QUANTITATIVE REAL-TIME PCR (RT-QPCR) COMPARING THE RELATIVE EXPRESSION LEVELS OF GENE TRANSCRIPTS INVOLVED IN A CRYPTIC THREE-WAY TRANSLOCATION T (9;11;19): AN ORIGINAL CASE OF AN INFANT WITH DISMAL PROGNOSIS ACUTE LYMPHOBLASTIC LEUKEMIA

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Objectives: *KMT2A* gene aberrations are more frequent in infants less than one year (yr) of age, accounting for about 70% of acute lymphoblastic leukemia (ALL) patients, and about 30% are diagnosed with acute myeloid leukemia (AML). The most common abnormality found in these patients is the translocation t(11;19)(q23;p13.3), corresponding to 22% of *KMT2A* rearranged (*KMT2A*-r) positive cases. Related literature data shows that infants <1 yr with t(11;19)(q23;p13.3) present with up to 50% additional chromosomal changes. In this context, Meyer and coworkers (2007) showed that 25% of the patients with t(11;19)(q23;p13.3) and the *KMT2A-MLLT1* fusion transcript presented three-way or more complex fusions, associated with a worse prognosis. In such cases, *KMT2A*-r must be assessed by more sensible techniques combining high-resolution cytogenetics and molecular approaches, providing a precise characterization for the correct choices in risk-adapted therapy. In this work, we show a cryptic three-way translocation t(9;11;19) harboring a *KMT2A-MLLT1* and the novel *SEC16A-KMT2A* fusion, associated with *SEC16A* and *KMT2A* aberrant expression levels, in an infant with B-ALL presenting a poor prognosis. **Material and methods:** At diagnosis, a bone marrow sample from a 2-month-old boy was referred to the Laboratory of Cytogenetics – INCA. Immunophenotyping showed 94% of blast cells presenting lymphoid morphology and the diagnosis of pro-B lymphoblastic, being treated under a high-risk BFM INTERFANT 06 protocol. The patient could not experience any treatment response and died due to an early relapse. G-banding and FISH were performed on bone marrow and peripheral blood samples under standard protocols. LDI-PCR assays were used to identify the *KMT2A* partner genes and their corresponding breakpoints. RT-qPCR analyses were performed to verify the levels of transcript expression of genes involved in the rearrangements. **Results:** G-banding showed the karyotype: 47,XY,+X,t(9;11)(q34;q23). The FISH analysis revealed a *KMT2A*-r. Molecular cytogenetic analyses revealed a cryptic three-way translocation. The LDI-PCR sequencing revealed a *KMT2A-MLLT1* and the novel out-of-frame *SEC16A-KMT2A* . RT-qPCR showed standard expression levels for *MLLT1*, whereas revealed a *SEC16A* reduced expression (75%), and *KMT2A* overexpression (3-fold). **Discussion:** To relate the abovementioned data to the patient's clinical presentation, we hypothesized relation between the expression profiles of the fusion transcripts and the patient's dismal prognosis. Thus, we compared the relative expression among three different *KMT2A* regions, donor X patient. The first region, spanning exons 3 and 4, is present in both samples and was attributed the value 1. Spanning exons 11 and 12 (*SEC16A-KMT2A* fusion region), despite its lower expression in the patient, no significant difference was observed. On the other hand, spanning exons 14 and 15 (downstream transcript of the *KMT2A* fusion) was significantly lower expressed in the patient (0.4-fold). These results confirm that increased *KMT2A* expression in the patient depends on the wild-type allele and that the *KMT2A* transcripts with fusions are probably expressed. **Conclusion:** Our case illustrates the importance of molecular tests in selecting cases for further investigations of posttranscriptional regulation mechanisms, which could open perspectives regarding novel therapeutic approaches for poor prognosis childhood leukemias.

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RELATO DE CASO – TROMBOOCITOPENIA SECUNDÁRIA A SÍNDROME DE KASABACH-MERRITT

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Objetivo: Uma grande variedade de distúrbios pode levar à trombocitopenia (definida como contagem de plaquetas <150.000 mm^3 em crianças. Descreveremos um caso de trombocitopenia na infância secundária a Síndrome de Kasabach-Merritt. **Descrição do caso:** Masculino, 6 meses, encaminhado para esclarecer quadro de trombocitopenia e anemia detectada há 7 dias. Ao exame apresentava palidez cutâneo-mucosa++/4, equimoses nos membros inferiores e presença de uma massa subcutânea, sem telangectasia na região dorsal paravertebral esquerda. Não foi observado adenopatias ou organomegalias. O hemograma mostrava hemoglobina 6 g/dL hematócrito 20% leucócitos 5100 com 1% bastões, 21% segmentados, 4% eosinófilos, 1% basófilos, 69% segmentados, 4% monócitos plaquetas 9000 mm^3, volume plaquetário médio 8,3 fL. Tempo de protrombina e tromboplasitna parcial ativado estavam normais. Fibrinogênio 110. Ressonância magnética mostrou extensa lesão infiltrativa na região para-vertebral bilateral (com maior componente à esquerda) que envolve o músculo psoas esquerdo e retroperitônio a esquerda e região retocrural, de 8,5×5,7×5,3 cm. A biopsia da lesão foi compatível com Hemangiondotelioma Kaposiforme.Inicialmente foi submetida a reposição de hemácias e plaquetas, e como o tumor foi considerado irresecável, iniciamos metilprednisolona na dose de 2 mg/kg/dia há 5 dias. **Discussão:** O passo inicial na avaliação da suspeita