v. 2, n. 74, 2022

International Journal of Health Science

IDIOPATHIC INTRACRANIAL HYPERTENSION IN A 12-YEAR-OLD CHILD AFTER COVID-19 INFECTION: CASE REPORT

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Abstract: Idiopathic intracranial hypertension (IIH), also known as Pseudotumor cerebri, is considered a neurological disorder of unknown cause, which generates symptoms of increased intracranial pressure, despite the absence of cerebrospinal fluid cytological alteration and/or brain lesions and masses. The risk factors are divided between the prepubertal and pubertal phases, and during the second there is a difference in risk when analyzing the variables sex and weight. In the literature, there is a case report of Pediatric Multisystem Inflammatory Syndrome (MIS) and IIH, after SARS-CoV-2 infection in the pediatric population. The objective is to report a case of few similar descriptions in the literature, considering to demonstrate the relationship of the pseudotumor as a consequence of the infection by SARS-CoV-2, a recent disease in the world scenario. A retrospective analysis of the patient's chart was performed and articles from the last 5 years were searched in the database (PubMed, Cochrane and UpToDate). This is K.A.B.S., 12 years old, BMI: 32.6Kg/m², with left exotropia associated with diplopia, initially with voluntary control, starting in the last week of June 2021, evolving with gradual worsening in recent weeks. July 2021. RT PCR performed on 06/21 positive for COVID. Papilledema was evidenced after ophthalmological evaluation and referred to the emergency department of the Hospital Metropolitano Odilon Behrens (HOB). Picture exams showed no changes, lumbar puncture with opening pressure of 25.5cmH20, without signs of infection. Once the clinical diagnosis of Pseudotumor or IIH was made, it was decided to start Acetazolamide 1000mg/day, progressing with resolution of the condition. Idiopathic intracranial hypertension or pseudotumor is a disease with a low incidence and presents alarm signs and symptoms for a central nervous system disorder. Due to the lack of specific symptoms, other diagnoses must be excluded, based on laboratory and Picture tests. When analyzing the risk factors, the patient in question had two relevant characteristics: marked weight gain, with a BMI of 32.6 kg/m² and infection with COVID-19 before the onset of symptoms. As evidenced, obesity is a risk factor for the development of pseudotumor, especially during puberty. Idiopathic intracranial hypertension interferes with the patient's quality of life. Considering that there is a modifiable risk factor, changes in eating habits and physical activity must be carried out. However, for a pandemic, care must be taken with the use of masks, hand hygiene and avoid agglomerations, as COVID-19 can also be associated with neurological problems after the acute phase of the disease. Further studies on the subject are encouraged.

Keywords: Intracranial hypertension, pseudotumor, children, obesity, COVID-19 infection.

INTRODUCTION

According to AVNI, YOSHA-ORPAZ, KONEN et al. (2020), idiopathic intracranial hypertension (IIH), also known as Pseudotumor cerebri, is considered a neurological disorder of unknown cause, which generates symptoms of increased intracranial pressure, without CSF cytological alteration, absence of lesions or brain masses. As described by AYLWARD and REEM (2017) risk factors are divided between prepubertal and pubertal stages. During puberty, there is a difference in risk when analyzing the variables of sex and weight. At puberty, women of childbearing age are at increased risk of developing the disease compared to men, as are obese children over twelve years of age. The authors also report an incidence of 0.9 per 100,000 adults in the United States. Signs and symptoms are nausea, vomiting, headache, visual changes (papilledema, diplopia,

exotropia and/or abducens or oculomotor nerve palsy), opening pressure greater than 18cmH20 for children under eight years of age and greater than or equal to 25cmH2O for older children. of eight years.

Faced with the pandemic caused by SARS-CoV-2, VERKUIL, LIU, BRAHMA, AVERY (2020), described a case report of a 14-year-old child, with adequate weight for age, who presented focal neurological changes suggestive of increased blood pressure. intracranial pressure (bilateral papilledema, exotropia – abducens nerve palsy, left optic disc hemorrhage), initiated after acute respiratory failure in a case of Pediatric Multisystem Inflammatory Syndrome (PIMS), and diagnosed with Pseudotumor cerebri. The tests suggested that the syndrome and focal symptoms started two months after the first flu outbreaks, being confirmed by the serology for coronavirus. Resolution of papilledema was evidenced 2 months after treatment with Acetazolamide.

CASE DESCRIPTION

K.A.B.S, 12 years old, born in Belo Horizonte, started with left exotropia, associated with diplopia, at first with voluntary control, started in the last week of June 2021, with gradual worsening in the last weeks of July 2021. On 27/ 07/21, sought an ophthalmologic evaluation due to an increase in the intensity of the symptoms. During physical examination, moderate disc hyperemia and mild edema were observed in both eyes, a hypothesis of intermittent acute exotropia to be clarified. As a result, he was referred to the Odilon Behrens Metropolitan Hospital (HOB), in Belo Horizonte, Minas Gerais, for diagnostic clarification. The patient was admitted to the emergency room of the HOB on 07/27, hemodynamically stable, requiring computed tomography of the skull, angiotomography, magnetic resonance imaging of the skull, laboratory review and cerebrospinal fluid puncture (Opening pressure: 25.5cmH2O) - results described below. Patient reports improvement in symptoms after examination (clearer vision, with only intermittent diplopia), but maintains exotropia on the left, with no other changes on neurological examination, new complaints or intercurrences. He denies changes in visual acuity, headache, fever, trauma, recent weight gain, vomiting or other symptoms. Appetite and physiological habits preserved. RT-PCR positive for COVID-19 on 06/21. Laboratory review (blood count, kidney and liver function) without changes; cerebrospinal fluid analysis showed no signs of infection or intracranial bleeding, in the culture of the material there was no bacterial or fungal growth, and negative research for Mycobaterium tuberculosis and Venereal Disease Research Laboratory (V.D.R.L.) was negative. Cranial computed tomography, performed on 07/27, did not show intra- or extra-axial expansive lesions, CML, free cisterns (images 3a and 3b). On Angio tomography of the skull, performed on the same day as the tomography, without alterations (Picture 4a and 4b). Cranial magnetic resonance imaging was performed on 08/08, which showed no edema or intracranial expansive lesion (Picture 5a and 5b). On examination, weight 88.9 kg, BMI: 32.6 kg/m² (Z-score > +3), height: 1.65 m (Z-score: between +1 and +2), active, reactive, Glasgow 15, actively moves all four limbs, without signs of meningeal irritation. Isochoric pupils, photoreagent, papilledema on the left, intermittent exotropia on the left (Picture 1). Past history: denies comorbidities, allergies or continuous use of medications. Hospitalizations at 2 years of age due to pneumonia and Guillain Barré Syndrome. Born by cesarean section, 35 weeks, hospitalized for 5 days due to SIC jaundice. During hospitalization, Acetazolamide 500mg

was started every 12 hours, with resolution of symptoms (images 2a and 2b).

Pictures:

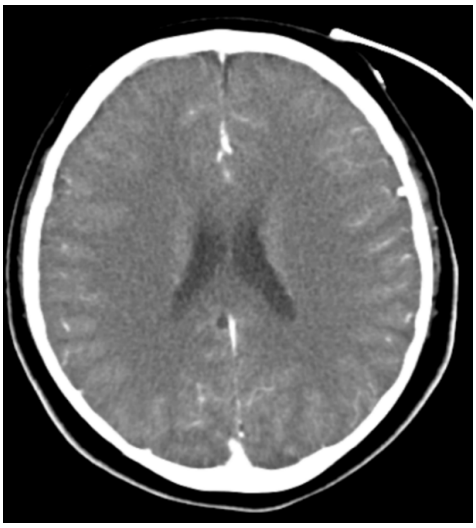
Picture 1: left exotropia

Picture 2a: after starting treatment. Absence of exotropia on the left

Picture 2b: after starting treatment. Absence of exotropia on the left

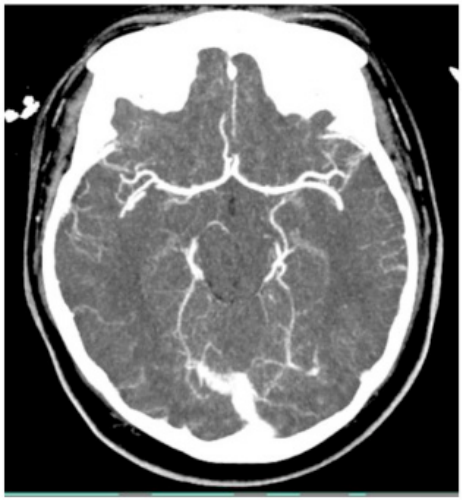
Picture exams:

Picture 3a: CT scan of the skull

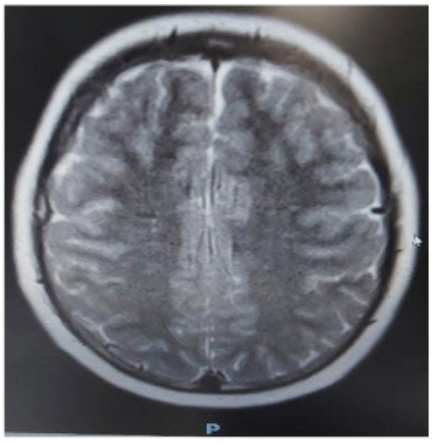


Picture 3b: CT scan of the skull

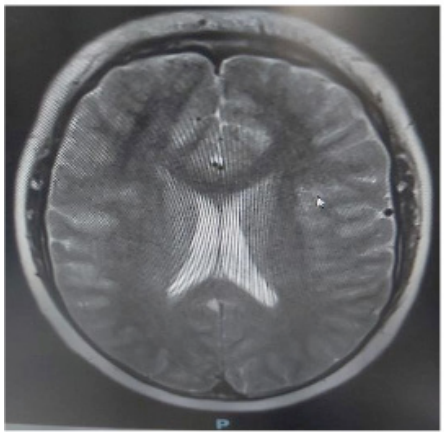
Picture 4a: Cranial CT angiography



Picture 4b: Cranial CT angiography



Picture 5a: Cranial magnetic resonance imaging.



Picture 5b: cranial magnetic resonance imaging.

METHODS

A retrospective analysis of the patient's chart was performed for data collection. Review articles and clinical trials that addressed pseudotumor/idiopathic intracranial hypertension in children and whether there was a relationship with obesity and coranavirus infection were searched. The research sites used were: PubMed, Cochrane and UpToDate. Articles with 5 years or less of publication were analyzed.

DISCUSSION

Idiopathic intracranial hypertension or pseudotumor is a disease with a low incidence, and alarming signs and symptoms for central nervous system disorder. As it has no specific characteristic, other diagnoses must be excluded. Therefore, imaging tests – Tomography and/or MRI of the skull – and laboratory tests (blood count, PCR, blood culture, lumbar puncture with research for viruses, bacteria and fungi), in order to elucidate the diagnosis. All these tests were performed on the patient in question, with results within the normal range. However, there were two relevant characteristics: marked weight gain, with a BMI of 32.6 kg/m² and infection with COVID-19 before the onset of symptoms. As evidenced, obesity is a risk factor for the development of pseudotumor, especially during puberty. This factor can be modified with changes in eating habits and physical activity.

CONCLUSION

Idiopathic intracranial hypertension interferes with the patient's quality of life. Considering that there is a modifiable risk factor, changes in eating habits and physical activity are important to prevent obesity and, consequently, reduce the risk of pseudotumor. However, for a pandemic, care must be taken with the use of masks, hand hygiene and avoidance of crowds, as, as demonstrated, COVID-19 can also be associated with neurological problems after the acute phase of the disease. Further studies on the subject are encouraged.

REFERENCES

AVNI, Maya Muhlbauer, YOSHA-ORPAZ, Naama, KONEN,Osnat *et al.* Association of pediatric idiopathic intracranial hypertension with olfactory performance. **European Journal of Paediatric Neurology.** https://doi.org/10.1016/j.ejpn.2020.09.006. Acessado em 03 de agosto de 2021.

AYLWARD, Shawn C. e REEM, Rachel E. Pediatric Intracranial Hypertension. **Pediatric Neurology** 2016; cap. 66, p.32-43. 2016 Elsevier Inc. DOI: https://doi.org/10.1016/j.pediatrneurol.2016.08.010. Acessado em 03 de agosto de 2021.

LEE, Andrew G e WALL, Michael. Idiopathic intracranial hypertension (pseudotumor cerebri): Epidemiology and pathogenesis. **UpToDate®.** Acessado em www.uptodate.com, no dia 03 de agosto de 2021.

VERKUIL, Lana D., LIU, Grant T., BRAHMA, Venkatesh L., AVERY, Robert A. Pseudotumor cerbri syndrome associated with MIS-C: a case report. **The Lancet revista *online*.** Agosto, 2020. Volume 393, ISSUE 10250, p. 532. Elsevier Inc. DOI: https://doi.org/10.1016/S0140-6736(20)31725-6. Acessado em 09 de agosto de 2021.