

Title: An Innovative Pathway to Diagnose, Stage and Treat Non-Small Cell Lung Cancer: Addressing Treatment Delays in the Pacific Region

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Introduction: Delays in treatment of non-small cell lung cancer(NSCLC) is associated with worse survival. In the Pacific, half of NSCLC patients have delays due to island geography and healthcare access challenges. To address these barriers, we present an innovative pathway combining robotic navigational bronchoscopy(RNB) biopsy, mediastinal staging when indicated, and lung resection within a single anesthetic event.

Methods: A database of patients who underwent RNB biopsy at a single institution in Honolulu, HI from October 2022 to February 2024 was retrospectively reviewed to identify patients who underwent a single anesthetic pathway. Patient demographics, nodule characteristics, procedural metrics, surgical resection type, pathology, and perioperative outcomes were analyzed with descriptive statistics.

Results: Of 250 patients, 35 underwent the single anesthetic pathway. Mean age was 69 years, 51%(n=18) women, and 54%(n=19) former smokers. 20%(n=7) of patients lived on neighboring islands. Mean nodule size was 17.0mm with 66%(n=23) located in the peripheral third of the lung. RNB biopsy was diagnostic in 97%(n=34). Mediastinal staging was performed in 54%(n=19) and the majority underwent lobectomy(60%,n=21). Average lymph node yield was twelve. 82% of patients were pathologic stage 1(n=25) and stage 2(n=4). Median length of hospital stay was 3 days(IRQ3.25). Seven patients(19%) had prolonged air leaks. Median chest tube duration was 3 days(IQR3). There were no 30-day readmissions or mortalities.

Conclusions: A single-anesthetic approach to diagnose, stage and treat NSCLC is safe and follows oncologic guidelines. This pathway shortens the time interval from diagnosis to surgery, thereby offering a strategy to decrease treatment delays and potentially impact survival of NSCLC patients.

Table 1: Single Anesthetic Pathway – Demographics, Pathology, Outcomes

		All Patients (N=35)
Race	<i>Asian</i>	18 (51%)
	<i>NHPI</i>	6 (17%)
	<i>White</i>	9 (26%)
	<i>Black</i>	1 (3%)
	<i>American Indian</i>	1 (3%)
Median Procedure Time (min)	<i>RNB + resection</i>	240 (100)
	<i>RNB + EBUS + resection</i>	273 (101)
Resection	<i>Lobectomy</i>	21 (60%)
	<i>Segmentectomy</i>	8 (23%)
	<i>Wedge</i>	6 (17%)
Pathology	<i>Adenocarcinoma</i>	23 (66%)
	<i>Squamous Cell</i>	6 (17%)
	<i>Carcinoid</i>	1 (3%)
	<i>Poorly Differentiated</i>	1 (3%)
	<i>Benign/Inflammation</i>	4 (11%)
AJCC 8 th Edition Stage (Pathologic)	<i>Stage IA1 (T1a, N0)</i>	3 (10%)
	<i>Stage IA2 (T1b, N0)</i>	7 (23%)
	<i>Stage IA3 (T1c, N0)</i>	2 (6%)
	<i>Stage IB (T2a, N0)</i>	13 (42%)
	<i>Stage IIA (T2b, N0)</i>	0
	<i>Stage IIB (T3, N0)</i>	4 (13%)
	<i>Stage IIIA (T4, N0)</i>	1 (3%)
	<i>Stage IIIA (T2, N2)</i>	1 (3%)
	<i>Stage IIIB</i>	0
	<i>Stage IV</i>	0
Perioperative Outcomes	<i>Open Surgery</i>	0
	<i>Air Leak >5 days</i>	7 (20%)
	<i>Infection</i>	2 (6%)
	<i>Effusion with Thoracentesis</i>	2 (6%)
	<i>Postop Atrial Fibrillation</i>	0
	<i>30-Day Readmission</i>	0
	<i>30-Day Mortality</i>	0