The field of medicine has come a long way from the hooks and hammers of Roman days, now using robotics to improve the surgical process.

Robotic surgery is one of the most exciting innovations in medical technology for doctors and patients. Building on the minimally invasive laparoscopic method, the da Vinci robot surgical machine allows surgeons to operate within the body without having to cut large incisions. “The robotic method lets us complete complex surgeries on the inside of the body, but from the outside, it’s just a series of small incisions,” said Dr. Allison Davis, MD, a general surgeon with the Las Vegas Institute for Robotic Surgery at MountainView Hospital. While the idea of using a robotic machine during surgery might sound intimidating, it makes many formerly complicated procedures much simpler.

**How Does Robotic Surgery Work?**

Robotic surgery, or robot-assisted laparoscopic surgery, has revolutionized the minimally invasive laparoscopic techniques. During laparoscopic surgery, a surgeon makes a series of small incisions into which she inserts instruments mounted on thin sticks, including a device with a small camera lens.

“Laparoscopic is a great technique, but it can be limiting,” Davis said. “The two main problems is that the image during surgery is only 2-D, so depth perception is an issue, and the instruments aren’t as mobile. They can only move side to side, and up and down.”

Robotic surgery improves both of those concerns. The camera lens used by the da Vinci robot machine produces a clear, 3-D image for the surgeon, granting the same quality, real-time image the surgeon would have during open surgery. The da Vinci robot also is equipped with wristed instrumentation, meaning the robot has a full 360-degree range of motion and mimics the surgeon’s movements one to one.

To further ensure top-quality results, lab technicians carefully review and analyze statistics from the machine after each procedure. This guarantees the robot is functioning optimally and indicates whether any maintenance or troubleshooting is necessary.

“Robotic surgery gives surgeons all the benefits of open surgery, such as fluid motion and a complete visual range, without actually having to open the patient up,” Davis said.

What that means for patients is a far less traumatic procedure and a quicker healing time, Davis said. “Open abdominal surgeries can leave patients with a four-to-six week healing time, but robotic surgery gives patients the option to walk out of the hospital that day,” Davis said.

Robotic surgery improves both of those concerns. The camera lens used by the da Vinci robot machine produces a clear, 3-D image for the surgeon, granting the same quality, real-time image the surgeon would have during open surgery. The da Vinci robot also is equipped with wristed instrumentation, meaning the robot has a full 360-degree range of motion and mimics the surgeon’s movements one to one.

To further ensure top-quality results, lab technicians carefully review and analyze statistics from the machine after each procedure. This guarantees the robot is functioning optimally and indicates whether any maintenance or troubleshooting is necessary.

“Robotic surgery gives surgeons all the benefits of open surgery, such as fluid motion and a complete visual range, without actually having to open the patient up,” Davis said.

What that means for patients is a far less traumatic procedure and a quicker healing time, Davis said. “Open abdominal surgeries can leave patients with a four-to-six week healing time, but robotic surgery gives patients the option to walk out of the hospital that day,” Davis said.