

Cervical Adenopathy of the Children in Tropical Context: Clinico-Pathological Study

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Research note

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Abstract

Objective The aim of the study was to describe the epidemiological and etiological characteristics of cervical lymphadenopathy in children, for 15 years (2003-2017) at the pathology laboratory of Lomé, Togo. **Results** A total of 221 cervical adenopathies in children were collected. The sex ratio (M/F) of patients was 1.1 and the average age was 9.8 ± 0.3 years. The notion of HIV was found in 69 children. Histologically, the etiologies were infectious (n = 128 cases, 57.9%), tumors (n = 96 cases) and others (n = 8 cases, 1.6%). The main etiology among infections was tuberculosis (n = 84 cases). Tumor etiologies were primitive in 82 cases and secondary in 3 cases. Primary tumors were dominated by lymphomas (n = 74 cases) in its Burkitt form (n = 44 cases). The etiologies of cervical lymphadenopathy in tropical environments are always dominated by infectious agents.

Introduction

Cervical adenopathy in children is a frequent reason for consultation and causes a real diagnostic problem due to differential diagnoses, resolved if the diagnostic procedure is rigorous [1, 2]. This approach requires a careful and clinical examination, which sometimes makes it possible to evoke the origin of these adenopathies before the histological analysis [3]. Knowledge of the etiological model is crucial for therapy [4]. In Africa in general and in Togo in particular, few studies have been carried out on cervical adenopathies in children. The aim of our study was to study the epidemiological and etiological features in cervical adenopathies in Togolese children.

Result

We collected 221 cases of cervical adenopathies representing 41.9% of the total adenopathy of the child. The annual frequency was 14.7 cases on average. The study population consisted of 118 (53.4%) boys and 103 girls (46.6%), with a sex ratio (M/F) of 1.1. The mean age of patient was 9.8 ± 0.3 years; the extremes were 2 months and 14 years. Cervical adenopathies were unilateral in 112 cases, bilateral in 95 cases, and not specified in 14 cases. The notion of HIV was found in 69 children.

Histologically, these adenopathies were infectious (n = 128 cases, 57.9%), tumors (n=85 cases, 38.5%) and other etiologies (n=8 cases, 1.6%). Infectious etiologies were specific (n=96 cases) and non-specific (n=32 cases). For the specific etiologies, tuberculosis represented the main etiology (n = 84 cases) of caseo-follicular type in 78 cases and pure caseate (6 cases). Tuberculosis was diagnosed in 46 males and 38 females. The other specific etiologies were represented in Table I. Tumoral adenopathies were primitive in 82 cases and secondary in 3 cases. Primary tumors were lymphomas (n=74 cases) and leukaemias (n=8 cases). All cases of leukemia were chronic lymphocytic leukemia. Lymphomas were observed at an average age of 10.5 years. These lymphomas were observed in 40 subjects boys (54.1%) and 34 (45.9%) female subjects. Lymphomas were non-Hodgkin in 58 cases (78.4%) and Hodgkin in 16 cases (21.6%). Non-Hodgkin's lymphomas were dominated by the Burkitt type (n = 44 cases). The other types of non-Hodgkin's lymphomas were shown in Table II. The application of the international clinical formulation to

diagnosis showed that it was malignant lymphoma in 44 cases (75.8%), intermediate in 11 cases (19.0%) and low in 3 cases (5.2%). Hodgkin's lymphomas were dominated by the lymphocyte depletion form (8 cases), followed by the scleronodular form (5 cases) and the mixed cellular form (3 cases). The three cases of cervical lymphonode metastasis were alveolar rhabdomyosarcoma (n=2 cases) with primary localization to the mandible and a case of undifferentiated carcinoma of which the primary tumor was localized to the cavum. The third group (other etiologies) was represented by 3 cases of histiocytosis, 3 cases of sarcoidosis and 2 cases of lupus

Discussion

During the 15 years of our study, 221 cases of lymph node biopsy were analyzed at the Laboratory of Pathological Anatomy, showing their relatively low frequency. Careful clinical examination often leads to diagnosis and is often a diagnostic problem that is taken for histological or cytological examination [5, 6]. Cervical adenopathies were observed in both boys and girls; but the slight male predominance reported in this series is also reported by other authors [1, 4]. The mean age of the children in our series is related to the mean ages reported in the literature [3, 7].

Many histological, studies have shown a very high frequency of cervical inflammatory diseases dominated by tuberculosis. Tuberculosis occurs in older children. The positivity of intradermal reaction to tuberculin is in no way specific to active tuberculosis, but merely indicates sensitization by prior contact with the bacillus of Koch [8]. Fine needle cytocytoponction may not be able to detect the pathogen but detect the presence of epithelioid cell granulomas and necrosis, leading to a definitive diagnosis in 73% of cases [9]. Polymerase chain reaction (PCR), although rarely used, is recommended in cases with negative culture results [10]. Histological examination makes the diagnosis when there is a tuberculoid granuloma or giganto-cellular granuloma associated with a caseous necrosis or when the bacillus of Koch is found on the histological sections [10]. The isolated granuloma giganto-cellular is non-specific, since it can be observed in syndromes as diverse as the foreign body, sarcoidosis and connective tissues. Other inflammatory causes were rare, as reported in the literature [8, 11]. Our study showed a predominance of lymphomas, in its Burkitt's form (44%). This prevalence is also reported by numerous studies in Africa where Burkitt's lymphoma accounts for 20-50% of childhood cancers [12, 13]. For example, Burkitt's lymphoma in Côte d'Ivoire, Nigeria and Malawi is the first cancer identified before age 15, with 73%, 31%, and 55% of the cases, respectively [14-16]. The high incidence of Burkitt's lymphoma in some parts of Africa is related to malaria endemicity in these areas. Indeed, the malaria associated with the Epstein-Barr virus would favor the occurrence of Burkitt's lymphoma [17]. Burkitt's lymphoma is also more common in immunocompromised children, whether congenital or acquired (HIV infection, suppressor therapy after marrow or organ transplantation) [17]. However, in western countries, Hodgkin's disease is more common than non-Hodgkin's lymphoma and occurs in older children, around 10 years [18]. The first manifestation is often a cervical adenopathy which quickly becomes very bulky, of firm consistency, elastic. The cytological puncture sometimes allows the diagnosis by showing Sternberg cells [18]. Chronic lymphocytic leukemia has been rare in our series, but very common in the western series where it is the 2nd most common cervical cancers of children [19]. This difference could be explained by

a lack of means of early diagnosis in African countries [19]. Leukemia frequently starts at the neck and carries out a regular and symmetrical macroadenopathy. Diagnosis is based on the blood count, the sternal puncture which shows a massive malignant proliferation of the lymphoid line [19]. Other rare etiologies, particularly sarcoidosis, lupus are exceptionally revealed by isolated cervical adenopathy; there are other cutaneous, pulmonary, mediastinal and hepatosplenic localizations that need to be investigated [20]. The diagnosis is mentioned in particular on the negativity of the IDR and the histology which reveals a granuloma epithelioid gigantocellular without casein or Bacillus of Koch [20]. We observed only 3 cases of cervical metastases, concordant with the data of the literature which stipulates that the metastases in general are very rare head of the child [17].

Limitations

The absence of immunohistochemistry in the laboratory to better investigate certain diagnoses such as lymphoma

List Of Abbreviations

HIV: Human Immunodeficiency Virus

PCR: Polymerase chain reaction

Declarations

Ethics approval and consent to participate

This study received approval from the head of the laboratory department to be conducted. Since it was counting records, patient consent was not required. However during the counting and data collection patient names were not collected in order to preserve confidentiality. This study was approved by the head of the laboratory department of the Sylvanus Olympio University Hospital (Ref N° 14/2019/LAP/CHUSO).

Consent for publication

The Laboratory of Pathological Anatomy of Sylvanus Olympio Teaching Hospital, University of Lomé authorized the publication of this manuscript.

Availability of data and materials

Extracted data are with the authors and available for sharing on request..

Competing interest

The authors declare that they have no competing interests.

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None

Authors' contribution

TD and BD were responsible for the design of the study, undertook the field study, performed data collection, analysis, and interpretation, and wrote the manuscript. TDj, BS, AM, BB, SA, EP, and SD participated in the design of the study, supervised the data collection, and participated in the data analysis. GN is responsible for the overall scientific management of the study, the analysis and interpretation, and preparation of the final manuscript. All authors have read and approved the final manuscript to be submitted for publication.

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Tables

Table I: Distribution of infectious etiology

Type of etiology	Number of Cases (n)	%
Tuberculosis	84	65.6
Histoplasmosis	9	7.0
Toxoplasmosis	2	1.6
Leishmaniasis	1	0.8
Non specific adenites	32	25.0
Total	128	100

Table II: Distribution of non-Hodgkin's lymphoma

International Formulation for Clinical Use	Number of Cases (n)	%
J- Burkitt	44	75.9
F-Diffuse mixed, small and large cells	6	10.4
G- Large cell diffuse	3	5.2
E- Diffusion with small cleaved cells	2	3.4
B- Small cell follicular	2	3.4
A- Diffuse with small lymphocytes	1	1.7
Total	58	100