

Man Vs. Machine In The Healthcare Arena: Is Robotic-Assisted Surgery Truly Superior?

by Hugo D. Ribot, Jr., M.D., F.A.C.O.G., A.C.G.E.

There is no shortage of hype today when it comes to new medical technology. Almost daily, we hear about some whiz-bang laser or non-surgical body contouring treatment – or most Sci-fi and hyped of all – the robot known as the DaVinci. The manufacturer of this almost \$2 million surgical device has one of the world's most impressive and moneyed marketing machines, blanketing media with the message to hospitals, surgeons and the public alike that it's the "latest and greatest" approach for minimally invasive surgery.

Much of what's been published thus far on the claimed superiority of robotics derives from DaVinci-sponsored physician-consultants. Aside from its innate bias and lack of objectivity, this medical hyperbole unfairly compares the so-called superior clinical outcomes of robotic surgery – e.g., post-operative pain, speed of recovery, etc. – to those of traditional "open" surgery, in which large, unsightly incisions are made to the patient's body. This, however, is not comparing "apples to apples." Surgeons who have kept up with the latest and greatest operating techniques have long ago abandoned such highly invasive surgical approaches in favor of highly advanced, minimally invasive methods like laparoscopy.

Thus, the real question becomes: is robotic-assisted surgery truly superior and more advantageous when compared to conventional laparoscopy? Does it really result in fewer incisions, shorter operating time, lower costs and better patient outcomes, as marketing would have us believe? In the arena of gynecological surgery, the answer is an emphatic "no."

The contest of man versus machine in this specialty was recently fought and decided within a comprehensive study, published in *Obstetrics & Gynecology* (November 2011). The study compared the two minimally invasive approaches, head to head, in a common procedure called sacrocolpopexy (basically, the 'tacking up' of a "fallen" or prolapsed vagina that can occur after hysterectomy). As many of the country's leading gynecological laparoscopic surgeons could have predicted, conventional laparoscopy beat its robotic opponent, hands-down, in every meaningful clinical criterion, including post-operative pain, number and size of incisions, operating times, and hospital costs, with an average savings of nearly \$2,000 per case.

While such comparative research has been less well-staged for hysterectomy – the second most common U.S. gynecological surgery – that published shows hospital charges to top a whopping \$19,000 more per case for robotic-assisted versus conventional laparoscopy, with similar patient outcomes.* When one adds to that the robot's knockout price, plus maintenance costs of as much as \$130,000 annually – it becomes clear that robotic surgery is one very expensive healthcare ticket.

From a purely surgical perspective, this bulky beast has many other sizeable, uncontested disadvantages in the operating "ring." Robotic surgical systems require more operating

room space and equipment setup time, make it impossible to move the patient, limit intra-operative access, prevent critical tactile and sensory feedback, and only widen the distance between patient and surgeon. Not only is this depersonalizing, but also detrimental to actual handling of unforeseen and/or more complex patient pathologies. Surgeons, fundamentally, need to get their gloves “dirty” to best do battle – to be able to touch, feel and manipulate body tissue – versus operating remotely behind a console.

So why, aside from wham-bam marketing, has robotics been so widely adopted for gynecological procedures? Basically, it comes down to a lack of hands-on training and proficiency among ob/gyns in certain highly technical laparoscopic skills, such as suturing and knotting. Robotic surgical systems facilitate these difficult techniques, as well as 3-D visualization, thus enabling less-experienced surgeons – and the healthcare facilities that staff them – to market a “brand new” minimally invasive approach to patients who’ve been sold its advantages.

Yet as the aforementioned study conclusively proves, the claimed superiority of the robotic approach completely evaporates in the hands of capable laparoscopic surgeons using modern and far less costly equipment. Operating with a shiny robot may provide marketing showmanship, but it will no more make a mediocre surgeon into a great one than driving a Ferrari will transform a lousy driver into a Mario Andretti or Dale Earnhardt. Furthermore, hospitals typically do not get higher reimbursement for robotic cases, amortizing their costs over other patients and departments. Ultimately, we healthcare “spectators” are paying the price for a technology that adds little efficiency or quality to gynecological surgery at substantially greater costs.

Given this, especially as we enter a more fiscally responsible healthcare era, wouldn’t it make more sense – and be a win-win for all stakeholders – if hospitals spent resources on training ob/gyns in tried-and-true laparoscopic techniques versus an over-glorified robot?

“Hospital Charges Are Higher for Robotic Hysterectomy,” *Ob.Gyn.NewsNetwork*; Nov. 10, 2010; (retrospective analysis by Liza M. Colimon, M.D., of procedure costs for 380 women who underwent total hysterectomy in 2008 by either conventional laparoscopy (N=218) or robotics (N=162).)

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