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Morbidity associated with infectious factors in adenomegalic syndrome

Abstract

Objectives: Establish the morbidity related to adenomegalic syndrome in the child population admitted to the pediatrics and childcare service of the Dr. Carlos Arvelo Military Hospital in the city of Caracas, in the period from January 2019 to January 2023. Methods: Research with a quantitative approach, at a descriptive epidemiological, cross-sectional, documentary and descriptive level. The data obtained were from the files of the institution in which the study was carried out. Results: The sample consisted of 41 patients, of which 95.12% presented lymph nodes larger than 5 cm, 55.63% had no involvement in other spaces, 53.66% presented the syndrome acutely, in 90.25 % the disease arises from a viral or bacterial etiology, 92.68% of those admitted had no other previous pathologies, however, 100% of the children treated presented symptoms, with fever being the most recurrent. Regarding treatment, the use of antibiotics was the most widely indicated in 82.92% of cases. All of the patients treated, 100%, had satisfactory clinical improvement. Discussion: Although the discovery of lymphadenopathy generates fears, medical discharge is relatively quick and the procedures are simple, making the diagnosis of this disease consequently simple and depends on its location. Conclusions: A higher incidence of the syndrome was observed in female children with an average age of 5 years. The enlarged abdomen was located in the submandibular region, with bacterial or viral causes. The most commonly used treatment was Oxacilin.

Keywords: Syndrome, adenomegalic, pediatrics, morbidity, infections

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Introduction

Since 2014, the Venezuelan economy has suffered a significant setback, driven by various internal and external factors. In this regard, various sources[1] citing data provided by the International Monetary Fund (as the Central Bank of Venezuela does not publish statistics) explain that the country's economy contracted by 65%, similar to the loss of a country in times of war. This economic contraction affects the daily lives of Venezuelan residents in all areas and of course, the health sector does not escape this situation, in fact, as proof of this approach, extreme poverty reaches 76.6% of the country's households according to the National Survey of Living Conditions (ENCOVI by its initials in Spanish), presented by the Andrés Bello Catholic University (ABCU) and cited by PROVEA in 2021.[2]

This difficult situation should also be replicated in the health indicators and described in the epidemiological bulletin, which the Ministry of People's Power for Health should regularly provide, however, as indicated in the report issued by Transparencia Venezuela, the last published bulletin dates from week 41 of 2015,[3] which means that there is a lack of updated statistics. But another institution with a long history in the health sector, which is the humanitarian organization of the Catholic Church Caritas, issued a report based on data from its care network, which includes statistics from the first quarter of 2021,[4] where out of a total of 14,722 consultations carried out in the country, 51% were of patients contemplated in the categories under 5 years of age and school children.

Infectious diseases are a major cause of morbidity and mortality in humans, surpassed only by cardiovascular diseases.[5] In underdeveloped countries, they are the main cause of death, especially in children. Around 25% of the 60 million deaths worldwide are due to infectious diseases, and they are the cause of more than 50% of global mortality in children between 1 month and 5 years of age. Of the total diagnoses made in health centers that reported figures to Caritas Venezuela in 2021,[4] the leading cause of diagnosis was infections and parasites, with 19.92%, followed by anemia and malnutrition with 11.11%, and in ninth place were endocrine and metabolic diseases with 3.87%. From this report, it can be concluded that malnutrition and a lower purchasing power, including food and medicine, contribute to a high incidence of infectious diseases, which in turn impacts the lymphatic system and all its components. Therefore, this study sought to investigate the relationship between infection-related factors and their effects on lymph node enlargement, known as adenomegalic syndrome, since this abnormality can trigger other malignant pathologies.

Theoretical aspects

Adenomegalic syndrome is a complex condition caused by abnormal lymph node (LN) enlargement, accompanied by alterations in consistency.[8] As a clinical manifestation, it presents nonspecifically, either localized in a specific region or generalized, acute or chronic, benign or malignant. Its evaluation and study requires establishing the extent of the condition, whether it is within or outside normal limits, and considering its growth as a normal reaction that occurs secondary to various inflammatory stimuli. In daily practice, some cervical, axillary, or inguinal LNs may be palpable in a large number of individuals.

Other studies indicate that 56% of patients examined for various reasons had palpable cervical LNs. Therefore, once lymph node growth is considered abnormal, the physician must determine the exact cause of the pathology and its treatment.[8] Furthermore, 80% of patients under 30 years of age presented some signs and symptoms of the syndrome, associated with other diseases such as infectious mononucleosis, toxoplasmosis, rubella, Acquired Immune Deficiency Syndrome (AIDS), insect bites, and other viral and infectious diseases.[9]

This study aimed to offer the possibility of identifying the associated morbidity factors that present the aforementioned symptoms along with adenomegalic syndrome and the appropriate treatments for its healing. It focused on the study of morbidity associated with infectious factors in adenomegalic syndrome in the pediatric population attending the Dr. Carlos Arvelo Military Hospital between 2019 and 2023.

Lymphadenopathy is one of the most frequent reasons for consultation in pediatric services due to its close relationship with various infectious processes, as previously mentioned, which are the subject of this research work. Etiological situations range from simple localized or generalized infections, often self-limiting, to highly serious processes such as neoplasia or metastasis of solid tumors. The main challenge in evaluating lymphadenopathy, or an abnormal lymph node or lymph node chain, is assessing whether it is benign or malignant and deciding what measures to take for diagnosis and treatment, taking into account risk factors, previous illnesses, age, and weight. The environmental living conditions of communities in Venezuela and the current socioeconomic situation may increase the incidence of the syndrome under study among the Venezuelan population.[1–4]

Every research project, once the problem has been clearly defined, requires support from a set of background information that guides the study in all aspects. In this sense, the foundation of the background and theories of the research are usually formulated as a construction that integrates the contributions of several existing theories. This means that the researcher must first review various works related to the event under study and the situation to be investigated, thus achieving an integration that provides a more complete understanding.[10] Based on these arguments, a series of research works directly related to the object of study were then evaluated, starting with the one conducted by Donato et al.,[11] who provides an extensive explanation of the procedures to follow in the case of adenomegalic syndrome presented in consultation, as well as how to proceed with its treatment, providing important elements to support the diagnosis and effective treatments of the disease.

Along these lines, Tordecilla et al.,[12] explain that lymphadenopathy is an increase in the volume of a lymph node by more than 1 cm and can be accompanied by one or more symptoms and has a multifactorial etiology. Treatment varies and depends on each case, and research provides guidance on how to prepare medical histories, which was one of the contributions provided by this research. On the other hand, Alfonso et al.,[13] present a case study of a minor treated at the ULA University Hospital with a diagnosis of adenomegalic syndrome and delve into the patient's psychological condition and how to treat the disease from a mental perspective.

Another research project that contributed to the work presented was that of Álvarez et al.,[14] who provide an extensive overview of the concept and the different forms in which they present, indicating that they are very common in cervical cancers. They also make important contributions to its diagnosis and treatment, providing a great help by delving deeper into the theoretical foundations and complementing the information on the diagnostic techniques to be used. Méndez et al.,[15] also conducted a study on the epidemiological, clinical, and evolutionary characteristics of non-tuberculous mycobacterial lymphadenitis in patients under 14 years of age. They supported the research with their methodology and clearly established how to obtain relevant and reliable information to draw appropriate conclusions.

González et al.,[16] explain that lymphadenopathy is one of the most common reasons for consultation in pediatrics because at younger ages there is more lymphoid tissue and a greater response to inflammation. This work addresses the causes of lymph node enlargement from an anatomopathological perspective, as well as the etiology and classification in cases of cervical lymphadenopathy. It is therefore of great significance because it focuses on problems related to the pediatric population and offers important diagnostic alternatives, thus helping to enrich the proposal to be presented.

Another interesting study was presented by García,[17] who explains that lymphadenopathy is frequently palpable in otherwise healthy children and can be caused by many diseases or reactions to medications. This has generated considerable fear among children's representatives, as they associate it with malignant processes, when by far the most frequent cause is viral or bacterial in origin and resolves spontaneously or with antibiotic-based treatment.

The publication by López et al.,[18] mentions several case studies on adenomegaly in pediatrics and also contains extensive theoretical content on the topic, supporting the research presented by mentioning the different methods of diagnosing adenomegaly, both for generalized and focal cases. Another important reference is Oconitrillo,[19] who explains a series of complementary diagnoses that should be performed in the case of adenomegalic syndrome in children, as well as, in summary, how to perform treatments related to this problem.

Finally, Moreno et al.,[20] explain in their research a clinical case of an infant who developed tuberculosis and also presented a severe state of chronic malnutrition and adenomegalic syndrome in the cervical and bilateral supraclavicular regions caused by this, an aspect observed in several of the clinical records evaluated. The theoretical foundations that support this work seek to develop the work appropriately through their analysis and presentation,[21] establishing the thematic axes that enclose the bases of the topic under study, that is, the theories and approaches related to the points that make up the objectives of this research, such as: lymphoid organs, adenomegaly, physical examination, location of symptoms, extension, related diseases and treatments.

In order to clearly understand the implications and consequences for patients treated by pediatric units, it is important to recognize several important theoretical elements, starting with indicating that lymph nodes are secondary lymphoid organs whose primary function is to be the site where naive T lymphocytes (TL) are activated by lymphatic tissue antigen-presenting cells, initiating the adaptive immune response, cooperating with B lymphocytes (BL) in their activation and generating germinal centers in which BL perform affinity maturation. There are approximately 600 lymph nodes, which, along with the spleen, adenoids, and Peyer's patches, are responsible for clearing antigens from the extracellular fluid as a result of the inflammatory reaction produced by pathological processes in the tissues.

The lymph node is an encapsulated collection of lymphocytes, plasma cells, and macrophages distributed in different regions of the body, such as the cervical, axillary, thoracic, abdominal, and inguinal regions. It consists of a cortical region with germinal follicles and a medullary región.[12]

Furthermore, adenomegaly is defined as any increase in lymph node volume greater than 1 cm in diameter, whether accompanied or not by inflammatory symptoms, and whose etiology is multifactorial, resulting from any of the following factors, either singly or in combination:

I. Repeated antigenic stimulation leading to lymphoid follicular hyperplasia.

Invasion by:

I. Histiocytes as seen in Langerhans histiocytosis and storage diseases.

II. Polymorphonuclear cells in infectious adenitis.

III. Tumor cells in leukemias and solid tumors.

There are several groups of lymph nodes in the human body; some are clinically palpable, while others are only visible with imaging techniques such as ultrasound and computed tomography.[12] Enlarged lymph nodes are a common finding in children and cause for concern, as they may represent malignancy. However, this is very rare and the incidence rate is low. Therefore, to avoid future complications, the treating physician must carefully evaluate each individual case, taking a complete history:

I. Age

II. Location

III. Time of onset

IV. Clinical features: size, pain, consistency.

V. Associated symptoms: fever, odynophagia, respiratory symptoms, rash, abdominal pain.

VI. Other medical history: medication use, contact with cats.[12]

Evaluate each case individually, taking a complete history

During the physical examination, it is important to determine:

I. Determine the size.

II. Location.

III. Tenderness.

IV. Consistency.

V. Signs of inflammation.

VI. Suppuration.

VII. Attachment to superficial or deep surfaces.

It is then very important to determine whether they are localized or generalized, the latter being defined if they increase the lymph node volume of two or more non-contiguous lymph node regions and determined by:

I. Skin examination: presence of pallor, signs of hemorrhage or purpuric syndrome, rash, or suppurative lesions near the enlarged lymph nodes.

II. Hepatosplenomegaly.

III. Oral examination for caries or ulcerated lesions; nasal examination to rule out obstruction or discharge; otic examination for suppuration or inflammation; and pharyngeal examination for ulcers or inflammation.

It is important to note that, in order to identify the different etiologies, it is necessary to determine whether they are generalized or localized. In the case of generalized lymph nodes, infectious mononucleosis is among the most common triggers, characterized by enlarged, tender cervical, occipital, and bilateral retroauricular lymph nodes without skin discoloration. These lymph nodes present with fever, skin rash, conjunctival injection, pharyngeal redness or tonsillar exudate, hepatosplenomegaly, and positive Epstein-Barr serology.[12]

When the case involves localized lymphadenopathy, indicating the location of the lymphadenopathy helps to specify the etiology. These lymph nodes are classified as follows:

I. Occipital: generally secondary to scalp lesions such as pediculosis or seborrheic dermatitis. This location can also be seen in conditions accompanied by generalized lymphadenopathy, such as rubella.

II. Adenovirus or cat scratch disease.

III. Submandibular and submental lymphadenopathy: associated with contiguous skin infection, dental, gingival, lingual, or oral mucosal problems.

IV. Cervical lymphadenopathy: this is the most common in pediatric patients, with viral upper respiratory tract infection being the most common cause. It is usually soft, small, and shows no changes in skin color. However, cervical lymphadenopathy associated with bacterial infection, either streptococcal or staphylococcal, is larger, very tender for the patient, and shows obvious skin inflammation. Cat scratch lymphadenitis is common in this location; it is generally solitary, tender, large, soft, and accompanied by fever. In these cases, there may or may not be a history of contact with a cat or the presence of a scratch lesion. The diagnosis can be confirmed with serology for Bartonella henselae.

V. The adenomegaly in Kawasaki disease is tender, enlarged, and accompanied by signs such as fever lasting more than five days, skin rash, palmoplantar erythema and edema, conjunctival injection, and lip redness. The complete blood count may show thrombocytosis and elevated sedimentation rate, and coronary involvement should be ruled out.

VI. Supraclavicular: This is usually located on the right side and is associated with mediastinal or pulmonary lesions, likely neoplastic, and therefore require mandatory histological examination.

VII. Mediastinal: These are due to malignant processes; anterior mediastinal lesions correspond to Hodgkin's or non-Hodgkin's lymphoma or leukemia. Posterior mediastinal lesions guide the diagnosis of neuroblastoma. They are uncommon in underage patients.

VIII. Axillary: They are often reactive to BCG adenitis, upper extremity or regional infections, and cat-scratch disease.

IX. Abdominal and pelvic: They appear only on imaging studies such as abdominal ultrasounds, and the causes can be infectious, such as mesenteric adenitis, or malignant, such as lymphomas, rhabdomyosarcoma, or neuroblastoma.

X. Epitrochlear: Usually inflammatory and due to injuries to the hands or forearms, and also due to cat scratches.

XI. Inguinal: Usually secondary to infections of the lower extremities or genital región.[12]

In the case of generalized adenomegaly, it is indicated that potentially reversible causes such as the intake of anticonvulsants or symptoms suggestive of infectious or immune diseases should initially be ruled out through the history obtained. A thorough clinical examination should then be performed, looking for alterations that suggest the probable etiology. Finally, laboratory tests should be performed to determine the etiology. As a last resort, a lymph node

biopsy is considered because in most cases only inflammatory signs can be found, which are quite nonspecific of a specific etiology.[12]

In cases of enlarged lymph nodes accompanied by inflammatory signs and fever, where an infectious etiology is suspected, beta-lactam antibiotics should be prescribed for 10 days, awaiting significant regression of the volume and inflammatory symptoms. If there is no response within two weeks, the patient should be evaluated with a complete blood count, sedimentation rate, chest X-ray, soft tissue ultrasound, PPD, serology based on clinical suspicion (Epstein-Barr virus, EBV), cytomegalovirus (CMV), HIV, Bartonella, toxoplasmosis, brucellosis, and histoplasmosis, and a needle aspiration. In cases of enlarged lymph nodes where a malignant etiology is suspected due to their characteristics—in a school-aged patient, and if a lymph node size greater than 3 cm requires fixation to deep planes, a supraclavicular location, or an abnormal chest X-ray—the patient should be immediately referred to a specialized oncology center for a complete and in-depth evaluation of the case.[12] On the other hand, people from lower social strata have greater exposure to pathogens, are more likely to be poorly nourished or have bad eating habits and are therefore more likely to acquire infectious diseases.[22]

For this reason, there is a close relationship between health status and people's living conditions, and the lack of economic stability is one of the determining factors that triggers the emergence of a large number of diseases in the most vulnerable populations.[23] To put this reality into numerical context, by 2020, according to World Bank data,[24] while in very poor countries such as Sierra Leone or the Central African Republic, life expectancy reached 55 years, in Germany or the United Kingdom this figure was 81 years, or 33% more than the poorest countries. At that time, Venezuela had a life expectancy of 72 years, which is 12% less than that of nations with robust healthcare systems and greater purchasing power. Regionally, countries such as Brazil, Chile, Costa Rica, Colombia, Ecuador, and Peru, among others, surpass Venezuela by more than five years in terms of life expectancy. Another interesting piece of data, provided by the World Bank,[24] concerns the Infant Mortality Rate (INR), per 1,000 live births. Again, this figure indicates that while the rate is 50 in sub-Saharan African countries, in European Union countries it is around 5, representing a 10th of the rate reported in Africa. In Latin America, this figure is around 10, but Venezuela far exceeds this average with 21, highlighting the close relationship between health and the socioeconomic conditions of the population.

This provides the most relevant theoretical aspects related to adenomegaly pathologies, their diagnosis, treatments, and the influence of the socioeconomic conditions of the environment on the health and well-being of the population in general, and the pediatric population in particular. The need to preserve ethics in the health sciences, and especially in the medical field, is related to the requirement to regulate all medical acts, scientific discoveries, and related technological advances, with the aim of safeguarding the interests of patients and governments in this field. Therefore, medical ethics is based on preserving four fundamental principles: nonmaleficence, beneficence, autonomy, and justice. Therefore, all medical practices must be framed within these principles.[25] For this reason, this research seeks to assist the target population and provide benefits, while always respecting the laws of the Republic. Consequently, this research was ethically based on the Law on the Practice of Medicine, issued by the National Assembly of the Bolivarian Republic of Venezuela and published in the Official Gazette on December 19, 2011, and the articles contained in Title III, Chapter II, which refer to Research in Human Subjects and were approved by the Biotics Commission of the Dr. Carlos Arvelo Military Hospital.[26]

Additionally, as a global benchmark, the ethical precepts indicated in the World Medical Association's Declaration of Helsinki of March 21, 2017, which establishes the Ethical Principles for Medical Research Involving Human Subjects,[27] were also met. These are all necessary requirements for the practice of medicine and required to obtain competent professionals.[28]

Methods

The research was conducted using a quantitative, descriptive, epidemiological, cross-sectional, documentary approach with a retrospective temporal approach. Data were obtained from the archives of the institution where the study was conducted. The target population for this research was all patients with medical records who attended the Pediatrics and Childcare Department of the Dr. Carlos Arvelo Military Hospital. The sample consisted of all records from January 2019 to January 2023, for a total of 41 (Table 1).

Table 1 Study population

Year	Sample
2019	7
2020	10
2021	13
2022	10

Source: Pediatrics and childcare department of the Dr. Carlos Arvelo Military Hospital

The sample consisted of the entire population registered with symptoms of adenomegalic syndrome under 14 years of age, of any sex, social stratum, and nationality, between 0 and 14 years of age.

The exclusion criteria were:

I. Patients with adenomegalic syndrome with a definitive diagnosis (e.g., autoimmune diseases, primary immunodeficiencies, lymphoproliferative diseases).

II. Patients whose data were kept anonymous by the hospital staff.

The data required and collected from the medical records were:

I. Age

II. Sex

III. Lymph node size

IV. Location

V. Onset (Acute or Chronic)

VI. Etiology

VII. Medical discharge

Furthermore, due to the descriptive nature of the study, which included mixed variables (both qualitative and quantitative), the results are presented in absolute and relative frequencies and percentages. These variables were predominantly qualitative, with a total of 41 variables comparing the etiology of adenomegalic syndrome with its characteristics, including the size and location of the adenomegaly.

All information obtained through the data collection guide was duly recorded and tabulated. This information was then entered into a Microsoft Excel® spreadsheet, where it was subsequently analyzed for each group. The results were represented in graphs and tables, which can be found in the appendixes of this research paper. Finally, as data collection techniques that were used to obtain the information necessary to solve the problem posed, the following were used:[6]

I. Review of primary sources: This technique was used to obtain written and bibliographic information, to obtain additional references to the phenomena at hand, and thus to identify the characteristics of the processes and corroborate or complement statements made by others, or texts that constitute the events under study.

II. Data collection instrument: A structured data collection guide (form) was used. This form was previously designed in accordance with the objectives and operationalization table of variables, and it specifies the elements to be observed.[7]

Results

The results obtained from reviewing the data corresponding to cases diagnosed with adenomegalic syndrome between January 2019 and January 2023, based on the information provided by the administrative staff, are shown below.

Initially, the basic characteristics of the sample were determined, which for the study included sex and age group (Chart 1 and 2).

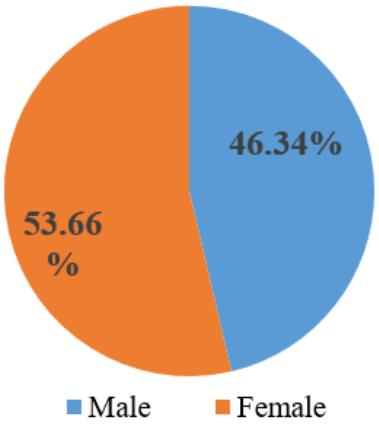

Chart 1 Distribution of the sample according to sex.

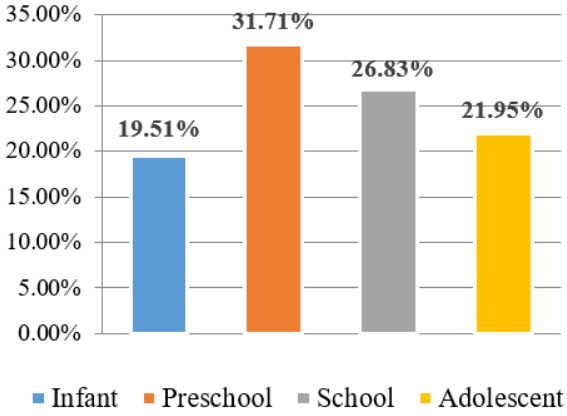

Chart 2 Sample distribution according to age group.

A series of results related to the distribution obtained from the reports of each of the patients according to the diagnostic condition were then evaluated and are shown below as indicated: Chart 3 shows the aspects related to the diameter of the adenomegaly, Chart 4 shows the area where the most relevant lymph node was detected in terms of size upon admission, Chart 5 indicates whether two or more affected regions were present and finally Chart 6 shows the time of diagnosis.

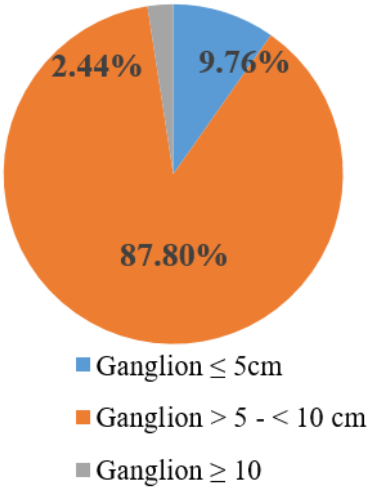

Chart 3 Diameter of the adenomegaly.

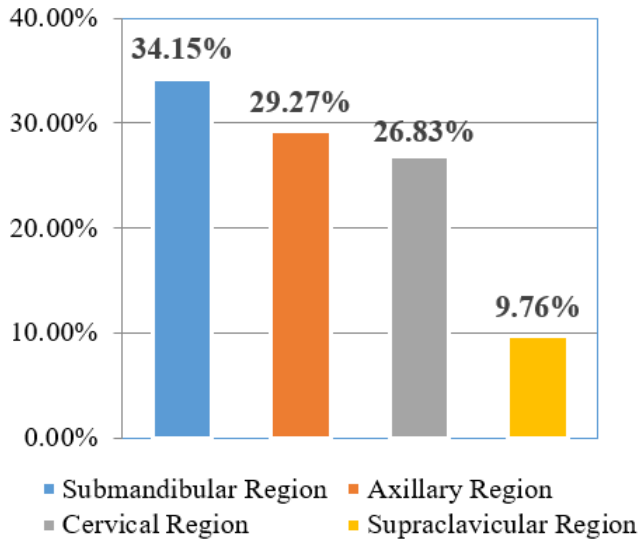

Chart 4 Location of adenomegaly on admission.

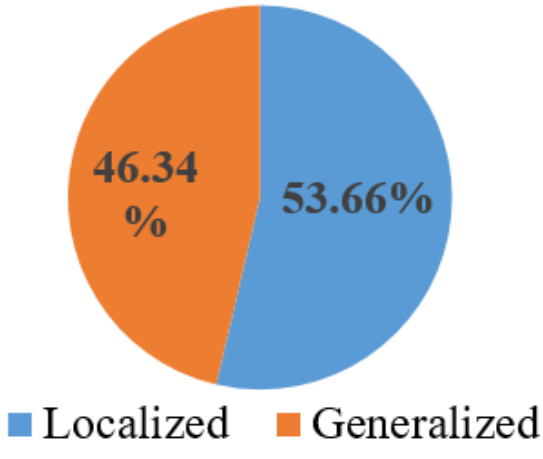

Chart 5 Localized and generalized adenomegaly.

Citation: Figueroa AAG, Brito ANH, Mujica AG. Morbidity associated with infectious factors in adenomegalic syndrome. *Int J Complement Alt Med.* 2025;18(4):140–146. DOI: 10.15406/ijcam.2025.18.00740

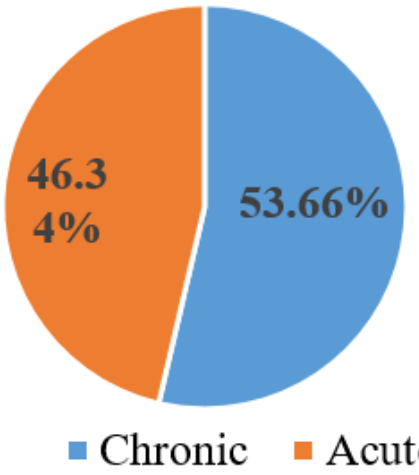

Chart 6 Evolution time.

The values related to the cause of the disease were then established, that is, the etiology presented and shown in chart 7.

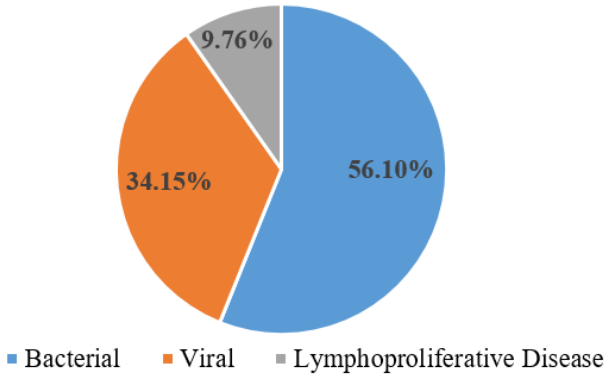

Chart 7 Etiology.

Finally, information was gathered on another key aspect, which is related to the treatments applied to patients with adenomegaly syndrome. Chart 8 shows the types of medications prescribed to the patients.

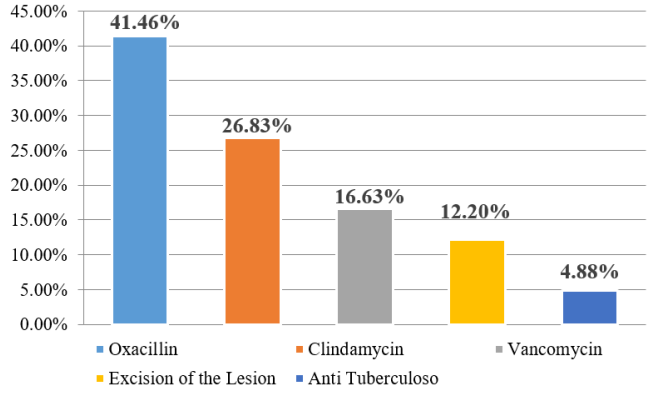

Chart 8 Etiology. Types of medications prescribed to the patients.

Discussion

Having obtained all this information and knowing that adenopathy in pediatrics constitutes a great challenge, knowledge of the wide variety of diseases in which they can be associated is essential to determine the appropriate management for each patient. The evaluation of the incidence of adenomegalic syndrome in the 4 years of study in the healthcare center under study determined that the average age of presentation of the syndrome is around 5.5 years of age, with a slight predominance of males, coinciding with the study by Cordero et al.,[29] and detailing a more prevalent average age at 9 years. It was possible to know, according to the data obtained and shown in the present research work, that the diameter of the adenomegaly with a range between 5 cm and 10 cm resulted in a significantly high proportion, since it was diagnosed in 87.80% of the patients evaluated, also presenting in 56.10%, the cases related to a bacterial etiology (not corroborated bacteriologically) and 34.15% of viral origin (mainly due to infection by Cytomegalovirus and Epstein barr), evaluated in the same way by Sen et al,[30] where they highlight that the prevalence is mostly of non-tumor etiology, specifying that lymphadenopathy is benign in most patients and is most frequently caused by a systemic bacterial or viral infection, corroborating the assertions of the multiple studies that exist on the subject.[31] Localized lymphadenopathy was present in 53.66% of cases, consistent with the studies by Wills et al.,[32] where the majority of pediatric cases are localized (52%) and self-limited (30%), and generalized lymphadenopathy is observed in approximately 18% of patients.

The location, size, and consistency provide sufficient information to guide the correct diagnosis or, if this is not possible, to select the appropriate complementary tests. In the evaluation of the cases studied in this study, it was established that the area where the most affected lymph node was detected upon admission was the submandibular region in 34.15% of cases, with the most common infectious cause. This is in contrast to Berrateran et al.,[33] where the location of cervical adenitis was predominantly unilateral, specifically the left lateral cervical region. Supraclavicular or lower cervical lymphadenopathy is associated with a high risk of cancer in childhood (up to 75%). The prevalence of lymphoproliferative diseases or neoplastic origin, the most serious cause of lymphadenopathy, is quite low among the general population, determined in 4 (9.76%) of the patients treated, mostly for Non-Hodgkin's Lymphoma and located in the supraclavicular region as established in the study by Ali et al.[34]

Conclusion

I. The incidence according to the most affected age group was preschoolers, with an average age of 5 years, and the predominant sex was female.

II. The most common location of adenomegaly at admission was in the submandibular region, with a diameter greater than 5 and less than 10 cm.

III. In most patients, adenomegaly was confined to a specific region (localized).

IV. It was confirmed that, as established by most studies on the subject, the origin of the syndrome in the pediatric population is predominantly infectious. In fact, in the study population, its origin was due to bacterial etiology (not confirmed by culture but by response to antibiotic therapy) or viral etiology (viral serology) in 90.25% of cases, both of which were common in the axillary region.

V. The neoplastic etiology (supraclavicular region) reported a low incidence.

VI. Effective treatment with antibiotic therapy was based on Oxacillin, as seen in chart number eight

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None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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