P-050 - REPORT OF A MPS TYPE VII PATIENT INVESTIGATED WITH TANDEM MASS SPECTROMETRY AND TARGETED NEXT GENERATION SEQUENCING

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INTRODUCTION: Mucopolysaccharidosis type VII (MPS VII), or Sly syndrome, is an ultra-rare autosomal recessive condition caused by storage of glycosaminoglycans (GAGs) which results from the deficient activity of the enzyme β–glucuronidase, encoded by the GUSB gene. ***OBJECTIVE:*** To report a MPS VII patient investigated with newer biochemical and molecular methods. ***MATERIALS AND METHODS:*** An eight years old patient from Bahia state was investigated, due to the presence of growth retardation, infiltrated face, corneal opacity, joint stiffness, gibbus deformity, neurological regression with cognitive impairment, respiratory distress and multiple dysostosis. Urine, blood, and dried blood spots (DBS) were collected for biochemical (enzyme assays by fluorimetry; evaluation of GAGs by colorimetry, electrophoresis, and liquid chromatography/tandem mass spectrometry - LC/TMS), and molecular analysis (targeted next-generation sequencing-TGNS, using a gene panel including the genes associated to MPS I, II, VI and VII). ***RESULTS:*** Low activity of β-glucuronidase was detected in DBS, plasma and leucocytes; increased concentration of urinary GAGs was observed in the colorimetric assay, with presence of dermatan-sulfate (DS) and heparan-sulfate (HS) detected in the electrophoresis. LC/TMS revealed high levels of DS (20,18 ng/mg creat, with average age-matched controls = 6,15), HS-0S (22 ng/mg of creat, with average age-matched controls = 1,02 ng/mg) and HS-NS (6,41 ng/mg of creat, with average age-matched controls = 0,43). TGNS identified the pathogenic variant c.526C>T/p.Leu176Phe (HGMD CM950598) in homozygosis in the GUSB gene. ***CONCLUSIONS:*** Although our MPS Brazil Network already diagnosed 23 MPS VII Brazilian patients since 1982, this is the first report of a MPS VII patient in whom the GAGs analysis was performed with LC/TMS and the abnormal result was confirmed by TGNS.