

Epidemiological and Clinical Aspects of Pharyngolaryngeal Pathologies in ENT Health Care

Djibril Samaké^{1,*}, Drissa Koné¹, Neuilly Ghislaine Tafo Ngnée², Zoumana Diakité³, Ahmadou Dembelé⁴, Boubacary Guindo³, Kadidiatou Singaré³, Samba Karim Timbo³, Mohamed Amadou Kéïta³, Alhousseini Ag Mohamed³

¹ENT and Head and Neck Surgery Department, Commune V Reference Health Center, Bamako, Mali

²ENT and Head and Neck Surgery Department, Commune I Reference Health Center, Bamako, Mali

³ENT and Head and Neck Surgery Department, University Hospital Center “Gabriel Touré”, Bamako, Mali

⁴ENT and Head and Neck Surgery Department, Sikasso Regional Hospital, Sikasso, Mali

Email address:

samakedjibi@yahoo.fr (Djibril Samaké)

*Corresponding author

To cite this article:

Djibril Samaké, Drissa Koné, Neuilly Ghislaine Tafo Ngnée, Zoumana Diakité, Ahmadou Dembelé, Boubacary Guindo, Kadidiatou Singaré, Samba Karim Timbo, Mohamed Amadou Kéïta, Alhousseini Ag Mohamed. Epidemiological and Clinical Aspects of Pharyngolaryngeal Pathologies in ENT Health Care. *International Journal of Otorhinolaryngology*. Vol. 9, No. 1, 2023, pp. 15-19.

doi: 10.11648/j.ijo.20230901.14

Received: March 17, 2023; Accepted: April 1, 2023; Published: April 20, 2023

Abstract: *Goal:* The aim was to establish the epidemiological and clinical profile of patients diagnosed with pharyngolaryngeal pathologies. *Methods:* This is a descriptive prospective study conducted in ENT health care service over a period of one year. The present study was done in the ENT-HNS department of the Reference Health Center of Commune V of Bamako. We consulted and included all patients that were visiting for the first time for pharyngo-laryngeal pathology. In addition, former patients who came for a second or umpteenth consultation and those admitted to another department requesting an ENT opinion were not included. *Results:* The pharyngo-laryngeal pathologies represented 15.21% (658 patients) of the total health examination done on 4326 patients. We identified 60% women and 40% men. The age group 0-10 years constituted 42.10% of the cases. The average age was 19 years, while the extremes were 12 days and 83 years. The reasons for consultation were as follow: odynophagia (47.42%), fever (42.71%), rhinorrhea (41.64%), nasal obstruction (25.84%), headache (18.84%), and a cough (12.92%). Angina accounted for 37.39%, nasopharyngitis 29.78%, pharyngitis 27.20%, phlegmon-peri-tonsillar 2.74%, adenoids and laryngitis each 0.76%, foreign bodies 0.61%, laryngomalacia 0.46%, hypopharyngeal tumors and laryngeal papillomatosis each accounted for 0.15% of diagnoses. *Conclusion:* Pharyngo-laryngeal pathologies are dominated by inflammatory and infectious pathologies.

Keywords: Pathology, Pharynx, Larynx, Epidemiology, Clinical

1. Introduction

The pharyngo-laryngeal region owes its originality to the fact that it is the first boundary between the organism and the ecosystem. In children, it is the place where there is abundant lymphoid tissue in contact with airborne infectious agents of all kinds. In adults, it is the place where the consequences of an unhealthy lifestyle are felt, in this case alcohol and tobacco poisoning [1]. They represented 12.4% of our health examinations in 2017 [2]. The pharynx and larynx have their

own pathologies with their own complications [1]. As a result, these conditions deserve to be described separately because of the specificity of their pathophysiological mechanisms, their etiologies, their clinical manifestations and their management [3]. Even if the symptomatic and evolutionary aspects differ according to the age of onset, it is in fact often the same subjects: children who will be found in adulthood [1]. Most of the studies carried out focused on certain entities

of the pharyngeal pathology but not an overall view [4-8]. Inadequate management of these diseases can lead to formidable complications in the short, medium or long term [1, 4, 5, 9, 10].

2. Objective

The aim of our work was to establish the epidemiological and clinical profile of pharyngo-laryngeal pathologies at the Reference Health Center of Commune V.

3. Methods

The Oto-Rhino-Laryngology and Cervico-Facial Surgery (ORL-CCF) unit of the Municipality V Reference Health Center (CSRéf CV) served as the framework for our study. The Reference Health Centers (CSRéf) is the second level of the health pyramid of Mali (directly after the community level). Their vocation is essentially dedicated to the mother and the child (Maternity) health care. To avoid to many patients going to first referral hospitals due to the absence of intermediate structures in Bamako, specialized units have been gradually created within CSRéf. Bamako has six CSRéfs distributed in each municipality. That of commune V where current study was conducted has carried out an average of 163,895 curative consultations during 2019, excluding activities related to reproductive health. ENT unit fully plays its part in this by taking charge of the flow of patients who do not necessarily need to be admitted to hospital. However, cases of tumor pathologies normally go directly to hospitals because most often, it is at too late a stage that the medical consultation is made. In addition to that, the lack of appropriated health equipment at the CSRéf level which would end up referring patients in hospital. The current work is a descriptive prospective study. It was conducted over a period of 01 year from January 2019 to December 2019. The study targeted all patients received in ENT medical consultation during the indicated period. The patients were systematically identified during the consultations on an individual survey form. New patients who were clinically diagnosed with pharyngolaryngeal pathology were included. In addition, former patients who came for a second or umpteenth consultation and those admitted to another department requesting an ENT opinion were not included.

4. Results

4.1. Frequency of Pharyngo-Laryngeal Pathologies

Pharyngo-laryngeal pathologies represented 15.21% (658) of ENT consultations (4326).

4.2. Socio-Demographic Aspects

Women represented 60% (395) of the patients, and men were 40% (263) giving thus a sex ratio was 0.66. The age group 0-10 years represented 42.10% (Table 1). Patients

under 20 years old had a cumulative frequency of 59.42% of cases. The average age was 19 years with extremes of 12 days and 83 years for a standard deviation of 17 years. Children of preschool age represented 31.76% followed by school students 29.23% of patients.

Table 1. Distribution of patients by age group.

Age (year)	Effective	Percentage%
0-10	277	42,10%
11-20	114	17,32%
21-30	105	15,96%
31-40	88	13,37%
41-50	39	5,93%
51-60	16	2,43%
61 and over	19	2,89%
Total	658	100%

4.3. Clinical and Paraclinical Aspects

Odynophagia was present in 47.42% of our patients, fever in 42.71% and rhinorrhea in 41.64% (Table 2). Of the 120 patients (18.23% of the total number) in whom a eath issue history was found, 27.5% had recurrent angina. The medical consultation period of one week to one month represented 482 cases, i.e. a frequency of 73.25%. The Complete Blood Count (NFS) was requested in 17.69% of the 147 patients who underwent additional examinations. Infectious and/or inflammatory pathologies accounted for 98.63% of cases. Angina represented 37.39% of diagnoses, acute nasopharyngitis in children 29.78% and pharyngitis 27.20% (Table 3). Of the 246 cases of angina, erythematous-pultaceous angina represented 54.47% while 45.53% were erythematous angina. The most affected age groups by angina were those of 11-20 years and 0-10 years with respectively 76 cases (30.89%) and 67 cases (27.23%) out of the 246 cases of angina. Of the 179 cases of pharyngitis, acute pharyngitis accounted for 81.56% against 18.44% for chronic pharyngitis. Of the 4 foreign body cases, 2 were fish bones (one on the soft palate and the other in the right tonsil), chewing gum (on the right tonsil), and a coin.

Table 2. Distribution of patients by reason for consultation.

Reason for consultation	Effective	Percentage%
Odynophagia	312	47.42
Fever	281	42.71
Rhinorrhea	274	41.64
Nasal obstruction	170	25.84
Headache	124	18.84
Cough	85	12.92
Pharyngeal gene	65	9.88
Sneeze	57	8.66
Dysphagia	44	6.69
Dysphonia	33	5.02
Snoring	30	4.56
Dyspnea	19	2.88
Cervical swelling	19	2.88
Halitosis	17	2.58
Other	102	15.49
As other symptoms found, frequent touching of the ears by children 58 cases (i.e. 8.81%), asthenia 27 cases (i.e. 4.10%) and regurgitation 17 cases (i.e. 2.58%).		

Table 3. Distribution of patients according to the diagnoses retained.

Diagnosis	Effective	Percentage%
Angina	246	37.39%
Acute rhinopharyngitis in children	196	29.78%
Pharyngitis	179	27.20%
Peritonsillar phlegmon (PPA)	18	2.74%
Adenoid growth requiring adenoidectomy	5	0.76%
Laryngitis	5	0.76%
Pharyngeal foreign bodies	4	0.61%
Laryngomalacia	3	0.46%
Laryngeal papillomatosis	1	0.15%
Hypopharyngeal tumors	1	0.15%
Total	658	100%

5. Discussion

The limitations of this study were:

- 1) Failure to take into account the cases treated in other units (Medicine, Paediatrics); the corollary of which is an underestimation of the actual frequency of patients suffering from these pathologies and treated within the CSRef,
- 2) The unavailability of the Rapid Diagnostic Test (RDT) to identify streptococcal angina or pharyngitis,
- 3) The unavailability of bacteriological examination within the CSRef making the circuit long for patients who need it. Those who manage to do it outside, the cultures are almost always sterile, most often due to prior antibiotic therapy before the consultation.

5.1. Frequency of Pharyngo-Laryngeal Pathologies

A previous study from 2017 on our consultations had shown that pharyngo-laryngeal pathology represented 12.4% [2]. In Guinea Attifi H, on the Otorhinolaryngological experience of the Moroccan field hospital in Guinea Conakry had shown that the pharyngo-laryngeal pathology represented 21.20% [7].

5.2. Sociodemographic Aspects

5.2.1. Gender

We did not find any studies in the literature reporting pharyngo-laryngeal disorders as a whole related to patients' gender. In addition, a study conducted in Mali by Haidara A-W on tonsillitis and its complications about 315 cases collected had found a female predominance with 60.63% [5]. The same observation was made by Timbo S K on the epidemiology of angina in Bamako [10].

5.2.2. Age

Haidara A-W had found that 28.57% of patients were aged between 0-10 years and the average age was 18 years with extremes ranging from 2 months to 61 years [5].

The high frequency of pharyngo-laryngeal pathologies found in children from 0 to 10 years old could be explained on the one hand by the fact that at this age, the mucous membrane of the ENT sphere and that of the upper aerodigestive tracts are strongly colonized by germs. In addition, these pathologies constitute a mechanism of adaptation to the environment and immunological learning allowing the

production of specific antibodies against germs [1]. The immaturity of the immune system, the increasing environmental pollution, the obvious parameters of climate change and comorbidities could explain this state in children whose immune system continues to build up [11].

5.3. Clinical and Paraclinical Aspects

5.3.1. Reasons for Consultation

Haidara A W and Samake D, found that odynophagia was present in 88.63% and 66.7% of patients respectively [2, 5]. Singare K had shown that odynophagia was present in 94% of patients with angina or pharyngitis. Fever was also a common sign [12].

5.3.2. Background

Njiffou N A, displayed 60 cases of bacterial angina where 46.66% had more than 3 episodes per year; 35% had 2 episodes per year and 11 18.33% only one annual episode [4]. In the present work we could not correctly determine the frequency of the repetitions. Ramilison H E had found in a study of 79 cases of peritonsillar Phlegmons that recurrent angina was present in 32.9% of patients [9].

5.4. Selected Diagnoses

5.4.1. Angina

Haidara A W on tonsillitis and their complications and Timbo S K on the epidemiological aspect of angina in Bamako showed that angina represented respectively 7% and 1.8% of ENT consultations [5, 10].

5.4.2. Peritonsillar phlegmon (PPA)

This is the main complication of tonsillitis and 2.4% of annual emergency medical consultations in Abidjan according to Koffi-Aka V [13]. Timbo S K found that 54% of angina complications were peritonsillar phlegmon [10]. Maâmouri M found that 85% of peri-pharyngeal suppuration was peritonsillar phlegmon [14].

5.4.3. Nasopharyngitis

Nasopharyngitis is the first infectious pathology in children and the first cause of pediatric consultation [15]. It is an obligatory disease of adaptation of the child [16]. In France, the annual incidence of nasopharyngitis in children under 7 years of age is estimated at 5 million [15].

5.4.4. Adenoid Growths Requiring Adenoidectomy

Adenoid hypertrophy is very common in children, especially between 18 months and 3 years. It is contemporary with the adaptation disease (acute nasopharyngitis in children) [1, 16]. These adenoids maintain recurrences of nasopharyngitis and/or otological or sinus infectious complications, and developmental disorders in children [1, 17]. In Niger (Niamey) a study conducted by Abarchi D found that the adenoids represented 9.85% of all their ENT consultations [17].

5.4.5. Pharyngitis

Sore throat and pharyngitis accounted for more than 2–5%

of all first-line outpatient visits in the adult and pediatric populations, respectively [18]. Coulibaly K had found that pharyngitis represented 3.9% of all ENT consultations in the provinces in Sikasso (Mali) [19].

5.4.6. Laryngitis

In our previous report we found that laryngitis represented 2.9% of pharyngo-laryngeal pathologies and 0.36% of all ENT consultations at the reference health center in commune V [2]. Acute laryngitis is the main cause of obstructive dyspnea in children, whereas in adults it is an epiphenomenon of a viral or bacterial infection of the upper or lower airways [20]. Hariga I found that the frequency of chronic laryngitis was difficult to assess and that these lesions can occur at any age, but preferentially between 45 and 65 years old with a male predominance of around 85-90% [21].

5.4.7. Foreign Bodies

A previous study from 2018 noted that 2.94% of the foreign bodies were located in the pharynx [22]. In Morocco, Hssaine K had shown that pharyngeal and laryngeal foreign bodies represented respectively 8.27% and 2.12% out of a total of 1317 cases of ENT foreign bodies over a study period of 10 years [23].

5.4.8. Laryngomalacia

Laryngomalacia is the most common cause of congenital stridor and accounts for approximately 60-70% of congenital laryngeal anomalies. According to some statistics, it affects up to one in 20 newborns [24]. Stridor appears a few days after birth [25].

5.4.9. Laryngeal Papillomatosis

In Mali, Traoré K found an annual frequency of about 3.5 cases per year with a prevalence of 0.05% of ENT hospitalizations [8]. In Togo in 2014 Pegbessou E reported an average of 3.5 cases per year of laryngeal papillomatosis with a male predominance [26]. In Senegal, Maiga S study displayed an annual incidence of 4.8 cases of laryngeal papillomatosis [27].

5.4.10. Hypopharyngeal Tumors

Keïta M had found 15 cases of tumors of the hypopharynx and larynx, i.e., 25% of all head and neck tumors found [28]. In our previous report we found that lesions of the hypopharynx represented 2.67% of all head and neck lesions [29]. Doumbia K had found 35 cases of hypopharyngeal cancer over a 4-year period, i.e., 1.9% of ENT hospitalizations and an annual frequency of 8.8 cases [30]. Only histology can specify the nature of the tumor and squamous cell carcinoma is the most frequent histological type (95%) [31].

6. Conclusion

The pharyngo-laryngeal pathologies are rich and varied. We found them at all ages (children, young adults and the elderly) and a peak frequency between 0-10 years. They were

mostly a system of adaptation to the environment. They were dominated by inflammatory and infectious pathology. Tumors were relatively rare. A study on the attitude, behavior and knowledge of health workers on pharyngolaryngeal pathologies would be necessary in order to optimize their management.

Ethical Considerations

Declaration of interest: The authors declare that they have no conflicts of interest in relation to this article.

Funding statement: The authors declare that they have not received any specific funding for this work.

Contribution of the Authors

All authors contributed to the conduction of this work. All authors also declare that they have read and approved the final version of the manuscript.

References

- [1] Sauvage J P. Guide d'ORL Clinique et Thérapeutique. Paris. Elsevier Masson. 2016: 328.
- [2] Samaké D, Sidibé Y, Thiocary S, Koné F I, Maïga Y M, Konaté F, Dara Y, Singaré K, Haidara A W, Dembele A, Sacko D, Traoré M, Sanogo B, Timbo S K, Kéïta M A, Ag Mohamed A. Place of Otorhinolaryngological (ENT) Diseases in a 2nd Level Health Center: Case of the of Commune V (CSRéf CV) Reference Health Center of the District of Bamako. *International Journal of Otolaryngology and Head & Neck Surgery*. 2019; 8: 91-97.
- [3] Couloigner V, Abbeele V D, Abadie V. Anomalie du carrefour aéro-digestif du nouveau-né. In. *ORL de l'enfant*. Paris 2ème éd. Médecine-Sciences Flammarion. 2006: 446.
- [4] Njifou N A, Zounon D S, Ngaba G P, Vodouhé B U, Fedjo T G, Essama E B L., Adjibabi W, Yéhouessi V B, Njock R L. Les angines bactériennes à Mbouda: Aspects cliniques et thérapeutiques. *Health Sciences and Diseases*. 2020; 21 (8): 72-75.
- [5] Haidara A W, Sidibé Y, Samaké D, Coulibaly A, Touré M K, Coulibaly B B, Soumaoro S, Guindo B, Diarra K, Coulibaly K, Sanogo B, Kéïta M, Ag Mohamed A. Tonsillitis and Their Complications: Epidemiological, Clinical and Therapeutic Profiles. *International Journal of Otolaryngology and Head & Neck Surgery*. 2019; 8: 98-105.
- [6] Kania R, Laccourreye O. Cancer de l'oropharynx. In. *Traité d'O. R. L.* Paris. Médecine Sciences Flammarion. 2008: 875.
- [7] Attifi H, Hmidi M, Boukhari A, Touihem N, Kettani M, Zalagh M, Messary A. Expérience oto-rhino-laryngologique de l'hôpital marocain de campagne en Guinée Conakry. *Pan African Medical Journal*. 2014; 19 (40): 1-8.
- [8] Koné F I, Singaré K, Traoré K, Coulibaly O, Cissé N, Soumaoro S, Samaké D, Tafo N, Diarra K, Konaté N, Guindo B, Tiimbo S K, Keïta M A. Epidemiologicall, Clinical and Therapeutic Aspects of Laryngeal Papillomatosis in Mali. *International Journal of Otorhinolaryngology*. 2020; 6 (1): 1-5.

- [9] Ramilison H E, Fare A T S, Razanakoto G F A, Razafindrakoto R M, Jarakoto F A, Rakotoarisoa A H N. Traitement des phlegmons péri-tonsillaires à Madagascar. Revue d'odontostomatologie malgache. 2017; 12: 67-79.
- [10] Timbo S K, Keita M A, Togola Konipo F, Traoré T, Traoré L, Ag Mohamed A. Aspects épidémiologiques de l'angine à Bamako. Mali Médical. 2006; 12 (4): 1-3.
- [11] Koffi-Aka V, Ehoun F, Azagoh K R, Adjoua R P, Kouassi B. Phlegmon péri-amygdalien. La lettre d'ORL et de chirurgie cervico-faciale. 2007; 311: 26-28.
- [12] Adedemy J D, Noudamadjo A, Agossou J, Alméida H M, Adeye Fassinou R, Ayivi B. Epidémiologie, clinique et facteurs associés aux infections respiratoires aiguës chez l'enfant de 0-5 ans au Centre Hospitalier Départemental de Parakou (Bénin). Journal Africain de Pédiatrie et de Génétique Médicale. 2017; 2: 47-53.
- [13] Doumbia-singare K, Kone F I, Dienta L, Timbo S K, Cisse N, Samake D, Guindo B, Traore L, Soumaoro S, Konate N, Diarra K, Keita M A, AG Mohamed A. Study of Factors Associated with Acute Pharyngitis. International Journal of Otorhinolaryngology. 2020; 6 (1): 6-9.
- [14] Maâmour M, Hamouda R B, Mansour S, Chorfa A, Chtioui I, Bousadi K. Phlegmon péri-amygdalien, aspects diagnostiques et thérapeutiques. Journal Tunisien d'ORL. 2009; 22: 20-24.
- [15] Bonfils P, Laccourreye O, Couloigner V. ORL. Le Livre de l'interne. Paris. Médecine Sciences Lavoisier. 2011: 899.
- [16] Leboulanger N. Hypertrophie des végétations adénoïdes. Réalités pédiatriques. 2015; 196: 37-39.
- [17] Abarchi B D, Daouda B I, Timi N. Les végétations adénoïdes chez l'enfant: Epidémiologie et prise en charge. International Journal of Current Research. 2019; 11 (6): 4383-85.
- [18] Edward A, Sykes V W, Michael M B, Matthew T W S, Jason A B. Pharyngite, Approche Diagnostique et Thérapeutique. Canadian Family Physician. 2020; 66: 119-26.
- [19] Coulibaly K, Soumaoro S, Sidibe Y, Koné F, Dao S, Konate N, Timbo S K, Keita M A, AG Mohamed A. Profil des consultations ORL en province. Cas de l'hôpital de Sikasso: aspects épidémiologiques, cliniques et thérapeutiques. La revue africaine d'ORL et de Chirurgie cervico-faciale. 2017; 17 (2): 34-45.
- [20] Casteil L, Mondain M. Laryngite aiguë. In. ORL de l'enfant. Paris. Elsevier Masson. 2017: 361.
- [21] Hariga I, Abid W, Azaza F, Younes F B H, Ben Alaya I, Zribi S, Ben Gamra O, Mbarek Ch. Laryngite Chronique: Approche Diagnostique et Thérapeutique. Journal Tunisien d'ORL. 2013; 30: 1-6.
- [22] Sidibé Y, Samaké D, Togola A, Dara Y, Thiocary S, Touré S S, Traoré M, Konaté F, Timbo S K, Kéita M A, Ag Mohamed A. Foreign Bodies in ENT from Peripheral Health Center of Bamako (Mali). International Journal of Otorhinolaryngology. 2021; 7 (1): 1-5.
- [23] Hssaine K, Belhoucha B, Rachdi Y, Nouri H, Aderdour L, Raji A. Les corps étrangers en ORL: expérience de dix ans. Pan African Medical Journal. 2015; 21 (91): 1-6.
- [24] Reinhard A, Sandu K. Laryngomalacie: cause principale de stridor chez le nourrisson et le petit enfant. Revue Médicale Suisse. 2014; 10: 1816-819.
- [25] François M. Pathologie des voies aériennes supérieures. EMC (Editions Elsevier, Paris), Pédiatrie, 4-061-A-10. 2003: 10.
- [26] Pegbessou E, Amana B, Tagba E, Darre T, Amegbor K, Boko E, Kpmissi E. Papillomatose laryngée profils épidémiologiques, diagnostiques et thérapeutiques. Dakar Med. 2014; 59 (2): 54-59.
- [27] Maiga S, Ndiaye C, Diouf M, Diallo B K, Ndiaye M, Diouf M S, Ndiaye I C, Diouf R. Laryngeal Papillomatosis in Senegal: A ten-year experience. European Annals of otorhinolaryngology, Head and Neck diseases. 2017; 135: 221-24.
- [28] Keita M, Kampo M I, Timbo S K, Traoré C B, Diallo M, Doumbia-Singaré K, Ag Mohamed A. Morbidité par tumeurs de la sphère tête et cou à Bamako. Mali Médical. 2009; 24: 1-6.
- [29] Samaké D, Sidibé Y, Koné F I, Niangaly H, Diamouténé K, Konaté N, Ngnée Tafo G N, Camara N, Diarra K, Haidara A W, Soumaoro S, Guindo B, Singaré K, Timbo S K, Kéita M, Ag Mohamed A. Histological Profile of ENT and Cervico-Facial Lesions in Mali. Int. J. Otolaryngology and Head & Neck Surgery. 2019; 8: 61-69.
- [30] Doumbia K S, Kone F I, Doumbia M, Guindo B, Soumaoro S, Cisse N, Konate N, Diarra K, Sangare M, Timbo S K, Keita M, Ag Mohamed A. Hypopharyngeal Cancer: Epidemiological, Clinical and Paraclinical Aspects at the University Hospital Center (CHU) Gabriel Toure in Bamako. Int. J. Otolaryngology and Head & Neck Surgery. 2020; 9: 46-51.
- [31] Lacau S G J, Périé S. Cancer de l'hypopharynx. In. Traité d'ORL. Paris. Médecine science Flammarion. 2008: 875.