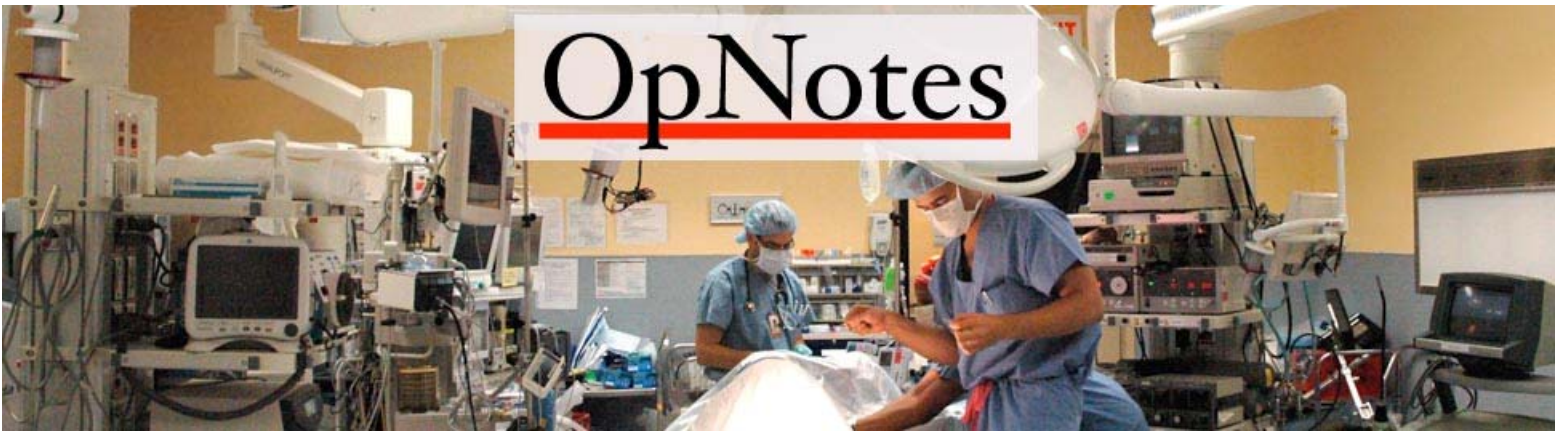


OpNotes



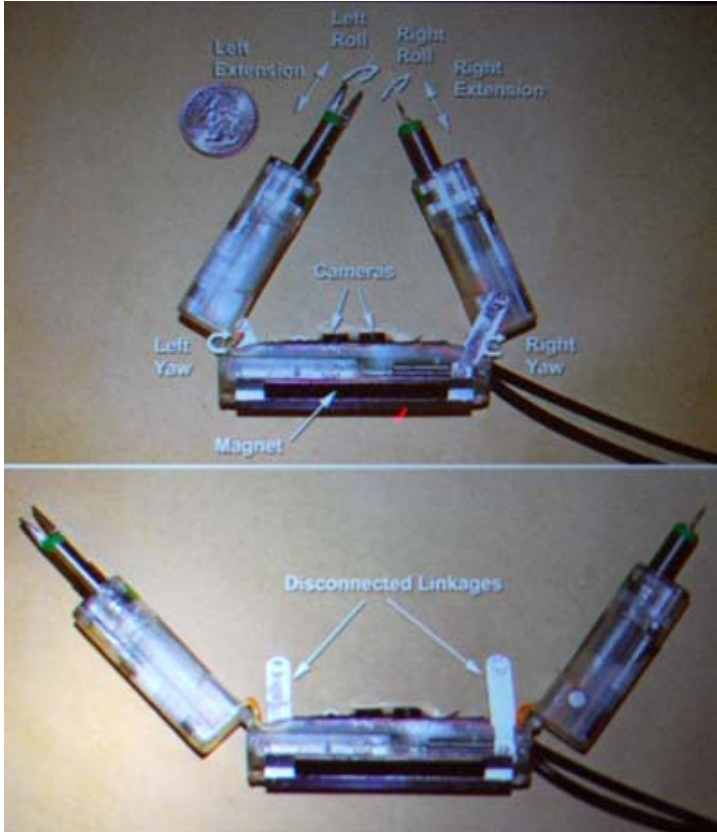
SAGES Report: NOTES-deployed mini robot turns surgery into Game Boy

Posted By Christopher Kelly On April 11, 2008

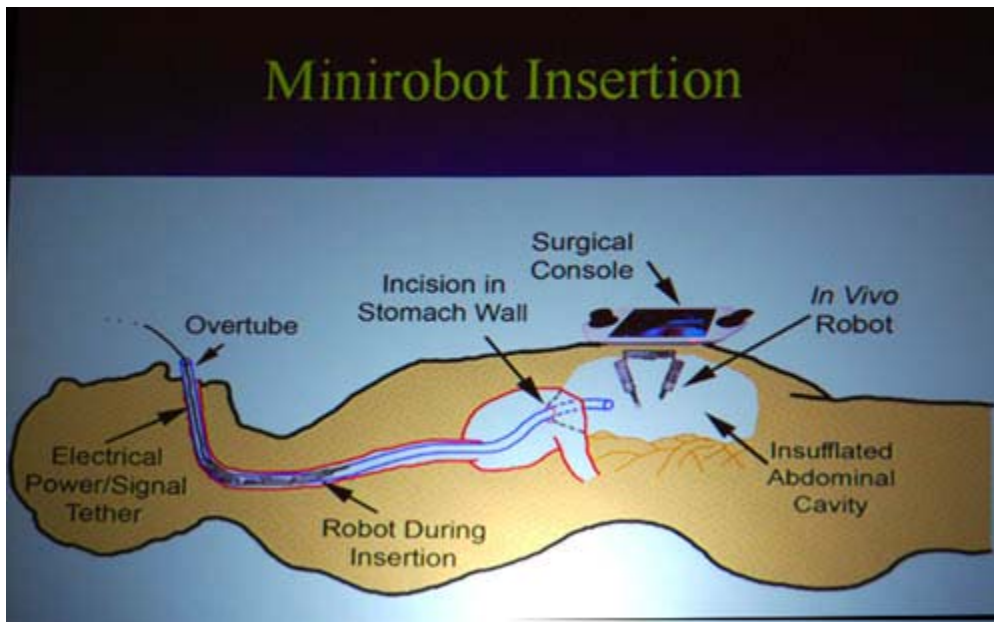
[In an earlier post](#), we explored one combination of robotics and NOTES that involved deploying da Vinci instrumentation through transvaginal and transcolonic trocars.

At the NOTES symposium at SAGES today, Dr. Dmitry Oleynikov of the University of Nebraska Medical Center upped the technological ante even further, debuting a new mini robot that is contained entirely within the abdomen and is deployed through a gastric incision.

The device itself looks like this:



The two instrumental arms lay parallel with the central body during deployment, which occurs via a transgastric incision:



Once the device has been inserted into the intraperitoneal space, it is held against the anterior abdominal wall by a magnet on the back of the surgical console, which looks like this:



The arms flex forward once the robot is in place, and the instruments are controlled joy-stick style, with a configuration that imitates true laparoscopic surgery: when the left joystick is moved to the left, for example, the head of the left instrument moves toward the center of the field.

Sample videos acquired using the robotic camera demonstrated reasonable resolution and contrast. Of course, there are several technological issues that still clearly need to be worked out — the arms, for example, seemed to move excruciatingly slowly — and several questions remain unanswered (at least to us). It wasn't clear, for example, how the short arms would reach certain structures from their position on the abdominal wall, especially with pneumoperitoneum. Moreover, it wasn't clear how

much traction could be achieved in the robot's small working space, or if/how one could change the working instruments during procedures.

Of course, the device is still in early development, so it's not surprising that many of these issues have not yet been worked out. The team, however, has proven that it's a usable platform and reports performing a cholecystectomy with the device in just ninety minutes.

The concept itself is fascinating, and it's not much of a stretch to expect that an entire class of devices like this one will give rise to a new surgical platform in the years to come.