CT scan for 50 million year old snake

September 13 2010

Even some of the most advanced technology in medicine couldn't get Clarisse to give up all of her secrets. After all, she's kept them secret for more than 50 million years.

Clarisse is a snake, found in the Fossil Butte region of Wyoming, perfectly fossilized in limestone and the only one of her kind known to be in existence. Palentologist Hussan Zaher found her, and he brought her to Houston in hopes of learning more about her.

He brought his precious find to The Methodist Hospital and subjected her to a detailed CT (computerized tomography) scan in hopes of finding where Clarisse fits along the timeline of evolution.

"Most fossilized remains of snakes are individual pieces of bone," said Zaher. "This is unique because it's a complete snake, which gives us a unique opportunity to study her makeup and hopefully learn more about her."

CT scan technician Pam Mager conducted the scan on a 64-slice scanner that is capable of sending laser-guided X-rays through a target. "We can take almost 3,000 images in less than a minute," she explained, "and then we can use those images to construct a three-dimensional picture of the snake's bone structure."

Zaher, professor and curator of the collections of herpetology and paleontology at the Museu de Zoologia of the Universidade de São Paulo in Brazil, worked with the Museum of Natural Science in Houston to get

Clarisse to Methodist for the scan. He believes Clarisse could be an evolutionary link between snakes who take a lot of small bites to eat their prey and snakes who swallow their prey whole.

The snake fossil was preserved in what is now limestone, and the entire chunk of rock was placed on the bed of the CT scanner. In less than a minute, the images were taken and assembled by computer into a three-dimensional image that could be rotated 360 degrees.

Taking a preliminary look at the images, Zaher said he saw no traces of limbs. "That places it higher up the evolutionary scale, but the snake is still very old," he said. For more than an hour, he and technician Mager studied the images, looking at tiny details of the snake's skull to find clues to how it may have eaten its prey.

"This is a very important step in studying this specimen ... I will be able to take away copies of the images for further investigation and I believe this will help us learn about this snake," Zaher said. "I cannot express my gratitude enough to (The Methodist Hospital) and the radiology services department here."

Provided by The Methodist Hospital System