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Laryngeal Cancer: A Five-Year Retrospective Study of 40 Cases at Avicenne Military Hospital, Marrakech

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Abstract

Objective: Laryngeal cancer represents one of the most frequent malignancies of the upper aerodigestive tract and remains a major public health concern globally. In Morocco, it constitutes a significant proportion of head and neck cancers, often diagnosed at advanced stages. This study aims to analyze the epidemiological, clinical, paraclinical, therapeutic, and evolutionary features of laryngeal cancer in a Moroccan military tertiary center.

Materials and Methods: This retrospective study included 40 cases of histologically confirmed laryngeal cancer managed between January 2017 and January 2022 in the Otorhinolaryngology Department of Avicenne Military Hospital (Marrakech). Data were collected from medical records and analyzed using SPSS 21.0.

Results: Among the 40 patients, 36 were men (90%) and 4 were women (10%), with a mean age of 61 years. Smoking was the predominant risk factor (90%), whereas alcohol consumption was reported in only 15% of cases. Dysphonia was the most frequent presenting symptom (85%), reflecting the predominance of glottic tumors (65%). Imaging revealed locally advanced tumors in the majority of cases: T3 (40%) and T4 (25%). Surgical management was performed in 80% of patients, including 18 total laryngectomies and 11 partial laryngectomies. Radiotherapy was administered to 85% of patients, and chemotherapy was used in organ-preservation protocols or as adjuvant therapy. The overall two-year survival rate was 70%, with a recurrence rate of 15%.

Conclusion: Laryngeal cancer remains a significant health burden, with diagnosis often delayed and associated with modifiable risk factors, mainly tobacco use. Early recognition of symptoms and improved access to specialized care may enhance prognosis. Multidisciplinary management combining surgery, radiotherapy, and chemotherapy offers optimal outcomes, particularly when individualized according to tumor stage.

Keywords: Laryngeal cancer; Squamous cell carcinoma; Epidemiology; Treatment; Morocco.

1. Introduction

Laryngeal cancer is one of the most common malignant tumors of the upper aerodigestive tract, accounting for approximately 3% of all cancers worldwide[1]. Despite advances in diagnostic imaging and therapeutic modalities, its incidence remains strongly correlated with tobacco use, alcohol consumption, environmental exposures, and poor oral hygiene. Squamous cell carcinoma (SCC) constitutes more than 95% of histological types. [2].

Functionally, the larynx plays essential roles in airway protection, phonation, and breathing. Laryngeal cancer therefore has profound consequences on quality of life, even when successfully treated. The challenge lies in achieving optimal oncologic control while preserving function whenever possible. [3].

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In developing countries, including Morocco, laryngeal cancer is frequently diagnosed at advanced stages due to late consultation, lack of awareness of early symptoms, and socio-economic constraints. This often necessitates mutilating procedures such as total laryngectomy, which carries substantial functional and psychological burdens.

This study aims to describe the clinical, epidemiological, diagnostic, therapeutic, and prognostic characteristics of laryngeal cancer managed in a Moroccan tertiary military hospital, and to compare these findings with international literature.

2. Material and methods

2.1. Study Design

A retrospective descriptive study was conducted over five years (January 2017 – January 2022) in the Otorhinolaryngology – Head and Neck Surgery Department at Avicenne Military Hospital, Marrakech.

2.2. Inclusion Criteria

- Histologically confirmed laryngeal cancer
- Patients managed in our department during the study period
- Complete medical records available

2.3. Exclusion Criteria

- Incomplete medical records
- Patients who refused treatment

2.4. Data Collection

Data were compiled from standardized medical charts and included:

- Demographics (age, sex, origin)
- Risk factors (tobacco, alcohol, oral hygiene)
- Clinical presentation (symptoms, duration)
- Endoscopic and radiologic assessment (CT scan, staging)
- Histopathological results
- Treatment modalities (surgery, radiotherapy, chemotherapy)
- Complications and follow-up
- Survival outcomes

2.5. Statistical Analysis

Statistical analysis was performed using SPSS version 21. Descriptive statistics were used to summarize patient characteristics and outcomes.

3. Results

3.1. Epidemiological Characteristics

The study population consisted of 40 patients, including:

- 36 men (90%)
- 4 women (10%)
- Mean age: 61 years (range 40–81)

A large majority (87.5%) lived in urban areas.

3.1.1. Risk Factors

- Smoking: 90%
- Alcohol consumption: 15%

- Combined alcohol–tobacco use: 10%
- Poor oral hygiene: 20%

These findings confirm tobacco as the primary etiologic factor.

3.1.2. Clinical Presentation

The main symptoms at presentation were:

- Dysphonia: 85%
- Dyspnea: 20%
- Dysphagia: 15%
- Odynophagia: 10%

The average symptom duration before consultation was **8 months**, indicating delayed diagnosis.

3.1.3. Endoscopic Findings

Flexible nasofibroscope followed by direct laryngoscopy revealed:

- Glottic tumors: 65%
- Supraglottic tumors: 25%
- Subglottic tumors: 10%

Macroscopic appearance:

- Ulcerative–exophytic lesion: 75%
- Infiltrative lesion: 25%

Cervical lymphadenopathy was present in **33%** of cases.

3.1.4. Imaging (CT Scan)

Cervicothoracic CT scans were performed in all patients.

Tumor staging (T status):

- T1–T2: 35%
- T3: 40%
- T4: 25%

Regional lymph node involvement (N status):

- **N0**: 35%
- **N+ (N1–N3)**: 65%

No distant metastases were found.

3.1.5. Histopathological Findings

All tumors were squamous cell carcinomas:

- Well-differentiated: 60%
- Moderately differentiated: 30%
- Poorly differentiated: 10%
- Verrucous carcinoma: 7.5%

3.1.6. Therapeutic Management

A multidisciplinary approach was used.

3.1.7. Surgical Treatment (80%)

- Total laryngectomy: 18 cases
- Salvage total laryngectomy: 2 cases
- Partial laryngectomy: 11 cases (including 8 external cordectomies and 3 frontolateral laryngectomies)
- Extended total laryngectomy with pectoralis major flap reconstruction: 1 case

Neck dissection:

- Functional dissection: 16 patients
- Radical modified dissection: 2 patients

3.1.8. Radiotherapy

Administered in 85% of cases:

- Adjuvant therapy after surgery
- Exclusive treatment for early-stage glottic tumors
- Organ-preservation protocols

3.1.9. Chemotherapy

Used in:

- 8 patients in organ-preservation regimens (Taxanes + Cisplatin + 5-FU)
- 6 patients as concurrent chemoradiotherapy
- 1 patient for palliative intent

3.1.10. Postoperative Complications

- Pharyngocutaneous fistula: 10%
- Tracheostomy infections: 7%

3.1.11. Oncologic Outcomes

- Mean follow-up: 24 months
- Local recurrence: 15%
- Two-year overall survival: 70%

3.1.12. Functional Outcomes

- Prosthetic voice rehabilitation (Provox®): 12 patients
- Exclusive speech therapy: 5 patients

Most patients reported improved quality of life at follow-up.

4. Discussion

This study confirms the demographic and clinical patterns of laryngeal cancer reported worldwide, with strong predominance in older male smokers. Our male-to-female ratio aligns with U.S. data (Rodu & Cole) and several regional studies. [4,5].

4.1. Risk Factors

Smoking remains the most important causative agent, present in 90% of our cohort, comparable to Besim Boci (92.8%) and Saiss Kamal (80%). Alcohol consumption was lower, likely due to cultural context. [6,7,8].

Poor oral hygiene was associated in 20% of patients and may be an underrecognized contributor.

4.2. Delayed Diagnosis

The mean symptom duration of 8 months explains the high frequency of advanced-stage tumors (T3–T4). Similar delays are documented in African and South Asian settings but contrast sharply with early-stage diagnosis rates in China, Europe, and North America. [9,10,11].

4.3. Tumor Location and Histology

Glottic cancers were predominant (65%), consistent with international data. All cases were SCC, reinforcing its dominance as the major histopathologic subtype. [12].

4.4. Treatment Approaches

Our management follows international standards:

- Early-stage tumors: conservative surgery or exclusive radiotherapy
- Advanced stages: total laryngectomy + neck dissection
- Organ-preservation protocols: chemoradiotherapy

Our outcomes align with VA and RTOG 91-11 trials supporting chemoradiation in selected patients.

4.5. Survival and Recurrence

A 2-year survival of 70% is comparable to regional studies. Recurrence occurred in 15%, predominantly in advanced tumors or after non-surgical protocols. [13,14].

4.6. Limitations

- Retrospective design
- Limited sample size
- Incomplete long-term follow-up

Despite these limitations, the study provides valuable insights for the Moroccan context. [15,16].

5. Conclusion

Laryngeal cancer in Morocco remains strongly linked to tobacco use and is frequently diagnosed at advanced stages due to late consultation. Multidisciplinary management combining surgery, radiotherapy, and chemotherapy yields favorable outcomes when tailored to tumor stage.

Early detection campaigns, smoking cessation programs, and enhanced access to ENT specialists are essential to improving prognosis. Future prospective multicenter studies are recommended to refine national guidelines and optimize patient outcomes.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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