FINE NEEDLE ASPIRATION CYTOLOGY IN DIAGNOSIS OF HOGDKIN LYMPHOMA: A CASE REPORT AND REVIEW OF LITERATURE

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Introduction

Hodgkin lymphoma (HL) is a malignant pathology of the lymphatic system. In western countries, it is an uncommon pathology with an annual incidence estimated between 20 and 30 new cases per million inhabitants [1]. The pediatric form is even rarer with an annual incidence of three to six cases per million children under the age of 15. In developing countries, childhood HL is much more common, accounting for more than 10% of all pediatric cancers [2].

We report a case of HL in a child while specifying the value of cytological and histological examinations in the diagnostic support.

Keywords: *child, cytology, histology, Hodgkin lymphoma, Madagascar.*

Case report

We report the case of a 7-year-old boy, from Ambatondrazaka, with right lateral cervical swelling (Figure 1) progressed for 2 years. The disease would have started with a swelling of about 1cm in diameter, progressing without fever, without any notion of weight loss, treated by local massages. The lesion became soft and increased in size with the appearance of other satellite nodules. He was treated with injectable antibiotics for three days but without improvement. The child was lost to follow-up. Five months later, the child became feverish and the doctor suspected lymph node tuberculosis, hence his referral to a specialized center in Antananarivo.

The cervical ultrasound showed a large cystic mass and a highly vascularized tissue nodule. The cyst was multiloculated, benign in appearance and measured 105 x 57 x 76 mm, suggesting cystic lymphangioma. It was the cervico-facial CT scan that found a heterogeneous tissue mass, malignant, latero-cervical and right spinal, hypervascularized, without internal calcification, measuring 45x 93mm, with right cervical lymphadenopathy of the spinal chain.

Fine needle aspiration was performed, and the smears were air-drier and stained with Giemsa method or fixed in 95° ethanol and stained with the Papanicoulaou stain. On cytological examination, the cellularity was moderate, identification of classic Reed Sternberg cells characterized by a bilobed nucleus or binucleated (Figure 2a) with inclusion like nucleolus in a reactive inflammatory background including normal appearing lymphocytes, eosinophils, histiocytes, suggesting Hodgkin lymphoma. The diagnostic is confirmed in histological finding of a classical Hodgkin disease (Figure 2b), sclera-nodular variant.

Discussion

In western countries, the annual incidence of Hodgkin lymphoma is 3 to 5.7 per million children, depending on the series [3]. It accounts for 4% of childhood cancers in France, 10,5% in Mali, 8,5% in Togo, 7,8% in the Central African Republic and 2,8% in Nigeria [4]. Epstein Barr Virus has been implicated in the etiology of HD. A higher incidence of association Hodgkin lymphoma/EBV is found in underdeveloped countries in males, in pediatric patients under 10 years of age. Other studies suggest genetic susceptibility to HD and risk factor such as exposure to pesticides or tonsillectomy. However, the different epidemiological studies supporting the existence of multiple risk factors require a profound methodological validation of their result [5].

HL is a pathology predominant in boys (sex ratio: 3 to 4) [4, 6]. In developed countries, it is a condition of young adults and the elderly. The first peak of incidence is between 15 and 30 years [3]. It seems to occur at an earlier age in developing countries. In the series of Amégbor K et al [4] in Togo, the mean age of the patients was 9.7 years, with a peak in frequency between 10 and 14 years. In the study of Harif M et al [6] in Morocco, the mean age is 10.3 years, of which 15% of patients are 5 years old or less. This is also the case with our patient because the disease appeared at the age of 5 years.

Clinically, according to Harif M et al [6], HL is mainly lymph node localization. Lymphadenopathy, in particular cervical lymphadenopathy, is the usual way of revealing the disease. They are painless, mobile and interest one or more groups. The diagnosis can also be evoked before general signs such as fever, night sweats, and general fatigue with weight loss. These signs testify to the progression of the disease and lead to a radiological assessment which will guide the diagnosis [6]. Our patient initially presented a painless cervical swelling gradually increasing in size with the onset of fever. The cervical ultrasound suspected a cystic lymphangioma and the CT scan to a suspected malignant lesion.

The frequency of benign lymphadenopathy in children is thought to be responsible for an often long diagnostic delay, varying from 6 to 12 months [7]. In the series by Khanfir A et al [2], the average delay is 4.5 months and 43% of patients consulted within three months of the onset of the first symptoms. In our case, this period was 24 months, this could be

explained by the practice of the population in rural areas who prefer to consult traditional practitioners before doctors, which will delay the diagnosis. In addition, there are financial problems and limited diagnostic facilities in rural areas.

The indications for fine needle aspiration of lymph node are debated. It is an acceptable procedure for the diagnosis between benign or malignant lesion. Its advantages are that it is a simple and rapid technique to obtain a preliminary diagnosis. It has become an integral part of any initial assessment of patients consulting for persistent lymphadenopathy [8,9]. FNA may be the diagnostic procedure of choice for some high-risk chirurgical candidates or for patients in whom masses are located in relatively inaccessible sites. For most patients, cytology makes it possible to make the correct diagnosis and leads to an appropriate treatment [10]. The diagnosis of lymphoma is frequently difficult by cytology [11]. The diagnostic accuracy for Hodgkin disease reported in the literature varies among authors. According to Das et al [12], the cases suspect by cytology were confirmed by histology in 92% (89/116), 93.5% (58/62) for Fulciniti F et al [13] and 100% (26/26) for Diagnekpo et al [14]. However, this rate is lower in the series of Prasad et al [15] and Çaglar A et al [16] with 30% (9/30) and 32% respectively. In our case, we suspected Hodgkin disease on cytology and the diagnosis was confirmed by histology. In our country, FNA may be an appropriate method for diagnosis because its low cost and the result are rapid to orientate the management.

According to Fulciniti et al, FNA can be used for the diagnosis of Hodgkin disease due to its high diagnostic accuracy. However, they suggest that the use of cytology to diagnose the histological subtypes of Hodgkin lymphoma is not prudent [13]. In the literature, Hodgkin disease is a malignant tumor characterized by pleomorphic lymphocytic and histiocytic infiltrate with multinucleated Reed-Sternberg cells. According to Diagnekpo et al [14], the morphological appearance is often very suggestive except in a few cases [14]. For Çaglar et al [16], the diagnostic of Hodgkin disease by cytology is possible, although there are many diagnostic challenges. It is oriented in presence of Reed Sternberg cells in an inflammatory background. They can be difficult to observe because they generally represent less than 1% of the neoplastic cells and can be masked by the cell environment in the background [12]. In our case, we observed rare mono or binucleated cells reminiscent of Reed Sternberg cells with a polymorphic lymphoid population, thus making it possible to make the diagnosis.

The diagnostic confirmation of Hodgkin disease is based on the pathological examination of a lymph node biopsy [11]. For Harif et al, the specimen establishe La confirmation diagnostique de maladie de Hodgkin repose sur l'examen anatomo-pathologique d'une biopsie ganglionnaire [11]. Selon M.Harif et al, la biopsie doit porter sur l'adénopathie la plus volumineuse ou parmi les plus volumineuses pour éviter les adénopathies inflammatoires non spécifiques accompagnant souvent la maladie [6]. In our case, a fine needle aspiration was performed for the suspected nodule in CT scan.

The diagnostic confirmation of Hodgkin's disease is based on the pathological examination of a lymph node biopsy [11]. According to Harif et al, the biopsy should be on the largest or among the largest lymphadenopathy to avoid the nonspecific inflammatory lymphadenopathy often accompanying the disease [6]. In our case, it was the suspect nodule on the CT scan that was punctured for the cytological examination.

Treatment in developed countries has seen major progress, allowing over 90% of patients to be cured in just a few decades [6]. In developing countries, advances in modern medicine are not always applicable due to insufficient diagnostic resources available to healthcare teams and limited patient resources [6]. Additional material should be obtained for immunocytochemistry to aid in the differential diagnosis with non-Hodgkin lymphomas or other malignant tumors [12]. In all cases, surgical biopsy is necessary to confirm the diagnosis Conclusion

Our study made it possible to reiterate the place of cytology in front of cervical lymphadenopathy. This is a useful test in guiding the diagnosis of Hodgkin lymphoma, while taking into account the different diagnostic challenges. Diagnostic confirmation is histological. Insufficient financial resources for parents and diagnostic resources for caregivers are the main sources of delayed care.

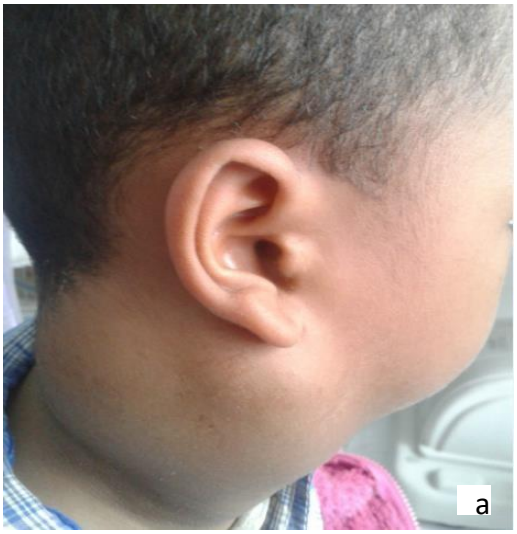

Figure 1 : A right latero-cervical mass, before fine needle aspiration (a) and after biopsy (b). Source: Department of Pathology, Joseph Ravoahangy Andrianavalona University Hospital, Antananarivo, Madagascar.

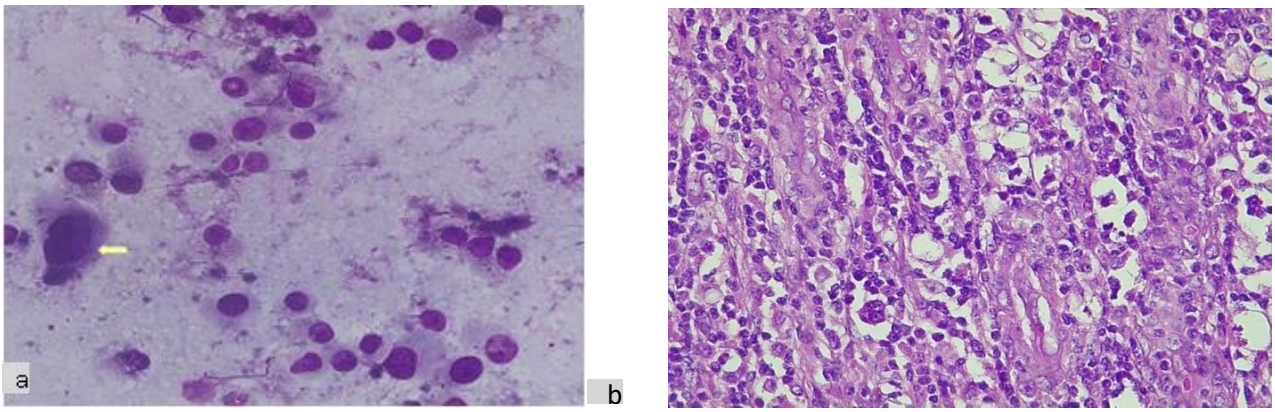

Figure 2 : (a) Suspicious of Hodgkin lymphoma with binucleated cell (Reed Sternberg cell) with inclusion like nucleolus in a reactive inflammatory background. MGG x 400. (b) Hodgkin lymphoma, with Reed Sternberg cell (arrow). HE x 200 Source: Department of Pathology, Joseph Ravoahangy Andrianavalona Hospital, Antananarivo, Madagascar

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