



## Pre-bacute lymphoblastic leukemia: case report and literature review

### *Leucemia aguda linfoblástica Pre-B. Informe de un caso y revisión de la literatura*

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#### ABSTRACT

Leukemia is one of the most common oncological disorders found in the first decade of life. It is characterized by the excessive production of non-functional immature lymphocytic cells, called blasts, which invade the bloodstream causing fatal consequences. Unless timely treated, it is a deadly, severe condition. Its more common manifestations are the following: generalized paleness, spontaneous hemorrhaging, vascular lesions such as bruises and petechiae, general malaise, weight loss, and specific stomatological manifestations such as oral mucosa paleness, leukocyte infiltrate gingivorrhageor apparition of petechiae in some locations of the mouth. The present article documents the case of a five year old girl, diagnosed with B-cell precursor acute lymphoblastic leukemia. The child was subjected to oral rehabilitation under general anesthesia due to the fact that she exhibited multiple infectious foci in her teeth which contraindicated initiation of chemotherapy treatment.

**Key words:** Hospital dentistry, leukemia, chemotherapy, oncologic cancer patients in dentistry.

**Palabras clave:** Odontología hospitalaria, leucemia, quimioterapia, pacientes oncológicos en odontología.

#### RESUMEN

La leucemia se encuentra entre los trastornos oncológicos más comunes en la primera década de vida. Ésta se caracteriza por la producción excesiva de células inmaduras linfocíticas no funcionales denominadas blastos que invaden el torrente sanguíneo produciendo consecuencias fatales. Se trata de un padecimiento grave y mortal si no es tratado oportunamente. Entre sus manifestaciones más comunes se encuentran: la palidez generalizada, las linfadenopatías, hemorragias espontáneas, lesiones vasculares como moretones o petequias, malestar general, pérdida de peso y manifestaciones estomatológicas específicas como palidez de mucosa oral, los infiltrados leucocitarios, gingivorragias o aparición de petequias en algunos sitios de la boca. En el presente artículo se informa el caso de una niña de cinco años de edad diagnosticada con leucemia aguda linfoblástica precursora de células B, quien fue sometida a rehabilitación bucal bajo anestesia general, pues presentaba múltiples focos infecciosos en sus dientes que contraindicaban el inicio de su tratamiento de quimioterapia.

#### INTRODUCTION

Leukemia is the most common oncologic disorder found in childhood. It is characterized by a bone marrow disorder which generates excessive production of immature cells called blasts. In order to be classified, leukemia exhibits great diversity of characteristics based on type of producing cells or maturation degree of these cells.

According to producing cell lineage leukemia can be lymphoblastic or myeloblastic.<sup>1</sup>

Lymphoblastic leukemia is that whose cellularity derives from the lymphoid lineage, that is to say, Lymphocytes B and T respectively, whereas myeloblastic leukemia derives from myeloid lineage cells such as red blood cells, neutrophils, basophils, eosinophils and platelets (*Figure 1*). Thus, according to cell functionality, they can be differentiated into acute and chronic.

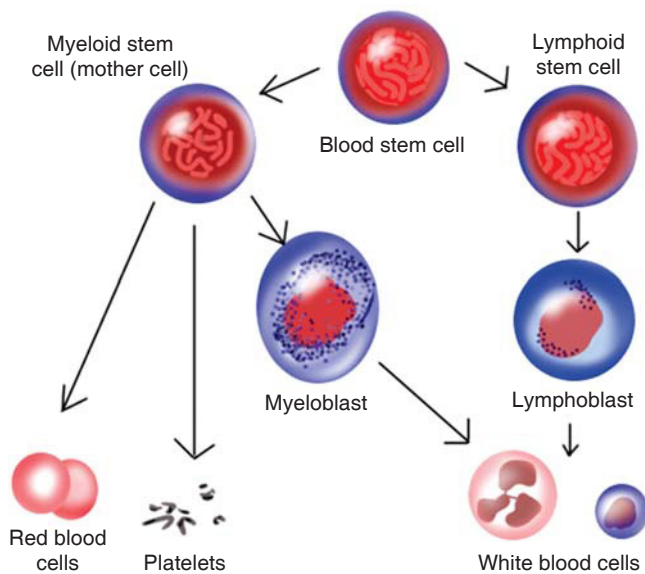
Acute leukemia is characterized by possessing a non-functional cell population, since cells are totally immature, differing from chronic leukemia where cells exhibit greater maturation degrees. From this premise we can infer that acute leukemia is generally more aggressive than chronic leukemia. The origin of this condition is strongly associated to genetic syndromes such as Down's syndrome,<sup>2</sup>

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**Figure 1.** Image showing cells derived from myeloid and lymphoid lineages in healthy circumstances.

Lifraumeni's syndrome, Klinefelter syndrome, Wiskitt Aldrich disease, Fanconi anemia, early age exposition to ionizing radiations and chemical agents as well as specific cytogenetic predisposition such as presence of Philadelphia chromosome.<sup>1,2</sup> Lymphoblastic acute leukemia precursor of B cells is the most commonly found in Mexican pediatric population.

### CLINICAL CASE

A five year old female, coming from León, Guanajuato, with previous diagnosis of B cell precursor acute lymphoblastic leukemia was referred to receive dental treatment. The oncologist deemed dental treatment urgent so as to achieve dental rehabilitation previous to initiation of chemotherapy treatment (*Figure 2*). Medical history revealed that the patient had begun with generalized paleness, weakness, bone-ache, generalized petechiae in the back, thorax and limbs. After initial pediatric assessment she was immediately referred to the oncologist on suspicion of leukemia. Due to the nil cooperation of the patient, to the complexity of her condition, as well as the urgency present, it was decided to rehabilitate the patient under general anesthesia (*Figure 3*).

Before dental treatment under general anesthesia, relevant studies were conducted to prepare the patient pre-operatively. Laboratory tests of blood count and clotting times were requested.

Blood count tests revealed anemia with 9 g/dL hemoglobin, neutropenia with neutrophil count of 500/mm<sup>3</sup> and thrombocytopenia with platelet count of 50,000/mm<sup>3</sup>.



**Figure 2.** Initial photograph of the patient treated in this case, diagnosed with B-lymphoblastic acute leukemia.



**Figure 3.** Patient's initial circumstances in the mouth, favoring the decision of an intervention under general anesthesia.

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