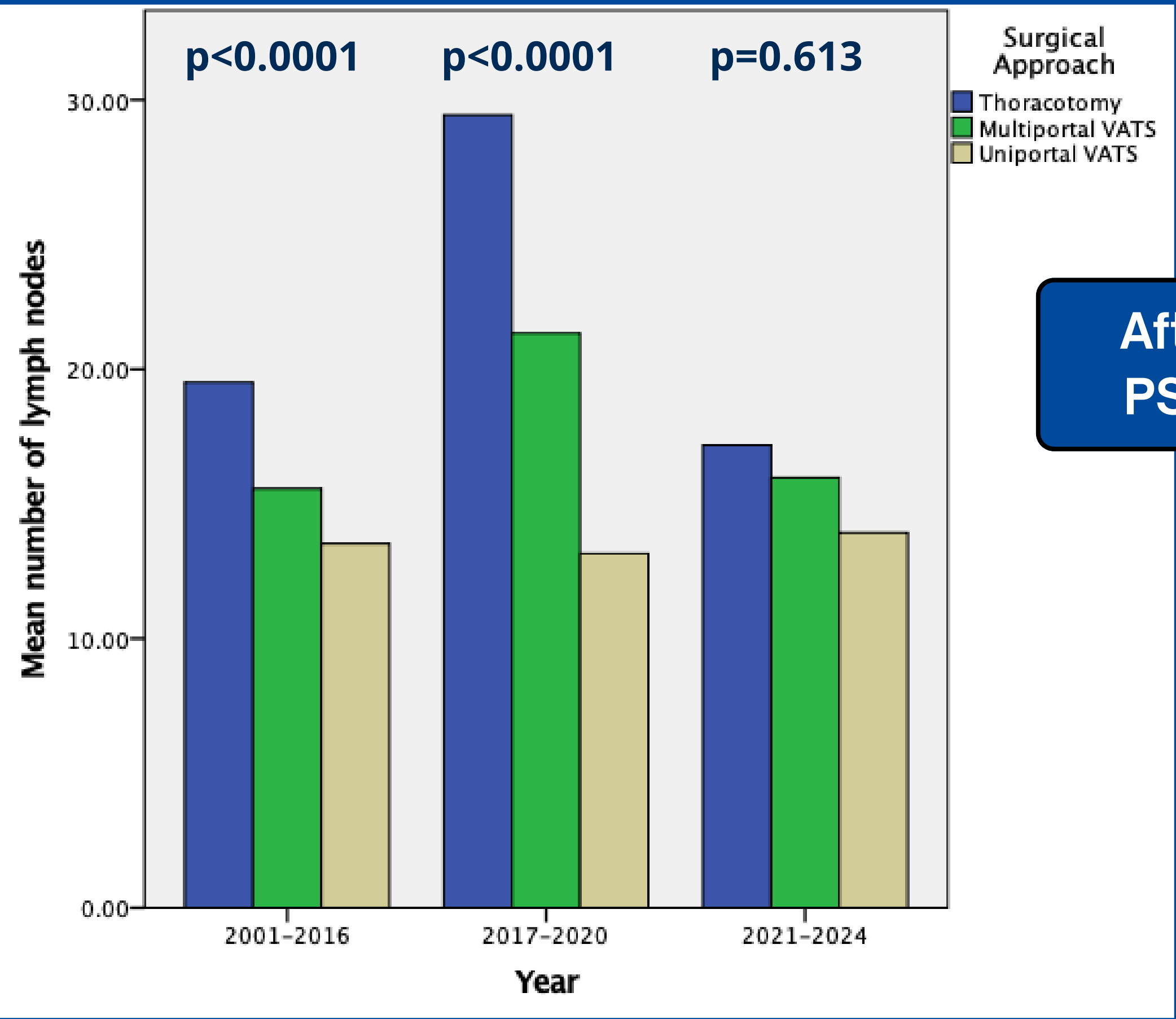
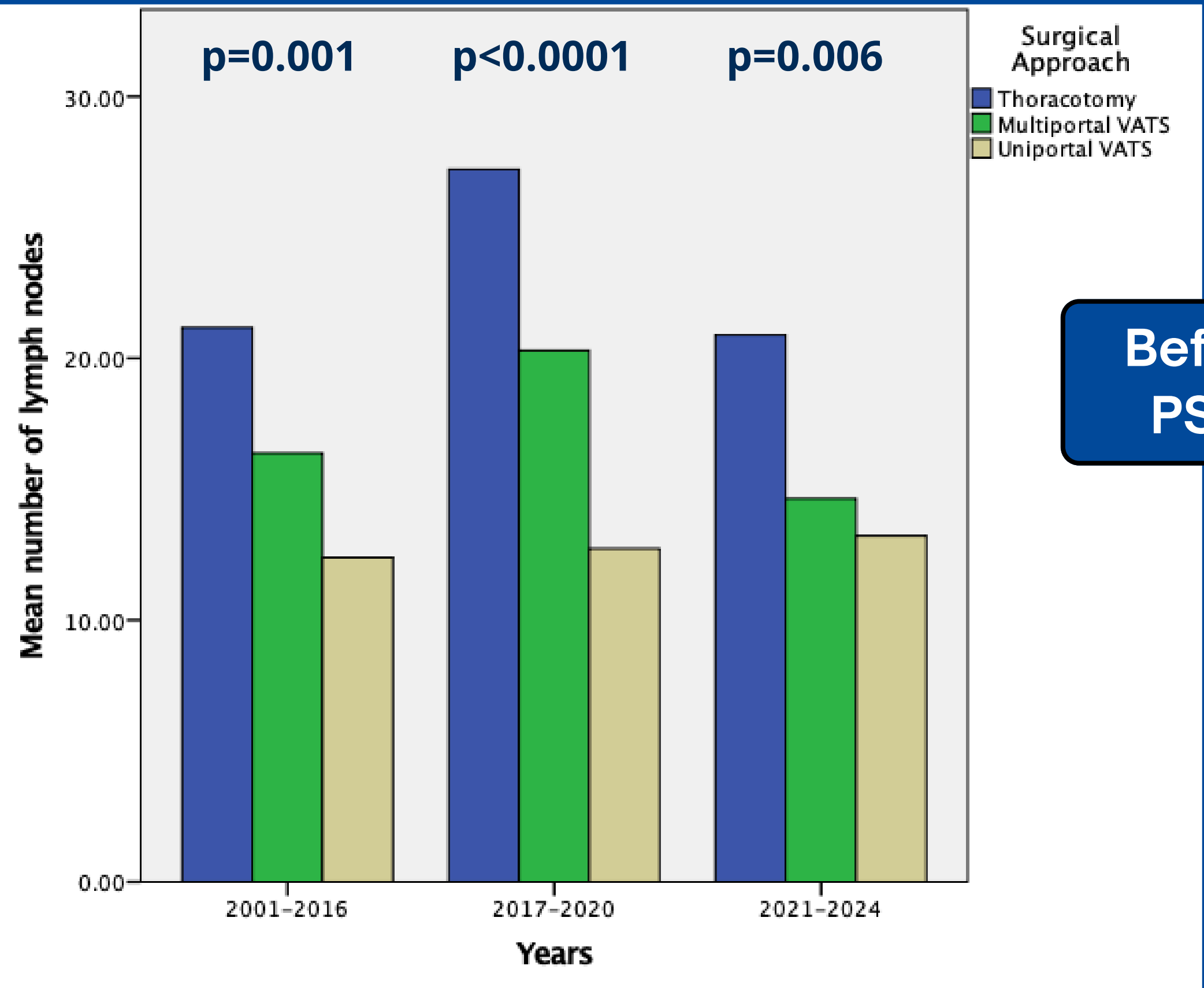


COMPARING OPEN AND VIDEO-THORACOSCOPIC APPROACHES FOR LYMPH NODE DISSECTION IN LUNG CANCER PATIENTS: A PROPENSITY SCORE MATCHING ANALYSIS

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OBJECTIVES

Video-assisted thoracoscopic surgery (VATS), performed through both multiportal and uniportal approaches, has largely replaced thoracotomy as the preferred technique for lung cancer surgery. Despite this shift, the comparative efficacy of thoracotomy versus multiportal and uniportal VATS in achieving optimal lymph node dissection in oncologic surgery remains an area of active research and debate.

METHODS

A retrospective review was conducted on 766 patients who underwent lung resection for primary lung cancer between October 2001 and January 2024. The cohort was stratified into three categories corresponding to the VATS learning curve phases in our department: early (2001–2016), intermediate (2017–2020), and late (2021–2024). Propensity score matching (PSM) was performed in a 1:1 ratio, matching for age, gender, TNM staging, and preoperative surgical mediastinal staging status. The number of dissected lymph nodes among three groups was compared using the Kruskal-Wallis test.

RESULTS

- Six hundred (78.3%) patients were male and the mean years of age was 61.28 ± 10.18 . Among the cohort, 469 patients (61.2%) underwent thoracotomy, 147 (19.2%) multiportal VATS, and 150 (19.6%) uniportal VATS.
- The mean number of dissected lymph nodes was 22.1 ± 17.2 for thoracotomy, 16.8 ± 11.1 for multiportal VATS, and 12.8 ± 10.8 for uniportal VATS ($p<0.001$).
- After PSM, the mean number of dissected lymph nodes was 21.0 ± 18.5 , 17.4 ± 11.5 and 13.4 ± 11.1 in thoracotomy, multiportal VATS and uniportal VATS, respectively ($p<0.0001$).
- In the late phase analysis, the thoracotomy group demonstrated a higher mean number of dissected lymph nodes compared to the other groups ($p=0.006$). However, after PSM, no statistically significant differences were observed between the groups ($p=0.613$) (Image).

	Before PSM				After PSM			
	Thoracotomy	Multiportal VATS	Uniportal VATS	p-value	Thoracotomy	Multiportal VATS	Uniportal VATS	p-value
Gender				0.005				0.762
Male	345 (%82.1)	105 (%72.9)	107 (%71.3)		179 (%75.5)	83 (%72.8)	89 (%72.4)	
Female	84 (%17.9)	39 (%27.1)	43 (%28.7)		58 (%24.5)	31 (%27.2)	34 (%27.6)	
Age	60.8 ± 9.7	61.6 ± 11.0	62.3 ± 10.7	0.228	61.2 ± 10.2	60.8 ± 11.1	61.5 ± 10.8	0.869
TNM Stage				<0.0001				0.533
Stage I	159 (%33.9)	101 (%70.1)	93 (%62.0)		137 (%57.8)	75 (%65.8)	68 (%55.3)	
Stage II	166 (%35.4)	27 (%18.8)	35 (%23.3)		59 (%24.9)	27 (%23.7)	35 (%28.5)	
Stage III	128 (%27.3)	11 (%7.6)	13 (%8.7)		27 (%11.4)	11 (%9.6)	13 (%10.6)	
Stage IV	2 (%0.4)	1 (%0.7)	1 (%0.7)		1 (%0.4)	0 (%0.0)	1 (%0.8)	
Stage 0	14 (%3.0)	4 (%2.8)	8 (%5.3)		13 (%5.5)	1 (%0.9)	6 (%4.9)	
Preoperative surgical mediastinal staging	351 (%74.8)	67 (%46.5)	67 (%44.7)	<0.0001	140 (%59.1)	66 (%57.9)	67 (%54.5)	0.702

CONCLUSION

In patients undergoing lung resection for primary lung cancer, thoracotomy facilitates more extensive lymph node dissection. However, with the completion of the learning curve, multiportal and uniportal VATS approaches may no longer be a disadvantage in these patients.

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