NEW TECHNOLOGIES THAT CAME TO STAY – A CASE REPORT FROM A THIRD WORLD HOSPITAL

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Introduction

With the advent of low-dose CT, pulmonary nodules are being detected earlier, leading to a significant increase in the demand for surgical management with curative intent. Simultaneously, advancements in surgical technology allow surgeons to objectively identify parenchymal planes, ensure a more precise and sealed transection of structures by eliminating hand tremors and manual force, and ultimately reduce surgical time and postoperative complications such as air leaks and bleeding. These improvements contribute to better patient recovery outcomes.

Case Report

A 49-year-old female with a history of Hodgkin's lymphoma and right ovarian cystadenoma was found to have a 13 mm pulmonary nodule with an SUV max of 3.7 in the posterior basal segment of the right lower lobe during follow-up. A pathological report confirmed adenocarcinoma, cT1bN0M0.

The patient was scheduled for right lower lobectomy and lymphadenectomy via VATS. The inferior pulmonary vein and basilar artery were dissected using Thoracic LigaSure electrocoagulation and subsequently transected with a Signia powered stapler (gold reload).

After completing the vascular dissection, 0.15 mg/kg of ICG was administered intravenously, and the infrared mode was activated on the optics, revealing diffusion of the marker across the entire parenchymal surface except for the resected lobe. Verification with contrast and overlay modes confirmed the same interlobar plane. The lower lobe bronchus was identified and transected using the Signia stapler (buttressed purple reload).

Proper resection was confirmed by pulmonary insufflation of the remaining lobes. And finally, the complementary lymphadenectomy was performed.

The postoperative course was favorable, with pleural drainage removed on day 3, and no early complications were observed.

Discussion

The integration of advanced technologies such as indocyanine green (ICG) immunofluorescence and powered staplers in minimally invasive thoracic surgery has enhanced surgical precision, reduced complications, and improved postoperative recovery. However, access to these innovations remains limited in developing countries due to high costs and insufficient training opportunities. Despite these challenges, their implementation in resource-limited settings could significantly improve lung cancer treatment outcomes, aligning with enhanced recovery after surgery (ERAS) protocols and optimizing hospital resource utilization. To facilitate broader adoption, it is essential to promote training programs, subsidies, and partnerships with the industry, ensuring that these advancements benefit more patients worldwide.

Conclusions

The use of ICG with immunofluorescence and powered staplers represents a safe and effective approach for minimally invasive anatomical pulmonary resections.

References

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