MAYO CLINIC

Mayo Clinic News Network

Title: 3D Printing Aids in Planning Complex Surgeries / Date: September 2015

Intro: Not all great advances in surgery happen in the operating room. Some are coming off the printer - a 3D printer. At Mayo Clinic, radiologists and surgeons are teaming up to discover every possible detail about complex cases before the operation. Here's Dennis Douda for the Mayo Clinic News Network.

Video	Audio
Total running time [3:19]	/// NATS
Michael Slag speaking	**"The black area is the tumor. The white areas are the ribs surrounding the tumor."**
Dennis Douda speaking	Michael Slag is in awe of a tumor; well, a 3D Printed model of the tumor that was growing at the top of his right lung. A Mayo Clinic surgeon removed it in a minimally invasive operation and, just 3 days later, he's going home.
Title: Michael Slag Surgery Patient	**"Well, it's unbelievable. In fact I was walking the first night after surgery."**
Dennis Douda speaking	Unbelievable because of how this 3D model spared him from what surely would have been a much more invasive operation, with a far longer and more painful recovery.
Michael Slag speaking	**"But, I'm sure if my chest would have been split open I probably would have been in an ICU and probably had a whole different experience."**
Dennis Douda speaking	The growth was a type of lung cancer called a Pancoast tumor, so rare that Mayo Clinic has only seen 60 cases in the past 20 years
Title: Shanda Blackmon, M.D., M.P.H. Mayo Clinic Thoracic Surgery	**"We frequently may have a plastic surgeon, an orthopedic surgeon, a vascular surgeon, and myself, all involved in a Pancoast tumor resection. And when that's the case, there's nothing better than having a model for the whole team to meet around and plan the case."**
Dennis Douda speaking	Thoracic Surgeon Shanda Blackmon says the 3D model helped eliminate surprises, by showing the team exactly how Michael's large tumor was wrapped around several critical nerves and blood vessels.
Shanda Blackmon speaking	**"Clearly, everyone's tumor is different, and it's always in a different location."**

Dennis Douda speaking	It took about 70 hours for a high-tech 3-D printer to create the model. But radiologists put in many hours before that, incorporating MRI images, CT Scans and sophisticated computer software to first create a virtual model of Michael's anatomy, color-coded for each specific tissue type.
Dr. Matsumoto speaking	**"There you can see the veins, the aorta, pulmonary artery, the brachial plexus and the tumor up there."**
Dennis Douda speaking	Radiologist Jane Matsumoto is Co-Director of Mayo Clinics' 3D Anatomic Modeling Lab.
Title: Jane Matsumoto, M.D. **Mayo Clinic Radiology**	**"Radiology Department at Mayo Clinic is made up of 170 radiologists who all have subspecialty areas of expertise; in bone, in lung, in nerves. We're able to draw all those people in one area together to work together to create this."**
Dennis Douda speaking	It's a technology surgeons are using for complex cases in orthopedics, heart and vascular repair, pediatrics and other specialties. It helped Dr. Blackmon's team decide that Michael's lung tumor could be removed laparoscopically, without opening his chest.
Shanda Blackmon speaking	**"So the surgery that we performed was basically putting a camera in the side of the chest through a small hole that was created. We had two additional ports that are basically tubes that we put in between the ribs that we pass instruments through, and that was all we did to resect his tumor."**
Dennis Douda speaking	Besides a quicker recovery, the less invasive approach requiring less cutting reassured Michael for another reason. You see he is also Dr. Slag, an endocrinologist who performs some delicate medical procedures of his own.
Michael Slag speaking	**"This lighter grey area is the brachial plexus, a complex set of nerves that run the arm. Knowing that I was more likely to come out with a hand that worked, compared to an arm that wasn't gonna do very much, was just a big load off my mind."**
Dennis Douda speaking	For the Mayo Clinic News Network, I'm Dennis Douda.

Anchor tag: Dr. Matsumoto (mot-soo-MOE-toe) says, while hard data has not yet been compiled, surgeons often report shorter hospital stays, quicker recovery times, less blood loss and less pain for patients whose complex operations can be planned with 3D models.

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