Chronic Cervical Lymphadenopathy: A Prospective Study in the Department of Otorhinolaryngology and Head and Neck Surgery of the National Hospital of Nouakchott (Mauritania).

I. INTRODUCTION

Lymphadenopathy refers to a pathological abnormality of the lymph nodes, a term derived from the Greek “adeno” (adén, adenos, meaning “gland”). It manifests as an increase in lymph node volume, which may result from various causes.

Chronic cervical lymphadenopathies correspond to an increase in the volume of lymph nodes located in the neck and may be of infectious, inflammatory, tumoral, metabolic, or immunological origin. According to some studies, a lymph node is considered pathological when its size exceeds one centimeter. Other criteria, such as location, persistence, clinical appearance, and patient context, also help refine the diagnosis.

Depending on their duration of evolution, lymphadenopathies can be classified into three categories:

- Acute: duration less than 7 days.
- Subacute: duration between 7 days and 4 weeks.
- Chronic: persistence beyond 4 weeks.

The topic of cervical lymphadenopathy is of particular importance, as it constitutes a frequent reason for consultation in otorhinolaryngology (ENT).

Their diagnosis can be complex owing to the diversity of possible causes. In adults, suspicion of malignant disease should be systematic, particularly in cases of regular alcohol or tobacco consumption.

In some cases, surgical intervention, such as cervicotomy followed by histopathological analysis of the excised node, is necessary to establish a precise diagnosis.

According to a study conducted in the ENT department of the National Hospital of Nouakchott between 2023 and 2024, cervical lymph node tuberculosis accounted for 25 histologically confirmed cases. Predominantly affecting young adults, this condition involved 60% women, with a mean age of 31 years [3].

The lack of precise epidemiological data and well-defined protocols complicates the management of cervical lymphadenopathy in certain regions. Thus, any persistent lymphadenopathy — particularly if isolated and without an obvious etiology — warrants biopsy and thorough histological analysis to determine its nature and guide management accordingly.

Our work is a prospective study with the following objectives:

- To determine the incidence of chronic cervical lymphadenopathy among ENT consultations in the department.
- To discuss the principal causes.
- To list and justify the additional investigations relevant to diagnosis.

II. MATERIALS AND METHODS

II.1. Materials

II.1.1. Study type and period

This was a single-center, prospective, descriptive, and analytical study of chronic cervical lymphadenopathy in Mauritania, conducted over the period from February 15, 2024 to February 15, 2025.

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II.1.2. Study setting

This study was carried out in the Department of Otorhinolaryngology and Head and Neck Surgery of the Nouakchott Hospital Center (CHN).

II.2. Methods

II.2.1. Study criteria

II.2.1.1. Inclusion criteria

All patients who presented for consultation with chronic cervical lymphadenopathy were included. These patients were managed by the Department of ENT and Head and Neck Surgery of the CHN during the period from February 15, 2024 to February 15, 2025.

II.2.1.2. Non-inclusion criteria

- Patients lost to follow-up before the end of the study.

II.3. Data collection

An individual case report form was designed for each patient to capture the epidemiological and diagnostic aspects of chronic cervical lymphadenopathy.

II.4. Statistical analysis

The following tools were used for data entry and analysis:

- A pre-established data collection form.
- Excel 2021 for constructing tables and figures.
- Word 2021 for manuscript preparation.
- SPSS for statistical analysis, including calculation of means and frequencies, and comparative tests to assess factors influencing therapeutic outcomes.

III. DISCUSSION

III.1. Sociodemographic characteristics

III.1.1. Age

The mean age of the patients in our study, all categories combined, was 33 years.

In 1996, Al-Sohaibani et al. [4] reported a mean age of 35.2 years among patients with benign and malignant cervical lymphadenopathy. Similarly, Abba et al. [5] found a mean age of 35.2 years, while Diallo et al. [6], in 1994, observed a mean age of 30.96 years, with a range of 2 to 67 years.

The values reported in these three studies are comparable to those of our series, in which the mean age was 33 years. However, when analyzing specifically the patients with malignant lymphadenopathy, the mean age rose to 45 years. Thus, patients with malignant lymph node tumors present at a higher mean age than those with benign lymphadenopathy.

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Denis F. et al. [7], in a study of 183 patients treated for ENT cancer with cervical lymph node involvement, reported a mean age of 56 years. Nicolas et al. [8], for their part, placed the peak age at diagnosis of lymph node metastases between 55 and 65 years.

The mean age observed in these studies remains higher than that recorded in our series. This difference does not appear to result from earlier diagnosis in our study; rather, it may be related to the lower life expectancy of the population studied, the absence of systematic screening, and the fact that a large number of patients never consult a specialized department capable of establishing a histological diagnosis. This trend has also been observed in other African studies.

Accordingly, Ndjolo A. et al. [9], in a study conducted in Yaoundé between 1996 and 2001 on malignant cervical lymphadenopathy, observed patient ages ranging from 7 to 66 years, with a mean of 38 years, in a sample of 30 patients.

III.1.2. Sex

In our study, the male-to-female ratio among patients with malignant cervical lymphadenopathy was 2. Similarly, Denis F. et al. [7], in a series of 183 patients with lymph node metastases, reported that only 9% of patients were female.

Nicolas et al. [8] likewise observed a male predominance, with a male-to-female sex ratio of 2. These findings confirm the trend noted in our study, highlighting a male predominance among cases of malignant cervical lymphadenopathy.

III.1.3. Geographic origin

Our study showed that the majority of patients came from the three wilayas (regions) of Nouakchott, accounting for 46.6% of cases.

Table II. Distribution of patients by region of origin

Region (Wilaya)	Number	Percentage
Nouakchott (NKTT)	12	46.66%
Rosso	02	6.6%
Aleg	01	3.3%
Néma	01	3.3%
Kiffa	01	3.3%
Nouadhibou (NDB)	02	6.6%
Aïoun	01	3.3%
Atar	03	10%
Zouérâte	03	10%
Tidjikja	01	0%
Akjoujt	02	6.6%
Kéadi	01	0%

III.2. Clinical data

III.2.1. Patient history

In our study, 40% of patients had a history of ENT infection, while a single case had a family history of tuberculosis contact. In a study by Bouhdadi S. [1], all patients with cervical lymph node tuberculosis had a history of pulmonary tuberculosis.

Table IV. Distribution of patients according to personal history

History	Number	Percentage (%)

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History	Number	Percentage (%)
Smoking	04	13.33
Tuberculosis contact	02	6.6
Cervical irradiation	01	3.3
Cervical scar	02	6.6
HIV	01	3.3
Vaccination	02	6.6
No history	18	60
Total	30	100

III.2.2. General signs

In Canada, Leung A.K. and Pinto-Rojas, in a retrospective study of 105 pediatric cases of lymphadenopathy, reported that fever was the most frequent symptom [10].

Bouhdadi S., in a study conducted in Morocco on 158 cases of cervical lymphadenopathy recorded in the Pediatrics A department of Mohammed VI University Hospital, Marrakech, over a five-year period, found that deterioration of general condition was the predominant symptom, with a frequency of 22.8% [1].

In our series, the most frequently observed general signs were fever (26.66%), followed by deterioration of general condition and weight loss (20%).

Table V. Distribution of patients according to general signs

General signs	Number	Percentage (%)
Weight loss / deterioration of general condition	4	20
Asthenia	3	3.33
Fever	7	26.66
None	16	50
Total	30	100

III.2.3. Site of the lymphadenopathy

In Cotonou, a retrospective study by Kinde-Gazard of 22 cases of lymph node tuberculosis found that cervical localization was the most frequent [11].

Bouhdadi S., in a retrospective pediatric study, found that the subdigastric location predominated [1].

In our study, the subdigastric location was likewise predominant, accounting for 30% of cases.

This predominance is explained by the role of the subdigastric lymph nodes, which constitute a drainage crossroads for the upper aerodigestive tract and the cervicofacial region.

Table VI. Distribution of patients according to the site of the lymphadenopathy

Site	Number	Percentage (%)
Submental	2	6.66
Submandibular	7	23.33
Subdigastric	9	30
Supra-omohyoid	2	6.66
Infra-omohyoid	1	3.33
Occipital	3	10
Pretragal	1	3.33
Laterocervical	5	16.66
Total	30	100.0

III.3. Characteristics of the lymphadenopathy

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III.3.1. Appearance of the overlying skin

The condition of the skin overlying the lymphadenopathy is of particular semiological importance [1].

In cases of adenitis and adenophlegmon, the overlying skin generally shows an inflammatory appearance, whereas lymph node tuberculosis is often characterized by cutaneous fistulization [12,13].

In our series, only one patient with bacterial adenitis presented with inflammatory skin (3.33%). Among the cases of tuberculous adenitis, one patient presented with cutaneous fistulization (3.3%).

Table VII. Distribution according to the characteristics of the lymphadenopathy

Feature		Number	Percentage (%)
Overlying skin	Normal	25	83.3
	Inflammatory	4	13
	Fistulized	1	3.33
Size	1–3 cm	11	36.7
	3–6 cm	15	50
	>6 cm	4	13.33
Mobility	Mobile	18	60
	Fixed	12	40
Onset	Sudden	9	30
	Progressive	21	70
Tenderness	Tender	12	40
	Painless	18	60
Consistency	Soft	16	53.33
	Fluctuant	2	6.70
	Firm	4	13.33
	Hard	8	26.70
Laterality	Unilateral	11	36.70
	Bilateral	19	63.33

III.3.1.1. Size

Lymphadenopathy is defined as a node exceeding 1 cm in most lymph node territories, except for level II (12 mm) and the retropharyngeal territory (8 mm) [14].

In our study, 50% of the lymphadenopathies measured between 3 and 6 cm, while 13.3% exceeded 6 cm.

In the pediatric setting, Bouhdadi S. [1] found that 64.55% of lymphadenopathies measured less than 3 cm.

III.3.1.2. Mobility

According to the literature, a fixed lymphadenopathy is generally suggestive of malignant origin [12,13,2,23].

In our series, all fixed lymphadenopathies were of malignant origin.

III.3.1.3. Mode of onset

A progressive onset of lymphadenopathy is often suggestive of a tumoral or tuberculous cause, whereas sudden onset points toward an infectious origin, generally bacterial or viral [12,13].

In our study, 30% of lymphadenopathies with sudden onset were all of benign origin.

III.3.1.4. Pain

Most studies agree that painful lymphadenopathies are most often benign [23,30].

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In our series, 40% of lymphadenopathies were tender, although four of these were malignant.

III.3.1.5. Consistency

Lymphadenopathies are generally considered malignant when they are hard, irregular, fixed, and located in the supraclavicular region [34].

In our series, all lymphadenopathies of hard consistency were of malignant origin.

III.3.1.6. Concerning features of cervical lymphadenopathy

Warning features to monitor in cervical lymphadenopathy include:

- Progressive onset,
- Rapid evolution,
- Ulcerated or fistulized overlying skin,
- Size greater than 3 cm,
- Firm or hard consistency,
- Inflammatory character,
- Persistence beyond three months [1].

III.4. Additional investigations

Any cervical lymphadenopathy requires a thorough diagnostic work-up [12,13].

When faced with cervical lymphadenopathy, a minimal set of investigations should be performed systematically, including a complete blood count (CBC), erythrocyte sedimentation rate (ESR), and tuberculin skin test [13].

III.4.1. Complete blood count (CBC)

In Senegal, a retrospective study by Ndongo S. et al. of 66 records of cervical lymphadenopathy in an internal medicine department revealed anemia in all patients.

In our study, microcytic anemia was observed in nine patients (30%), six of whom had a benign etiology.

Furthermore, patients with lymphoma presented with hyperleukocytosis with lymphocytic predominance. Leukopenia was identified in the HIV-positive patient.

Table VIII. Distribution of patients according to CBC findings

CBC finding	Number	Percentage (%)
Lymphopenia	1	3.33
Regenerative microcytic anemia	9	30
Normal	12	40
Normocytic anemia	3	10
Hyperleukocytosis with lymphocytic predominance	2	6.70
Hyperleukocytosis with neutrophilic predominance	1	3.33
Leukopenia	1	3.33
Leuko-lymphopenia	1	3.33
Total	30	100

III.4.2. HIV serology

In our series, HIV-1 serology performed with the Determine® test was positive in one of 22 patients.

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In Cotonou, a retrospective study of 22 records of tuberculous adenitis found two positive cases among five patients tested [15].

These variations in results can be explained by the frequent co-infection between tuberculosis and HIV [15].

Table X. Distribution of patients according to HIV serology

HIV serology	Number	Percentage (%)
Negative	9	30
Positive	1	3.33
Total	10	33.33

III.4.3. Chest X-ray

In several studies, chest X-ray is performed only when tuberculosis or malignant hemopathy is suspected, in order to detect possible lymphadenopathy [13,1].

In our study, chest X-ray was performed in 10 patients, of whom only two showed pathological abnormalities.

These results are consistent with the Moroccan literature, in which Bouhdadi S. reported, among 46 radiographs, hilo-mediastinal lymphadenopathy in 4 patients (8.69%) and parenchymal lesions in 2 patients (4.34%) [1].

III.4.4. Fine-needle lymph node aspiration cytology

In our series, fine-needle aspiration cytology revealed a suspicious result in the patient with lymphoma.

Fine-needle aspiration cytology has certain limitations [1]:

- It is operator-dependent;
- The result may be influenced by the volume and cellularity of the sample.

It is informative only when the result is positive.

It should be noted that lymph node biopsy may be contraindicated in cases of metastatic lymphadenopathy [12,13]. Capsular breach caused by biopsy is associated with a higher rate of lymph node recurrence or visceral metastasis after treatment [12,13].

III.4.5. Histopathological examination

Definitive histopathological examination of the excised lymph node remains the reference standard for establishing a definite diagnosis of cervical lymphadenopathy [12,1].

A retrospective study conducted in the Department of Pathology of the Gyneco-Obstetric and Pediatric Hospital of Yaoundé showed a predominance of tuberculous lymphadenopathy (39.38%) [16].

In our study, tuberculous adenitis dominated the histopathological findings, accounting for 40% of cases.

III.4.6. Etiologies

Several authors have observed that cervical lymphadenopathies are generally of benign origin [17,18].

In our study, benign etiologies predominated, accounting for 56.66% of cases. Infectious etiologies were the most frequent, reaching 63.34%, with five cases of rhinopharyngitis (16.66%). Tuberculosis was the leading cause overall, accounting for 40% of cases.

These results are consistent with the literature, in which benign etiologies of cervical lymphadenopathy are predominantly bacterial or viral in origin [19]. Bouhdadi S. found that ENT infections ranked first among etiologies,

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accounting for 62.65% of cases, with tonsillitis (22.15%) and dental caries (21.51%) as the most frequent causes [1]. In Denmark, Moore showed that 47% of patients had reactive lymphadenopathy [18].

Tumoral etiologies accounted for 26.67% of cases, while hemopathies accounted for 10%.

III.5. Treatment outcome according to etiology

The results of our study show an overall favorable response to treatment of chronic cervical lymphadenopathy in our sample of 30 patients. Cases of lymph node tuberculosis showed an excellent response to anti-tuberculosis treatment, with 83.3% of patients achieving complete regression of the nodes. This finding is consistent with the literature, which generally reports high cure rates (>80%) for lymph node tuberculosis treated early and adequately (Tiberi et al., 2018) [28]. The slower response observed in 16.7% of patients may be attributed to factors such as delayed detection or comorbidities, as also highlighted in previous studies (Sani et al., 2019) [29].

For lymph node metastases, combined treatment (surgery, chemotherapy, radiotherapy) showed encouraging results, with 71.4% of patients achieving a significant reduction in node size. However, one patient died from disease progression, and another had an unfavorable course. These results are consistent with the literature, in which the management of lymph node metastases is often complex, with survival rates varying according to the primary tumor site, stage, and treatment response (Meyer et al., 2017) [30]. Studies also indicate that lymph node metastases, particularly at advanced stages, carry a less favorable prognosis despite treatment, a finding confirmed by our results.

The single case of lymphoma illustrates the complexity of treating this condition. Despite chemotherapy, the patient died from disease progression. This is well documented in the literature, where certain lymphoma subtypes may be resistant to chemotherapy or progress rapidly despite initially effective treatment (Salloum et al., 2021) [31]. This treatment failure underscores the importance of early detection of the malignant nature of such lymphadenopathies and of tailoring treatment to the type and stage of the lymphoma.

Regarding non-specific cases, 100% of patients showed spontaneous regression of the nodes, consistent with existing data on lymphadenopathy of undetermined origin. Clinical monitoring is often sufficient in these cases, as most benign or reactive lymphadenopathies resolve spontaneously over time without treatment (Goswami et al., 2018) [32]. Nonetheless, continued vigilance remains necessary to detect any progression toward more serious pathology.

IV. CONCLUSION

In this work, we set out to achieve specific objectives, conducting a single-center prospective study over a full year within the ENT department of the CHN.

We conclude that cervical lymphadenopathy is a frequent condition or symptom, generally benign: lymph node tuberculosis accounted for 50% of cases, followed by rhinopharyngitis (17%), with only 3% of chronic cervical lymphadenopathies in our series being of malignant origin.

The clinical challenge lies in the fact that lymphadenopathy can also be the presenting symptom of a serious disease (the specter of cancer), for which the etiological diagnosis is sometimes difficult to establish.

A sound knowledge of the clinical presentation of lymphadenopathy helps guide the diagnostic process and allows the reasoned, hierarchical selection of investigations that will lead to a definitive diagnosis.

In outpatient consultation, investigations are less readily accessible than during hospitalization; it is therefore essential to order them promptly and to refer patients to the appropriate specialist without delay. It would be worthwhile in the future to develop a protocol adapted to the realities of our practice setting, to validate and apply it, and subsequently to assess whether it improves the management of chronic cervical lymphadenopathy — thereby minimizing diagnostic errors and missed opportunities, along with their medico-legal consequences.

V. REFERENCES

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