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CLINICORADIOLOGICAL AND PATHOLOGICAL PROFILE OF PRIMARY LUNG CANCER PATIENTS: A STUDY FROM A TERTIARY CARE CENTRE IN RAJASTHAN

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ABSTRACT

Background: Lung cancer remains one of the leading causes of cancer-related morbidity and mortality worldwide, with a rising burden in developing countries including India. Despite advances in diagnostics and therapeutics, most patients continue to present at advanced stages, contributing to poor survival outcomes. Understanding clinicoradiological and histopathological patterns is essential for improving diagnostic strategies and treatment planning.

Objectives: To assess the clinical, radiological, and pathological profile of primary lung cancer patients and evaluate the diagnostic yield of commonly used procedures.

Methods: This prospective, observational study was conducted in the Department of Respiratory Medicine at a tertiary care centre in Rajasthan from June to November 2025. A total of 100 clinically and radiologically suspected cases of primary lung cancer were evaluated and confirmed histopathologically. Demographic details, smoking history, clinical features, radiological findings, diagnostic procedures, and histological subtypes were recorded. Statistical analysis was performed using SPSS version 26, with $p < 0.05$ considered significant.

Results: Most patients were male (84%) with a mean age of 58.5 years. A significant proportion (80%) were smokers, and 86.25% of them were heavy smokers (Smoking Index >300). The most common presenting symptom was cough (92%), followed by dyspnea (78%) and chest pain (75%). Radiologically, mass lesions were detected in all patients on CT scan, and hilar/mediastinal lymphadenopathy was seen in 94%. Bronchoscopy demonstrated the highest diagnostic yield for endobronchial biopsy (90.48%), followed by CT-guided FNAC (78.95%). Adenocarcinoma was the most common histological subtype (45%), followed by squamous cell carcinoma (36%) and small-

cell carcinoma (16%). Advanced disease presentation was common, with 65.9% of non-small cell lung cancer cases staged as III/IV at diagnosis.

Conclusion: Primary lung cancer cases in this study exhibited a strong association with male gender, older age, and cigarette smoking. A shift toward adenocarcinoma as the most common subtype was noted, particularly among females and non-smokers. Most patients presented at an advanced stage, highlighting delays in diagnosis and the need for improved screening programs, better awareness, and accessible diagnostic pathways to enable earlier detection and improved outcomes.

Keywords: Lung cancer, Adenocarcinoma, Smoking index, Bronchoscopy, Histopathology, CT thorax, Diagnostic yield.

INTRODUCTION

Lung cancer remains one of the most common malignant neoplasms globally and is the leading cause of cancer-related mortality across both developed and developing nations [1]. Its incidence rose dramatically throughout the twentieth century and continues to increase into the twenty-first century, making it a growing global health concern. Historically, lung cancer was considered rare in the early 1900s; however, with industrialization, increased tobacco consumption, and environmental changes, it has now reached epidemic proportions [1]. Although men have traditionally demonstrated higher incidence rates of lung cancer, the gender gap is narrowing due to increased smoking rates among women and greater exposure to environmental and occupational carcinogens [2].

Cancer is a major contributor to non-communicable disease-related deaths worldwide. As per recent estimates, approximately 20 million new cancer cases and 9.7 million cancer-associated deaths occurred globally in 2022 [2]. According to the GLOBOCAN 2022 database, lung cancer ranks as the most frequently diagnosed cancer worldwide (1.82 million cases, 13.0%) followed by breast cancer (1.68 million, 11.9%) and colorectal cancer (1.36 million, 9.7%) [2]. It also remains the foremost cause of cancer-related mortality, accounting for 1.58 million deaths annually (19.4% of all cancer deaths) [2]. In India, cancer burden patterns differ between genders: cancers of the lip and oral cavity are most common among males (15.6%) followed by lung cancer (8.5%), whereas breast cancer (26.6%) and cancer of the cervix (17.7%) predominate in females [2]. Despite advances in diagnostics and therapeutics, the five-year survival rate for lung cancer has improved only modestly—from approximately 5% in the late 1950s to 25.4% in 2022 [2].

The etiology of lung cancer is multifactorial. Cigarette smoking remains the single most important risk factor and is responsible for nearly 85–90% of all cases worldwide [3]. Other major contributing determinants include environmental tobacco smoke exposure, indoor air pollution from biomass fuels, occupational exposure to carcinogens such as asbestos, arsenic, silica, and radon, as well as dietary and genetic factors [3]. Interestingly, the global burden of lung cancer among never-smokers is increasing, with a notable predilection for females. A disproportionately high share of Asian women diagnosed with lung cancer, particularly adenocarcinoma, report no smoking history, suggesting a possible role of genetic susceptibility and non-tobacco carcinogenic exposures [3].

Histologically, lung cancer can be classified into two major categories: small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC). NSCLC accounts for nearly 80% of all diagnosed lung cancer cases [4]. The key subtypes of NSCLC include squamous cell carcinoma, adenocarcinoma, and large cell carcinoma, each demonstrating distinct biological behaviors, smoking associations, and radiological patterns [4]. SCLC, although less common, is an aggressive malignancy associated with rapid growth and early metastasis.

Advances in diagnostic modalities have revolutionized the detection and characterization of lung cancer. A wide array of invasive and non-invasive tools are now available including chest radiography, contrast-enhanced computed tomography (CECT), fine-needle aspiration cytology (FNAC), flexible bronchoscopy, endobronchial ultrasound (EBUS), video-assisted thoracic surgery

(VATS), mediastinoscopy, positron emission tomography (PET), and magnetic resonance imaging (MRI). These tools not only assist in diagnosis but also support staging and treatment planning.

The advent of molecular research has further refined the diagnostic and therapeutic landscape of lung cancer. The identification of molecular drivers such as EGFR, ALK, KRAS, and c-MYC mutations has enabled the development of targeted therapies that have significantly improved outcomes among select patient groups [5]. KRAS mutations are found in approximately 30% of lung adenocarcinoma cases, while p53 alterations are predominantly observed in squamous cell carcinoma and SCLC [5]. Parallel advances in immunotherapy, including PD-1 and PD-L1 inhibitors, have contributed to improved survival in selected metastatic lung cancer patients, marking a major therapeutic shift.

Despite technological progress, most lung cancer patients continue to present with advanced-stage disease, thereby limiting the possibility of curative surgical intervention. Combined modality treatments incorporating chemotherapy, radiotherapy, immunotherapy, or targeted therapy are often required, yet survival outcomes remain poor. Screening approaches such as low-dose computed tomography (LDCT) are currently being evaluated globally and have demonstrated potential in reducing mortality among high-risk populations [6].

In India, lung cancer contributes to 5.9% of the total cancer burden and accounts for 8.1% of cancer-related deaths [6]. Nearly 80% of lung cancer patients in India have a history of tobacco exposure in some form [7]. The disease ranks as the second most common cancer among males and the eighth among females, reflecting an evolving epidemiological pattern linked to lifestyle and environment [6]. The National Cancer Registry Program reports marked geographic variation in disease distribution, with the northeastern states showing the highest age-adjusted incidence. For example, lung cancer constitutes 24.7% of all cancers in Delhi and nearly 48.9% in Manipur, highlighting regional disparities in risk factors, diagnostic access, and reporting patterns [6].

Given the rising burden of lung cancer, particularly in low-resource settings, early detection and comprehensive characterization of clinical, radiological, and pathological patterns are vital. Understanding these parameters facilitates more accurate staging, timely therapeutic decisions, improved prognosis, and better resource allocation. Therefore, the present research aims to evaluate the clinico-radiological and pathological characteristics of lung cancer cases presenting to the Department of Respiratory Medicine at RNT Medical College, Udaipur, Rajasthan. The findings of this study will contribute to regional lung cancer data, highlight diagnostic trends, and help inform prevention strategies including public health education, early screening, and appropriate clinical pathways.

MATERIALS AND METHODS

Study Setting: This study was conducted in the Department of Respiratory Medicine, Chest & TB Hospital, Bari attached to R.N.T. Medical College, Udaipur, Rajasthan.

Study Design: This study was designed as a prospective, observational, and descriptive hospital-based study.

Study Period: 6 months (June 2025 to Nov 2025)

Study Population: All patients presenting with clinical and radiological suspicion of primary lung cancer to the Respiratory Medicine outpatient department, inpatient services, or referred units during the study period were screened for eligibility.

Inclusion Citerai

- Patients of any age or gender clinically and radiologically suspected to have primary lung cancer.
- Patients willing to undergo diagnostic evaluation and provide informed consent.

Exclusion Criteria
• Patients with metastatic lesions in the lung originating from other primary malignancies.
• Patients with primary pleural tumors.
• Patients with primary mediastinal mass lesions.
• Patients previously diagnosed with lung cancer in another healthcare facility.
• Patients who have received any form of treatment for lung cancer, including chemotherapy, radiotherapy, surgery, or targeted therapy.

Sample Size: Based on the prevalence estimate reported by Senthil Kumar et al. (2024) [7], the minimum sample size was calculated using the formula:

$$n = \frac{z^2 \times p \times q}{l^2}$$

Where:
• p = 7% (estimated prevalence)
• q = 1 − p
• z = 1.96 (95% confidence interval)
• l = 5% margin of error
The minimum calculated sample size was 100 patients.

Study Procedure: Eligible participants underwent detailed clinical evaluation after obtaining informed written consent. A structured study proforma was used to collect data on:
• Presenting symptoms (duration and progression)
• Personal and socioeconomic characteristics
• Past medical and surgical history
• Smoking history and exposure to biomass fuel or passive smoke
• Occupational and environmental exposure
• Family history of respiratory diseases or malignancy
Smoking history was recorded in detail, including current smoking status, type of smoked product (cigarette, bidi, hookah, or smokeless form), quantity, and duration. The Smoking Index (SI) was calculated using the formula:
Smoking Index (SI) = Number of cigarettes or bidis smoked per day × Number of years smoked
Individuals who had smoked <100 cigarettes in their lifetime were classified as non-smokers, while those who smoked ≥100 cigarettes in their lifetime and quit ≥1 year prior were labeled as former smokers [8].

Diagnostic Work-Up: All patients underwent a stepwise diagnostic approach consisting of the following investigations

Baseline Laboratory Investigations
• Hematological tests: Hb, TLC, DLC, platelet count, bleeding time (BT), clotting time (CT)
• Biochemical tests: Random blood sugar (RBS), renal function test (RFT), liver function test (LFT), serum electrolytes
• Microbiology work-up: Sputum for Acid Fast Bacilli (AFB), Gram's stain and culture sensitivity

Radiological Evaluation
• Chest X-ray (PA view)
• Contrast-Enhanced CT (CECT) Thorax
• Ultrasound abdomen/thorax as indicated
• CT/MRI brain or PET-CT in cases clinically suspected of metastasis or for staging based on clinician discretion and patient feasibility

Bronchoscopy and Tissue Sampling: Patients with suggestive imaging features underwent fiber-optic bronchoscopy (Olympus video bronchoscope with 150 CV processor) under conscious sedation. The following samples were collected based on endobronchial findings:
- Bronchoalveolar lavage (BAL)
- Bronchial brushings and washings
- Endobronchial biopsy
- Conventional transbronchial needle aspiration (c-TBNA)

Endobronchial Ultrasound (EBUS)-guided biopsy was performed in cases with mediastinal or peribronchial lymphadenopathy. For cases where bronchoscopy failed to yield diagnostic tissue or lesions were peripheral, CT-guided FNAC or tru-cut biopsy was performed. For patients with pleural effusion, pleural fluid cytology and additional sampling were performed as necessary.

All specimens were transported to the Department of Pathology, R.N.T. Medical College, Udaipur for cytological and histopathological analysis. Non-diagnostic or suspicious samples were reviewed by a second senior pathologist for confirmation.

Staging: Disease staging was performed using the American Joint Committee on Cancer (AJCC) TNM Staging System, 9th Edition, based on clinical, radiological, and pathological findings.

Statistical Analysis; All collected data were entered into Microsoft Excel and analyzed using SPSS version 26 (IBM Corp., USA). Quantitative variables were expressed as mean ±standard deviation (SD), while qualitative variables were presented as frequency and percentage. The association between categorical variables was assessed using the Chi-square test or Fisher's exact test as appropriate. Continuous variables between groups were compared using the Student's t-test or Mann-Whitney U test based on normality of data distribution. Correlation analysis was performed using Pearson or Spearman correlation coefficients. A p-value <0.05 was considered statistically significant.

Ethical Considerations: The study protocol adhered to the ethical principles outlined in the Declaration of Helsinki (2013 revision). Approval was obtained from the Institutional Ethics Committee, R.N.T. Medical College, Udaipur (IEC Approval No: RNT/Acad./Ethical/2025/697 dated 27.05.2025) prior to study commencement. Written informed consent was obtained from all participants after providing complete information regarding study objectives, procedures, possible risks, and benefits. Patient confidentiality was maintained throughout the research process, and collected data were used strictly for research purposes only.

RESULTS

A total of 100 patients diagnosed with primary lung cancer were included in the study. The age of participants ranged from 21 to 90 years, with a mean age of 58.5 years. The proportion of males (84%) was significantly higher than females (16%), with a male-to-female ratio of 5.25:1. The majority of patients belonged to the age group 61–80 years, showing statistically significant age clustering among elderly individuals. Table 1 shows demographic profile of study population.

Table 1. Demographic Profile of Study Population (N=100)

Variable	Category	Frequency	Percentage (%)
Age Group (Years)	21–40	6	6.0
	41–60	35	35.0

Table 1. Demographic Profile of Study Population (N=100)			
	61–80	56	56.0
	>80	3	3.0
Sex	Male	84	84.0
	Female	16	16.0
Education Status	Literate	35	35.0
	Illiterate	65	65.0

Smoking showed a strong association with lung cancer, with 80% prevalence among patients, and the majority (86.25%) qualified as heavy smokers. Table 2 shows tobacco exposure and occupational patterns.

Table 2. Tobacco Exposure and Occupational Pattern				
Parameter	**Category**	**Frequency**	**Percentage (%)**	**p-value**
Smoking Status	Smoker	80	80.0	<0.001 (Highly significant)
	Non-Smoker	20	20.0	
Smoking Type (N=80)	Moderate (SI 100–300)	11	13.8	—
	Heavy (SI >300)	69	86.2	
Form of Tobacco	Bidi	38	38.0	—
	Tobacco Chewing	28	28.0	
	Cigarette	12	12.0	
	Multiple Forms	29	29.0	
Occupational Background	Farmer	49	49.0	—
	Labourer	14	14.0	
	Construction/Mine Worker	14	14.0	
	Driver	6	6.0	
	Others	17	17.0	

Cough was the most prevalent symptom, present in >90% of cases. Extra-pulmonary manifestations such as digital clubbing and SVC syndrome were also observed. Table 3 shows the clinical features of the patients.

Table 3. Clinical Features (N=100)			
Clinical Feature Type	**Parameter**	**Frequency**	**Percentage (%)**
Respiratory Symptoms	Cough	92	92.0
	Dyspnea	78	78.0
	Chest Pain	75	75.0
	Expectoration	59	59.0
	Hemoptysis	27	27.0
Constitutional Symptoms	Weight Loss	63	63.0

Table 3. Clinical Features (N=100)			
	Loss of Appetite	58	58.0
	Weakness	53	53.0
	Fever	22	22.0
Extrapulmonary Findings	Clubbing	34	34.0
	Lymphadenopathy	15	15.0
	SVC Syndrome	7	7.0

The upper lobe and hilar region were the most common anatomical sites for mass localization (χ^2 = 9.77, p = 0.02). Table 4 shows the radiological profile of the patients.

Table 4. Radiological Findings on Chest X-ray and CT Thorax (N = 100)

Radiological Parameter	Finding	No. of Patients (n)	Percentage (%)
Chest X-ray – Side of Involvement	Right Lung	45	45.0
	Left Lung	50	50.0
	Bilateral	5	5.0
Chest X-ray – Abnormal Patterns	Mass Lesion	76	76.0
	Pleural Effusion	27	27.0
	Collapse	18	18.0
	Consolidation	16	16.0
	Hilar Prominence	12	12.0
	Mediastinal Widening	11	11.0
	Cavitation	5	5.0
	Multiple Masses	4	4.0
Chest X-ray – Mass Location (n = 86*)	Upper Zone	33	38.4
	Hilar	19	22.1
	Middle Zone	13	15.1
	Lower Zone	11	12.8
	Others (Overlapping/Extensive)	10	11.6
CT Thorax Findings	Mass Lesion	100	100.0
	Mediastinal / Hilar Lymphadenopathy	94	94.0
	Pleural Effusion	28	28.0
	Lung Collapse	27	27.0
	Consolidation	22	22.0
	Mediastinal Invasion	16	16.0
	Chest Wall Invasion	7	7.0
	Lymphangitis Carcinomatosis	3	3.0

*Mass location analyzed only where mass was clearly localized on CXR (n = 86).

Endobronchial biopsy demonstrated the highest diagnostic value among commonly applied techniques. Table 5 shows the diagnostic procedure yield.

Table 5. Diagnostic Procedure Yield (N=100)

Diagnostic Procedure	Cases Performed (n)	Positive Yield (n)	Yield %
Bronchial Washing	100	61	61.0
Endobronchial Biopsy	63	57	90.48
TTNA	19	15	78.95
Pleural Cytology	24	10	41.7
FNAC (LN)	7	6	85.7
c-TBNA	2	2	100.0
Medical Thoracoscopy	5	4	80.0

Adenocarcinoma was the most frequent subtype overall, and its occurrence was notably higher in females and non-smokers ($p < 0.05$). Table 6 shows histological pattern and staging.

Table 6. Histopathological Pattern and Staging

Variable	Category	Frequency	Percentage (%)	p-value
Histopathology (N=100)	Adenocarcinoma	45	45.0	—
	Squamous Cell Carcinoma	36	36.0	—
	Small Cell Carcinoma	16	16.0	—
	Large Cell Carcinoma	3	3.0	—
Sex vs Histology	Significant Association	—	—	0.02 (Significant)
Smoker vs Histology	Significant Correlation	—	—	<0.001 (Highly Significant)
TNM Stage (NSCLC=88)	Stage III & IV	58	65.9	—
SCLC Stage (N=16)	Limited	12	63.6	—

A total of 52% of patients exhibited metastasis at the time of diagnosis. Distant metastasis was most commonly observed in the contralateral lung (12%), followed by liver (11%), extrathoracic lymph nodes (10%), and brain (5%).

DISCUSSION

The present prospective observational study was conducted at the Department of Respiratory Medicine, R.N.T. Medical College and associated Chest & TB Hospital, Udaipur, after obtaining ethical approval. A total of 100 patients clinically and radiologically suspected to have lung cancer were evaluated, and all cases were histopathologically confirmed. The findings of this study were compared with national and international literature to identify similarities, regional variation, and evolving epidemiological trends.

In the present study, males constituted 84% of cases, yielding a male-to-female ratio of 5.25:1, indicating a significantly higher burden among men. This male predominance aligns with other Indian studies, such as Koul PA et al. from Kashmir reporting a ratio of 5.5:1 [9] and Kashyap et al. reporting 6.17:1 [10]. Similar trends were also reported in studies by Gupta D et al. [11], Khan NA et al. [12], Rawat et al. [13], Bhattacharyya et al. [14], and Sheikh et al. [15]. However, a shift toward narrowing

gender disparity is seen in certain regions, such as Mandal SK et al. from Manipur reporting a ratio close to 1.09:1 [16]. Global comparisons also reveal variability: studies from the United States and China reported ratios between 2.6 and 5.6, whereas in Pakistan Badar F et al. documented a much higher ratio of 27.7:1 [17]. These differences likely reflect variations in tobacco usage patterns, environmental exposures, and early implementation of anti-tobacco policies, especially among women.

The mean age at diagnosis in our cohort was 58.5 years, consistent with values reported by several Indian studies including Kumar S et al. (57.2 years) [18], Sheikh et al. (57.8 years) [15], and Dubey et al. (59.3 years) [19]. Lung cancer incidence increased significantly beyond the sixth decade, with 56% of cases in the 61–80-year age group, highlighting increasing age as a strong risk factor. Similar age patterns have been observed globally, suggesting the role of cumulative carcinogenic exposure and the latency period of lung carcinogenesis.

Tobacco smoking emerged as the most significant risk factor in this study, with 80% of patients being smokers, consistent with earlier Indian reports from regions with high tobacco prevalence. The smoker-to-non-smoker ratio of 4:1 closely resembles findings by Koul et al. [9] and Bhattacharyya et al. [14]. Although some recent studies demonstrate comparatively lower ratios (2–3:1), this may reflect increased recognition of non-smoking–related etiologies such as biomass exposure and environmental pollution.

The smoking index (SI) further demonstrated dose-dependent risk. A large proportion (86.25%) of cases had SI >300, indicating high-intensity long-term exposure. Similar dose correlation was seen in studies such as Nath A [20], confirming that cumulative inhalational carcinogen burden strongly correlates with cancer development. Occupational exposure was also noteworthy, with farmers and laborers forming the largest groups. This may reflect exposure to pesticides, dust, silica, and biomass smoke—recognized but often underreported carcinogenic factors in rural India.

The most common presenting symptom was cough (92%), followed by dyspnea (78%), chest pain (75%), and expectoration (59%). Hemoptysis, though traditionally considered a hallmark of lung cancer, was observed in only 27% of cases. These findings align with recent Indian studies, including those by Kumar et al. [18] and Gupta B et al. [21], where chronic cough predominated. Global literature supports this, reflecting that symptoms typically emerge late in disease progression due to the initially silent nature of lung malignancy.

Weight loss (63%), anorexia (58%), and weakness (53%) were the leading constitutional symptoms, similar to findings reported by Rawat et al. [13] and Pal et al. [22]. Hoarseness of voice, a sign of recurrent laryngeal nerve infiltration, was observed in 21%, consistent with findings by Gupta B et al. [21] and Prasad et al. [23]. These clinical patterns reflect both tumor burden and anatomical spread.

Comorbid chronic obstructive pulmonary disease (COPD) was identified in 50% of patients, similar to earlier reports [19,21]. This strengthens the evidence linking obstructive airway disease and lung cancer via shared inflammatory and smoking-mediated mechanisms.

Radiological evaluation revealed a predominance of mass lesions (76% on chest X-ray and 100% on CT scan), followed by pleural effusion and collapse. Upper lobe involvement was most common, comparable to findings by Gupta B et al. [21]. CT scan additionally demonstrated lymphadenopathy in 94% of patients, reflecting locally advanced disease in the majority of cases. Bronchoscopy demonstrated high diagnostic value with a yield of 90.48% for endobronchial biopsy. This value is higher than earlier Indian reports by Prasad et al. [23], Rawat et al. [13], and Bhattacharyya et al. [14], likely due to improved bronchoscopy technology and procedural experience. CT-guided transthoracic needle aspiration also showed a high yield (78.9%), similar to that reported by Gupta B et al. [21] and Dubey et al. [19], reinforcing its role in diagnosing peripheral lesions.

A key finding of this study was the predominance of adenocarcinoma (45%), followed by squamous cell carcinoma (36%) and small-cell carcinoma (16%). This pattern aligns with the evolving

epidemiological shift seen globally and increasingly in recent Indian literature [16,24]. Earlier Indian studies consistently reported squamous cell carcinoma as the most common subtype [25]. The shift toward adenocarcinoma may be related to changes in tobacco composition, filtration patterns, inhalation depth, rising air pollution, and increased recognition of non-smoking-related lung cancer. Adenocarcinoma predominance was particularly evident among women and non-smokers, consistent with studies from Asian populations, suggesting genetic and hormonal susceptibility mechanisms. The majority (65.8%) of NSCLC cases presented in advanced stages (III/IV), consistent with other Indian studies reporting late diagnosis ranging from 65–74% [13,14,26]. This reflects gaps in early screening, symptom misinterpretation, and healthcare access delays. Among SCLC cases, 63.6% were diagnosed in limited stage, comparable to the trend reported by Prasad et al. [23], although global data often demonstrate higher extensive-stage detection due to rapid tumor progression.
Strengths of this study include prospective design, histopathological confirmation of all cases, and comprehensive evaluation spanning clinical, radiological, and procedural domains. However, limitations include a single-center setting, lack of advanced molecular testing, and inability to include patients requiring PET imaging or thoracoscopy elsewhere.

CONCLUSION

The present study provides an updated overview of the clinicoradiological and pathological profile of primary lung cancer patients presenting to a tertiary care centre in Rajasthan. Lung cancer predominantly affected older males with a strong association with heavy smoking, although an increasing number of non-smoker and female cases highlight changing epidemiological patterns. Clinically, most patients presented with advanced symptoms such as persistent cough, dyspnea, weight loss, and chest pain, indicating delayed healthcare-seeking behavior or diagnostic challenges. Radiologically, upper lobe masses and associated lymphadenopathy were the most common findings, while diagnostic procedures such as endobronchial biopsy and CT-guided FNAC demonstrated high diagnostic yield. Adenocarcinoma emerged as the most frequent histological subtype, particularly among females and non-smokers, reflecting a shift from squamous cell dominance reported historically. A majority of cases presented at advanced stages, emphasizing the urgent need for early detection strategies, improved awareness, and accessible diagnostic facilities to improve outcomes in lung cancer care.

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