ROBOTIC-ASSISTED THORACIC SURGERY FOR EARLY-STAGE NON-SMALL-CELL LUNG CANCER: INITIAL EXPERIENCE IN BRAZIL

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BACKGROUND

Robotic approach for anatomic lung resection has brought an innovative development in minimally invasive thoracic surgery. The aim of this study was to assess the safety and effectiveness of robot-assisted anatomic lung resections in patients with stage I-II non-small-cell lung cancer (NSCLC) in Brazil.

METHODS

Retrospective analysis of prospectively maintained databases of 2 groups of surgeons from São Paulo and Rio de Janeiro, respectively. We retrieved data regarding demography, diagnosis, operative time, lymphadenectomy, and morbidity of patients undergoing robotic surgery from March-2015 to April-2018. Continuous variables are presented as means and standard deviation. The Shapiro-Wilk test was used for the assessment of normality. Non-parametric data is represented as medians. Categorical variables are presented as absolute numbers and percentage. Alpha error was defined as 5%.

RESULTS

140 consecutive patients were included (80 Males/60 Females). Mean age was 66 $\pm$ 9 years old (range:30-85). The majority of patients had adenocarcinoma (n=101;72%), followed by epidermoid (n=29;21%) and carcinoid tumors (n=10;7%). Lobectomy was the most common operation (n=119;85%), followed by anatomic segmentectomies (n=21;15%). Mean overall operative time was 209 $\pm$ 80 minutes (214 $\pm$ 80 for lobectomies and 167 $\pm$ 51 for segmentectomies; p=0.01). Mean number of lymph nodes resected was 12 $\pm$ 6, and the mean number of lymph nodes stations sampled was 6 $\pm$ 1. There was no conversion to either VATS or thoracotomy in our series; neither major intraoperative bleeding.

Postoperative complications occurred in 30 patients (21%). Prolonged air leak was the most common (n=13;9%) and 7 patients were discharged with a chest tube. Chylothorax occurred in 4 patients (2.8%), but all were treated with dietetic measures. Median length-of-stay was 3 days (IQR:2-6).

The overall 30-day mortality was 0.5% (n=1). One patient had a procedure-related death, 25 days after a lobectomy. He developed pneumonia, sepsis and multiple organ failure. 138 patients (98.5%) are still under follow-up. Disease recurrence occurred in 7.8% of patients (n=11).
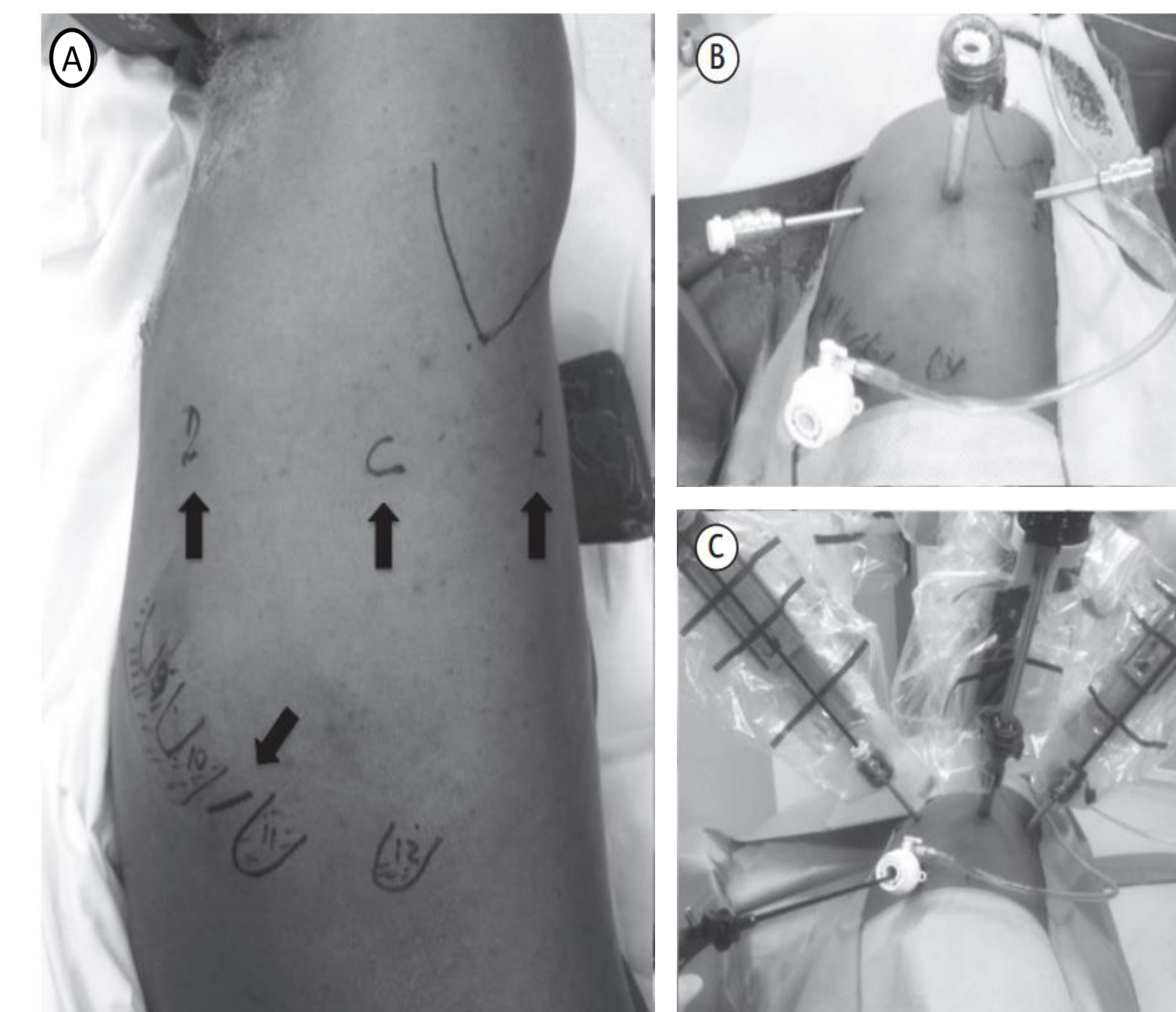

Figure 1. Port placement. In A, a patient in the right lateral decubitus position. Ribs 9 through 12 are marked on the chest wall. The arrows indicate the ports for arms 1 and 2, as well as the camera port and the assistant port. In B, trocars placed in the aforementioned ports. In C, intraoperative appearance. Note the instruments placed in each port.

CONCLUSION

Robot-assisted pulmonary resection is safe, effective and provides good outcomes, even within the context of an initial experience. Further follow-up should provide insight regarding long-term oncologic disease control.