Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Oncology Radiotherapy

Small Cell Lung Cancer: Experience from the Oncology-Radiotherapy Department of Mohammed VI University Hospital Marrakech, Morocco

Achraf Zaridi[1]*, H. El Ghozail[1], S. Laatitioui[1], R. Ousalm[1], T. Igarramen[1], M. Saadoune[1], N. Oumghar[1], S. Barkiche[1], M. Darfaoui[1], A. El Omrani[1], M. Khouchani[1]

[1]Oncology Radiotherapy Department, Oncology and Haematology Hospital, Mohammed VI University Hospital, Marrakech, Morocco

DOI: https://doi.org/10.36347/sjmcr.2026.v14i11.087 | **Received:** 26.09.2026 | **Accepted:** 18.11.2026 | **Published:** 21.11.2026

***Corresponding author:** Achraf Zaridi
Oncology Radiotherapy Department, Oncology and Haematology Hospital, Mohammed VI University Hospital, Marrakech, Morocco

Abstract | **Original Research Article**

Small cell lung cancer (SCLC) accounts for 10–15% of lung cancers and is the most aggressive histological subtype, most patients presenting with disseminated disease. Local data on its presentation and management are scarce. This study aimed to describe the epidemiological, clinical, paraclinical, therapeutic and prognostic profile of SCLC in the Oncology-Radiotherapy Department of Mohammed VI University Hospital Marrakech, Morocco. We conducted a retrospective, descriptive observational study of 28 histologically confirmed SCLC cases managed between December 2022 and December 2025. Data were extracted from the department's register and medical records. SCLC represented 5% of all lung cancers diagnosed during the period, with a decreasing trend over the years. Median age was 61 years (range 43–70) and 93% of patients were men. Chronic smoking was found in 93% of cases (71% with more than 20 pack-years). The most frequent presenting symptoms were dyspnea (93%), chest pain (50%), and hemoptysis (14%). Extensive-stage disease was present in 26 patients (93%); metastases involved the bone (57%), lung (28%), adrenal glands (28%), brain (28%) and liver (21%). 57% of patients had two or more metastatic sites. First-line platinum–etoposide chemotherapy was delivered to 22 patients (79%), whereas 6 (21%) received supportive care only because of poor performance status or contraindications. Complete response was achieved in 14% of the 14 evaluable patients. Hematological toxicity was the most frequent (anemia 64%, neutropenia 43%). Median overall survival was 7.6 months, with a 1-year survival of 11%. SCLC in this Moroccan hospital series is characterized by late diagnosis, heavy tobacco exposure and poor survival. These findings underscore the need for tobacco control, early diagnosis, multidisciplinary decision-making and improved access to anticancer drugs.

Keywords: Small Cell Lung Cancer, Extensive Stage, Smoking, Platinum–Etoposide, Survival, Morocco.

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INTRODUCTION

Lung cancer is the leading cause of cancer death in men worldwide and, after breast cancer, in women [1]. Small cell lung cancer (SCLC), one of the main histological types of primary lung tumors in the WHO classification [2], accounts for 10–15% of all lung cancers, a proportion that has fallen to about 13% over recent decades [3]. Despite this relatively low frequency, it is the most aggressive lung malignancy, characterized by a very rapid tumor doubling time, early dissemination, neuroendocrine origin and very poor long-term survival in metastatic forms.

Tobacco is the principal etiological factor, implicated in more than 90% of cases, and the risk rises with the daily dose and the duration of exposure [4,5]. The positive diagnosis relies on histological proof supported by immunohistochemistry. Systemic chemotherapy is the main therapeutic weapon, while targeted therapies and immunotherapy are the focus of current research.

Few local data are available on the management of SCLC in Morocco. We therefore conducted a retrospective study of 28 cases managed in the Oncology-Radiotherapy department of Mohammed VI University Hospital Marrakech, Morocco, between December 2022 and December 2025, in order to describe the epidemiological, anatomopathological, diagnostic and therapeutic aspects of this cancer and to compare them with the literature.

MATERIALS AND METHODS

Study design and setting:

A retrospective, descriptive observational study was conducted in the Oncology-Radiotherapy Department of Mohammed VI University Hospital Marrakech, Morocco, over a period of three years, from December 2022 to December 2025.

Study population:

All patients with a histologically confirmed small cell lung carcinoma managed in the department during the study period were eligible. Records with registration errors, non-small cell lung cancers, secondary lung tumors and lung cancers not confirmed histologically were excluded. Twenty-eight patients were finally included.

Data collection:

Data were collected from the department's hospital register and from the medical records using a standardized data collection form. The variables comprised demographic data, risk factors, clinical presentation, WHO performance status (PS), histological and immunohistochemical findings, imaging, staging, pre-treatment work-up, treatments received, toxicity, response and survival.

Diagnostic work-up and staging:

Diagnosis was based on histology with immunohistochemical confirmation. Staging relied on chest radiography, contrast-enhanced thoraco-abdomino-pelvic computed tomography (CT), bone scintigraphy and brain CT (with brain MRI in selected patients). Tumors were classified according to the TNM system and as limited or extensive disease. Tumor response to first-line chemotherapy was assessed clinically and radiologically in patients who completed their cycles.

Statistical analysis:

Data were coded and entered in Microsoft Excel. Qualitative variables are expressed as numbers and percentages; quantitative variables as mean ± standard deviation when normally distributed and as median otherwise. Given the sample size, the analysis was purely descriptive. Overall survival is reported as median and 1-year rate.

RESULTS

Epidemiological features:

Between December 2022 and December 2025, 28 patients were diagnosed with SCLC, representing 5% of all lung cancers diagnosed in the department over this period; the incidence of SCLC decreased progressively over the years. Median age at diagnosis was 61 years (range 43–70), and 6 patients (21%) were older than 65 years. There were 26 men (93%) and two women (7%).

Risk factors:

Chronic active smoking was found in 26 patients (93%), all men, with a mean consumption of about 25 pack-years: 20 patients (71%) had more than 20 pack-years and 6 (21%) fewer than 20. Most were already weaned at the first consultation. Alcohol use was reported by 5 patients (18%) and cannabis use by 3 (11%). No patient had an occupational exposure (Table 1).

Table 1: Baseline characteristics of the 28 patients

Characteristic	n (%)
Median age, years (range)	61 (43–70)
Age > 65 years	6 (21)
Male sex	26 (93)
Chronic active smoking	26 (93)
> 20 pack-years	20 (71)
< 20 pack-years	6 (21)
Alcohol use	5 (18)
Cannabis use	3 (11)
Occupational exposure	0 (0)
WHO performance status 0	1 (4)
WHO performance status 1	15 (54)
WHO performance status 2	10 (36)
WHO performance status 3	1 (4)
WHO performance status 4	1 (4)

Clinical presentation:

Dyspnea was the most frequent initial symptom (26 patients, 93%), followed by chest pain (14, 50%), hemoptysis (4, 14%), bone pain (3, 11%) and cough (3, 11%) (Figure 1). A superior vena cava syndrome was the revealing feature in 6 patients, evolving favorably under chemotherapy in four and fatally in two. Weight loss was noted in 19 patients (68%). According to the WHO PS, 16 patients (57%) were PS 0–1, 10 (36%) PS 2 and 2 (7%) PS ≥ 3 (Table 1).

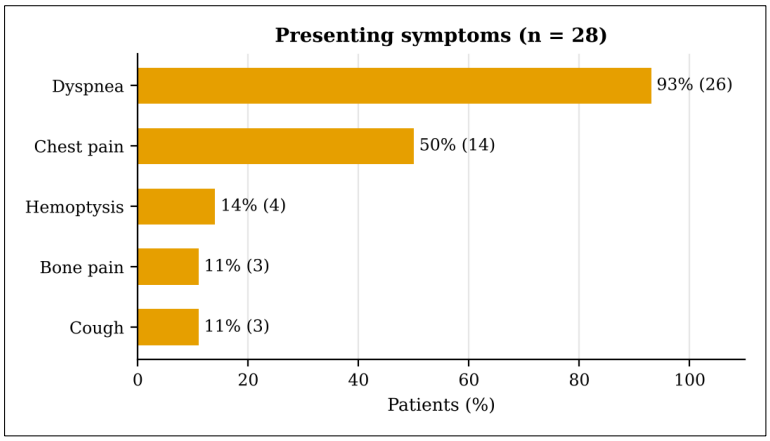


Figure 1: Presenting symptoms of SCLC patients

Pathology and extension work-up:

All patients had a histological diagnosis of SCLC, confirmed by immunohistochemistry. All underwent chest radiography, thoraco-abdomino-pelvic CT, bone scintigraphy and brain CT; 11 also had a brain MRI. Tumors were locally advanced, T4 tumors accounting for about 57% of cases; nodal involvement was N2 in 28% and N3 in 39% (Table 2). At staging, 26 patients (93%) had extensive-stage disease and 2 (7%) limited-stage disease. The most frequent metastatic sites were the bone (57%), adrenal glands (28%), lung (28%), brain (28%) and liver (21%) (Figure 2), and 57% of patients had two or more metastatic sites.

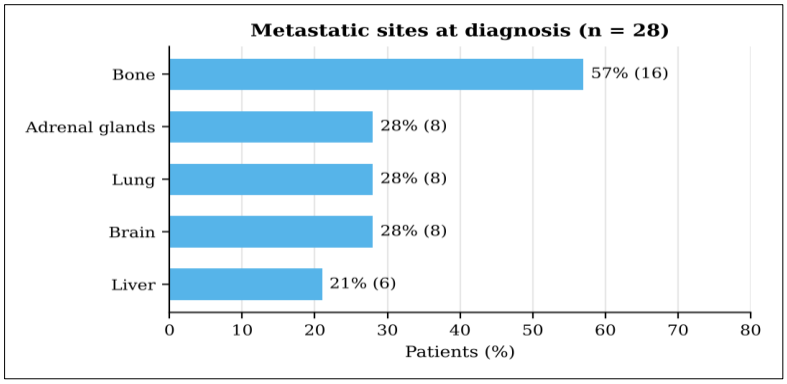


Figure 2: Distribution of metastatic sites at diagnosis

Pre-treatment work-up:

Baseline biological work-up revealed anemia in 64% of patients, neutropenia in 43%, hypoalbuminemia in 21%, (Table 2).

Cardiac assessment (clinical examination, ECG and echocardiography) was performed in all patients; it was satisfactory in most, showing hypertensive heart disease in one patient and heart failure in another. No patient underwent pulmonary function tests because of the advanced stage. All patients received dental care before starting bisphosphonates.

Table 2: Tumor extension and baseline laboratory findings

Parameter	% of patients
Tumor extent	
T4 tumor	57
N0 / N1	7 / 25
N2 / N3	28 / 39
Two or more metastatic sites	57
Baseline laboratory findings	
Anemia	64
Neutropenia	43
Hypoalbuminemia	21
Reduced creatinine clearance	25

Treatment:

First-line chemotherapy. Twenty-two patients (79%) received first-line palliative chemotherapy, always a platinum–etoposide combination: carboplatin in 7 patients and cisplatin in 15 (54%), the latter being the only patients eligible for cisplatin. The number of cycles ranged from 1 to 6 (mean 3). Six patients (21%) were not eligible for chemotherapy because of altered or rapidly deteriorating performance status or of cardiological or hematological contraindications, and received supportive care only. Only 14 of the 22 treated patients were evaluable at the end of first-line chemotherapy, the others having been lost to follow-up or having stopped treatment.

Radiotherapy and bone-targeted treatment. Palliative brain radiotherapy was delivered to the 8 patients (28%) with brain metastases. Thoracic radiotherapy was proposed to 2 patients (one complete and one partial responder). Prophylactic cranial irradiation was indicated in three of our patients. Bisphosphonates were given to all patients with bone pain or bone metastases; pain improved in all eight patients with symptomatic bone metastases, and one pathological fracture was recorded.

Supportive care. All patients received supportive care; 93% required analgesics, 53% of them opioids from the outset. All received ondansetron as antiemetic prophylaxis. Three patients with pleural metastases required at least one therapeutic pleural puncture and one underwent talc pleurodesis. Smoking cessation was systematically advised, no patient required growth factors, and hospitalized patients benefited from psychological follow-up.

Toxicity:

Hematological toxicity was dominated by anemia (18 patients, 64%; transfusion in 5), neutropenia (12 patients, 43%; febrile in 2) and thrombocytopenia (4 patients, 14%) without hemorrhagic events. 5 patients developed platinum-related tubulopathy with a significant fall in creatinine clearance, one of them recovering. Digestive toxicity comprised vomiting despite premedication (9 patients, 32%), diarrhea (6) and mucositis (3); peripheral neuropathy occurred in 5 patients (18%) and generalized asthenia in 100%. No ototoxicity was observed (Table 3).

Table 3: Treatment received and toxicity

Item	n (%)
Treatment	
First-line chemotherapy (platinum–etoposide)	22 (79)
Cisplatin –etoposide	15 (54)
Carboplatin–etoposide	7 (25)
Supportive care only	6 (21)
Palliative brain radiotherapy	8 (28)
Thoracic radiotherapy	2 (7)
Toxicity (% of the 28 patients)	
Anemia	18 (64)
Neutropenia	12 (43)
Thrombocytopenia	4 (14)
Vomiting	9 (32)
Diarrhea	6 (21)
Mucositis	3 (11)
Peripheral neuropathy	5 (18)
Asthenia (among the 22 treated patients)	22 (100)
Platinum-related tubulopathy	5 (18)

Response and survival:

A clear clinical improvement, with benefit on respiratory symptoms and general condition, was noted in the patients treated. Among the 14 patients evaluable after first-line chemotherapy, complete response was observed in 2 (14%), partial response in 5 (36%), stable disease in 3 (21%) and rapid progression in 4 (29%). Median overall survival was 7.6 months and 1-year survival was 11%.

DISCUSSION

This study describes the profile of SCLC managed in a medical oncology radiotherapy department of a Moroccan hospital. SCLC represented 5% of the lung cancers diagnosed in our department, below the 10–15% reported in the literature [3]; the decrease observed over the study period is in line with the declining incidence described elsewhere [3]. Hospital-based recruitment and the small number of cases may also contribute to this lower proportion.

The median age of 61 years is lower than the 70 years reported in the United States, where two thirds of patients are at least 65 years old at diagnosis [5], and close to that of other African series, with 54.6 years in Senegal [6] and 59 years in Fès [7]. The marked male

predominance (93%) most likely reflects the smoking habits of the Moroccan population.

Tobacco was found in 93% of patients, consistent with the more than 90% attributable fraction reported in the literature [4,5], and mean exposure reached 25 pack-years. The risk is known to increase with daily consumption, duration of smoking, depth of inhalation and early initiation [5]. The two women of the series were non-smokers. Alcohol and cannabis use were reported by 18% and 11% of patients respectively, whereas no occupational exposure was found.

Clinical presentation was late and dominated by dyspnea (93%), more frequent than in Fès (23%) [7] and Senegal (48%) [6], while cough was less frequent (11%). Chest pain (50%) and hemoptysis (14%) were also more frequent than in the Fès series (47% and 9%) [7]. The predominance of dyspnea as the first symptom confirms that the disease is already extended at the first consultation.

Extensive-stage disease was present in 26 of our 28 patients (93%), whereas a Casablanca series reported the opposite distribution (5 extensive vs 23 limited) [8]. Metastases were frequent and multiple, involving mostly the bone, adrenal glands, lung and brain. Stage, performance status, age, male sex, serum albumin and serum sodium are the main prognostic factors identified for SCLC, stage and performance status carrying the highest level of evidence [9]; the high proportion of extensive disease and of altered PS in our series therefore predicts a poor outcome.

Platinum–etoposide is the first-line standard in extensive-stage SCLC [10,11]. Cisplatin could be administered to 68% of our treated patients, carboplatin being used in the others. Adding immunotherapy to platinum–etoposide (atezolizumab in IMpower133 [12], durvalumab in CASPIAN [13]) improves overall and progression-free survival in extensive-stage disease, but none of our patients received first-line immunotherapy. Complete response was obtained in 14% of the evaluable patients. Rapid progression occurred in 29% (4 patients), in whom survival remains very limited; lurbinectedin has recently been associated with a median overall survival of 9.3 months in this setting [14]. Prophylactic cranial irradiation, which was indicated in three of our responders, is recommended in responding extensive-stage patients with preserved general condition [15].

Hematological toxicity was the main adverse effect of chemotherapy (anemia 64%, neutropenia 43%), together with neuropathy (18%) and asthenia (100%). Five patients required red-cell transfusion and two had febrile neutropenia; five developed platinum-related tubulopathy.

Median overall survival (7.6 months) and 1-year survival (11%) are shorter than the 10–12 months usually reported with chemotherapy in extensive-stage disease. This can be explained by late diagnosis, the proportion of patients with a poor PS who could not receive chemotherapy (21%), the early progression after first-line treatment, the loss to follow-up of several patients, and the limited access to costly anticancer drugs.

Strengths and limitations:

This study provides local data on a rare and aggressive tumor. Its limitations are inherent to its retrospective, single-center design and small sample size (n = 28), which precluded any inferential analysis, together with incomplete follow-up (only 14 of the 22 treated patients were evaluable for response). Prospective multicenter studies are warranted.

CONCLUSION

SCLC remains a public health burden, closely linked to tobacco, and most patients in our series presented with extensive-stage disease, requiring multidisciplinary management. Platinum–etoposide chemotherapy remains the cornerstone of treatment, but survival remains poor. Improving prognosis requires tobacco control, early diagnosis of persistent respiratory symptoms in smokers and former smokers, therapeutic decisions taken in multidisciplinary meetings, lower drug prices to ensure access to anticancer treatments, better supportive care, continuing education of oncology teams and the establishment of regional and national cancer registries.

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