VMTH learned just how bad it was. While Coates and Sibigtroth had initially hoped they could immobilize Daisey's neck to allow the fracture to heal on its own, after reviewing the scans, they recommended surgical stabilization for the best hope in regaining the ability to walk again. "The fracture was comminuted, which means it was in many pieces," Coates said. A displaced fracture so close to the spinal cord not only presented the possibility of paralysis, but Daisey's life was at risk.

"It is not uncommon for dogs to die from this type of fracture because they lose their ability to breathe. It was amazing that Daisey was still able to breathe," Coates said. "The fracture repair was complicated and definitely required the expertise of both a neurologist and an

An image from a CT scan showing the extent of damage to Daisey's fractured vertebra.



After her surgery, Daisey had to be kept immobilized in a body cast.



orthopedic surgeon.”

Coates and Sibigroth called on MU veterinary orthopedic surgeon James Tomlinson, DVM, who has the most experience with repairing difficult spinal fractures. Tomlinson knows how challenging the C-2 vertebra can be to repair. Not only is the bone dangerously close to the spinal cord, but its shape is similar to an hour-glass, which means the center is much thinner than the ends. “There is not a lot of bone there to work with,” Tomlinson explained.

With Coates and Sibigroth assisting, Tomlinson used pins and bone cement to realign the pieces of the shattered vertebra. Daisey did well throughout the seven-hour surgery, and the Smiths were relieved when she didn’t require a ventilator afterward to help her breathe. But her recovery had just begun.

Eight days after her surgery, the Smiths drove Daisey, now in a full body cast, home to Arkansas. The cast had to be kept dry. Its movement-limiting shape didn’t allow her to access to her food bowl so the Smiths hand-fed their dog. The 80-pound Lab could not walk and had to be carried outside. Nor could she relieve herself normally, so her devoted owners rubbed her bladder and expressed her bowels manually. They also initiated physical therapy exercises and massaged Daisey.

“She didn’t like having physical therapy, but we could see over time that she was improving,” Kevin Smith said.

Her veterinarians wanted her to remain immobile for six weeks, but the rambunctious Lab had other ideas and despite being monitored, managed to get out of the cast repeatedly. After four weeks of escapes, the Smiths attempted instead to keep her calm and confined. They took turns sleeping on the floor with her, rubbing her ears to keep her quiet and occasionally giving her a sedative so they could get some sleep.

“We could tell she was in pain. She’d get excited, but she couldn’t do a lot,” Kevin said.

When Daisey began to walk again, it was like watching a baby deer try to walk for the first time, Sarah Smith recalled. At first, the Smiths would help Daisey by holding her up with a towel until her leg strength and coordination returned. Eventually, they were able to take her swimming to help improve her mobility and restore muscle tone. While Daisey’s legs still get a little wobbly when she tries to move too quickly, Kevin Smith said her recovery has been miraculous.

“We knew it was going to be hard, but we didn’t know it would be this tough. But she stayed in good spirits and she wasn’t ready to give up, so we didn’t give up on her.”

[Return to News and Events home](#)

On a return visit to the MU Veterinary Medical Teaching Hospital, Daisey has her eyes examined by veterinary student Aaron Mayberry while Nadezhda Fridman holds her still.



The Smiths with Daisey and her medical team, veterinary neurology resident Christine Sibigroth, DVM (left), orthopedic surgeon James Tomlinson, DVM, and service leader of neurology and neurosurgery at the Veterinary Medical Teaching Hospital Joan Coates, DVM.

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Last Update: August 8, 2013