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can safely proceed with it in their own units. Where it pertains to a new surgical technique, it may be very prudent to pay attention when the authors say: "Further studies are required."

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REPLY FROM AUTHORS: BUILDING UP CONSENSUS

Reply to the Editor:

We would like to thank Drs Soumagne and Fortin for their comments regarding transaortic endosonographic needle biopsies.¹ Their experience should be read as a word of caution for all endoscopists performing these complex procedures. In our series, we decided to exclude all patients with severe atherosclerosis or presence of calcifications on the aortic wall on ultrasound, because we believe that the aorta relies on its structural and dynamic properties to heal from the perforation caused by the needle. Certainly there is no practical way to prove this; however, the complication reported by Dr Soumagne in a patient with severe atherosclerotic aortic disease contributes to the growing body of evidence that should guide clinical practice in this relatively new procedure. We completely agree that transvascular biopsy should be contraindicated in patients with vascular disease.

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THE CONTINUED CONDEMNATION OF ROBOTICS—YET ANOTHER CASE OF CONFIRMATION BIAS

To the Editor:

I sit here on the eve of Halloween reading the article by Zhang and colleagues¹ and the associated commentaries, realizing that confirmation bias can be far scarier than any Halloween ghoul or goblin. Song and Flores² note several issues with robotic-assisted lung resection in their commentary before concluding in their final sentence that robotics is "an expensive technology that does not improve clinical care," a definitive statement that I am concerned is based more on opinion and dated literature than an unbiased assessment of the evidence.

Let's start with the condemnation of robotics based on the notion of increased operating room (OR) time and cost. Song and Flores cite a meta-analysis of data from 2002 to 2014 showing increased OR time and similarly dated literature on cost, which upon critical evaluation reveals the

Dr Servais reported consultant for Intuitive Surgical.

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major cost difference was based on OR time using a previous-generation robotic system. First, modern-generation robotic systems have little to no additional time required for positioning and docking, and operative time has been shown to be equivalent by Zhang and colleagues¹ or even improved compared with video-assisted thoracic surgery (VATS).³ Second, contemporary studies on cost, such as that by Kneuert and colleagues,³ have shown equivalent hospital costs when comparing robotic with VATS lobectomy.

Most importantly, however, the assertion that robotics “does not improve clinical care” is both biased and short-sighted. Zhang and colleagues and others have shown improved lymphadenectomy with robotic-assisted lobectomy compared with VATS. It is easy to ignore this fact, but multiple studies have now demonstrated robotics facilitates a more complete lymphadenectomy, including the 2017 report from Memorial Sloan Kettering Cancer Center in *The Annals of Surgery*.⁴ In fact, an international group lead by Flores published data on lymphadenectomy in the setting of lung resection for non–small cell lung cancer in the *Journal of Thoracic Diseases*⁵ highlighting the importance of adequate lymph node harvest, which “influenced recurrence-free survival” and should be performed “not only to identify the positivity of resected lymph nodes but also to determine an accurate tumor nodal stage.” Furthermore, robotics has contributed to the overall increased use of minimally invasive surgery for lung cancer by surgeons who were otherwise performing open thoracotomy routinely—an important impact with direct patient benefit.

Technology will continue to improve, and thoracic surgeons should embrace robotics now, as the patient benefit will only become more impactful with time. Robotic costs are a moving target, and published cost comparisons with VATS have been variable. However, an unbiased assessment, free of confirmation bias, reveals that when the technology is used properly there is little doubt robotic anatomic pulmonary resection for lung cancer is safe, efficacious, and at worst, equivalent to VATS. Time will tell if robotics can actually improve outcomes and cost. Let’s avoid condemning robotics based on confirmation biases and keep an open mind to encourage further study, innovation, and progress.

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REPLY: ROBOTIC-ASSISTED LUNG RESECTIONS: OBJECTIVE OBSERVATIONS 20

YEARS LATER

Reply to the Editor:

In a recent Letter to the Editor, Dr Servais voices concern over possible bias in our assessment of the robot’s limited clinical utility in lung resection.¹ Let us take a broader look to consider where true bias most likely originates in this discussion.

Our position stems from 20 years of operative experience comparing robotics, video-assisted thoracic surgery, and open surgery techniques, as well as multiple publications without financial ties to large corporations. In contrast, the majority of large-scale publications touting the benefits of robotic lung resection have been authored by surgeons participating in active financial relationships with DaVinci’s parent company, Intuitive Surgical. By definition, it is impossible to provide unbiased support for robot-assisted techniques while receiving compensation from the world’s leading robotics company, with a current market cap valued at \$88 billion USD.²

Unfortunately, despite the complicated statistics used in comparative robotic cost analyses, there undoubtedly remains a significant financial investment required to purchase a \$2.3-million robot, its required disposable equipment, and to maintain its upkeep.

The reference to a 2017 study in the *Annals of Surgery*³ is flawed. We previously examined this study and found several significant weaknesses, including misrepresentation