Case Report

iMedPub Journals
www.imedpub.com

Medical Case Reports
ISSN 2471-8041

2023
Vol.9 No.8:327

Hemiplegic Migraine Episode in Ten Years Old Patient

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Received date: August 17, 2023, Manuscript No. IPMCRS-23-17717; **Editor assigned date:** August 21, 2023, PreQC No. IPMCRS-23-17717 (PQ); **Reviewed date:** September 04, 2023, QC No. IPMCRS-23-17717; **Revised date:** September 11, 2023, Manuscript No. IPMCRS-23-17717 (R); **Published date:** September 18, 2023, DOI: 10.36648/2471-8041.9.8.327

Citation: Zabalawi AI, AI-Shahed QN (2023) Hemiplegic Migraine Episode in Ten Years Old Patient. Med Case Rep Vol.9 No.8: 327.

Abstract

Ten years old patient, known case of obesity, renal stones and insulin resistance, developed 5 episodes of migraine headache attacks over two years duration, approximately three months duration between each attack. All attacks were triggered by cell phone gaming and lack of sleep. Headache presentation was similar in all episodes. Characterized by throbbing, moderate severity headache over the right temple, lasting five to six hours, associated with nausea without vomiting, sensitivity to sound and right eye blind spots. The most recent headache attack was complicated. Patient presented with similar headache symptoms as the previous attacks but it was associated with confusion, vomiting, dysarthria, right side facial droop, right upper and lower limb reduced sensation and weakness, for one hour duration. Patient was transferred to emergency medical services instantly, to do complete investigations of headache with hemiplegia presentation. Complete blood workup and brain magnetic resonance and venography scans were done, results were insignificant. This case presents, report of hemiplegic migraine episode in a ten years old patient.

Keywords: Headache; Migraine; Hemiplegia

Introduction

Migraine is one of the most common neurological complains in practice. Migraine is a type of headache characterized by throbbing, pulsating pain on the head. Headache is usually associated with nausea, vomiting, increased sensitivity to light, noise and odors. Migraine attacks can be debilitating, affecting patients' quality of life, social participation and education. Migraine is considered a benign headache, which diagnosis is based on detailed history and clinical exam. Brain imaging is rarely needed in benign headache conditions, unless there is a suspicion of structural cause for headache [1,2]. Migraine can subdivide depending on whether there is an aura or not and frequency of attacks. Migraines can have a complicated presentation, which patient might present with focal neurological symptoms such as dysarthria, vision loss, ataxia, hemiparesis, or altered level of consciousness. Hemiplegic migraine is a rare subtype of migraine with aura which affects both adult and pediatric age groups [3,4]. It can be inherited or happen spontaneously. The principal symptoms are headache and transient motor symptoms, which resolve spontaneously in one hour duration. Other aura symptoms might be part of the presentation but the motor impairment is key point in the diagnosis and differentiation from other subtypes of migraine [5-8].

According to the International Classification of Headache Disorders (ICHD) (3rd edition), criteria for pediatric migraine

Patient experience at least 5 attacks of headache, lasts 2-72 hrs (when untreated or unsuccessfully treated) and not better accounted for by another diagnosis or medication over use. Headache has ≥ 2 of the following 4 characteristics: Bilateral location, pulsating quality, moderate or severe pain intensity, aggravation by or causing avoidance of routine physical activity (*e.g.,* walking or climbing stairs). During headache, the patient has ≥ 1 of the following: Nausea and/or vomiting and photophobia.

Criteria for migraine with aura; headache which fulfills the migraine criteria and ≥ 1 of these reversible symptoms; visual, retinal, motor, sensory, brainstem, speech and or language. At least three of the following six characteristics: At least one aura symptom spreads gradually over ≥ 5 min, two or more aura symptoms occur in succession, each individual aura symptom lasts 5-60 min, at least one aura symptom is unilateral, at least one aura symptom is positive, the aura is accompanied with or followed by headache within 60 min [9,10].

Case Report

Physical exam

General inspection: Obese, confused, no jaundice, pallor, cyanosis, enlarged lymph nodes, skin rash.

Vital signs

Temperature: 36.8°C.

Blood pressure: 120/80 mmHg (when lying down), 125/85 mmHg (after standing up).

Heart rate: 70/min.

Respiratory rate: 14.

Neuro: Atraumatic normocephalic, pupils are equal, reacts sluggishly to light, dysarthria, slow finger-nose-test, intact cranial nerves 2-12, except 7th cranial nerve showing asymmetrical facial muscle tone, right facial droop.

Right upper limb: Atraumatic, no evident deformity, no tremors, power 3/5, reduced perception of fine and position sense, intact sharp and vibration sense, DTR +2.

Right lower limb: Atraumatic, no evident deformity, no tremor, no swelling, power 3/5, reduced perception of fine and position sense, intact sharp and vibration sense, DTR +2.

CVS: No facial rash-increased cardiac dullness, normal S1/S2, no pathologic murmurs, rubs.

Respiratory: Trachea central, good chest expansion, resonant percussion, good air entry bilaterally, no added sounds.

Abdomen: Soft lax, no distension or fullness, no tenderness of the abdomen, no hepato spleen megaly and bowel sounds are regular.

Investigations

Table 1 shows the Alanine aminotransferase 22 U/L, Albumin 5.0 g/dl, Total protein serum 8.1 g/dl, Alkaline phosphatase serum 263 U/L, Bilirubin total 0.4 mg/dL, Bilirubin direct 0.2 mg/dL, Globulin 3.1 g/dL, Albumin/Globulin ratio 1.6 ratio, Creatinine serum 0.50 L mg/dL, Urea serum 17.1 mg/dL, Sodium serum 138 mmol/L, Potassium serum 4.5 mmol/L, Chloride serum 105 mmol/L, Calcium serum 10.1 mg/dL, Random blood glucose 104 mg/dl, Phosphorus serum 4.2 mg/dl.

Table 1: Chemistry tests.

Chemistry Tests			
Test	**Results**	**Unit**	**References range**
Alanine aminotransferase	22	U/L	0-55
Albumin	5	g/dL	3.3-5.0
Total protein serum	8.1	g/dL	6.4-8.5
Alkaline phosphatase	263	U/L	-
Bilirubin total	0.4	mg/dL	0.2-1.2
Bilirubin direct	0.2	mg/dL	0.1-0.15
Globulin	3.1	g/dl	2.0-3.5
Albumin/Globulin ratio	1.6	Ratio	1.1-2.5
Creatinine serum	0.50 L	mg/dL	0.62-1.0
Urea serum	17.1	mg/dL	15.0-36.0
Sodium serum	138	mmol/L	138-145
Potassium serum	4.5	mmol/L	3.4-4.7
Chloride serum	105	mmol/L	98-107
Calcium serum	10.1	mmol/L	8.9-10.3
Random blood glucose	104	mg/dL	70-150
Phosphorus serum	4.2	mg/dL	2.9-5.7

Table 2 shows Hemoglobin (HGB) 14.8 g/dL, Hematocrit (HCT) 43.7%, Red Blood Cells (RBC) 5.4 × 10^6/µL, Mean Cell Volume (MCV) 81.1 fL, Mean Corpuscular Hemoglobin (MCH) 27.5 pg/cell, Mean Corpuscular Hemoglobin Concentration (MCHC) 33.9 g/dL, Red Blood Cell Distribution Width (RDW) 13.7%, Platelets 302 × 10^3/µL, White Blood Cells (WBC) 6.3 × 10^3/µL.

Table 2: Haematology and coagulation.

Hematology and Coagulation			
CBC and Differential			
Test	**Results**	**Units**	**Normal values**
Hemoglobin (HGB)	14.8	g/dL	12.0-15.0
Hematocrit (HCT)	43.7	%	35.0-49.0
Red Blood Cells (RBC)	5.4	10^6/µL	4.0-5.4
Mean Cell Volume (MCV)	81.1	fL	80.0-94.0
Mean Corpuscular Hemoglobin (MCH)	27.5	pg/cell	26.0-32.0
Mean Corpuscular Hemoglobin Concentration (MCHC)	33.9	g/dL	32.0-36.0
Red Blood Cell Distribution Width (RDW)	13.7	%	11.5-14.5
Platelets	302	10^3/µL	150-400
White Blood Cells (WBC)	6.3	10^3/µL	4.5-13.5
Differential Count			
Neutrophils%	55.4	%	35.0-65.0
Lymphocytes%	39	%	23.00-53.00
Monocytes%	4.17	%	2.00-11.00
Eosinophils%	0.88 L	%	1.00-4.00
Basophils%	0.547	%	0-2.000
Neutrophils#	3.5	10^3/µL	1.6-8.8
Lymphocytes#	2.47	10^3/µL	1.040-7.160
Monocytes#	0.26	10^3/µL	0.09-1.49
Eosinophils#	0.06	10^3/µL	0.05-0.54
Basophils%	0.035	10^3/µL	0-0.740
MPV	8.7	fL	7.2-11.1
NRBC	0	%WBC	-
IG#	0	-	-
IG%	0	-	-
NR/W	0	-	-

Brain MRI: Multiplanar T1W, T2W, FLAIR, SWI, DWI/ADC map and SWI images throughout the brain were obtained.

Findings: The CSF spaces are of normal size. No masses or extra axial fluid collections. No midline shifts. No bleeding. There

is no evidence of infarction or abnormal signal intensities. The major vascular voids appear unremarkable. The gray white matter differentiation is normal. The sella and parasellar region is unremarkable. Conclusion -No visible abnormalities.

Cerebral MRV findings: The major intracranial venous sinuses, the visualized superficial cortical and deep vein are unremarkable with no evidence of thrombosis.

Discussion

Approaching cases of headache needs detailed history taking, headache diary revision and complete physical exam to figure the nature of the complaint. In some cases, blood workup, brain scans, Electroencephalogram (EEG), Cerebrospinal Fluid (CSF) study and genetic testing might be needed if there is suspicion of brain organic conditions or familial hemiplegic migraine. Hemiplegic migraine is a rare subtype of headaches, which is there is no clear incidental percentages due to its rarity. This patient had a history of multiple headache episodes, fulfilling migraine diagnostic criteria. She had one episode of headache with the same fashion but complicated with confusion, vomiting, dysarthria, right side facial droop, right upper and lower limb reduced sensation and weakness symptoms for one hour duration, which resolved spontaneously. This scenario made hemiplegic migraine episode the most likely on our differential list, as there is no personal or family history of seizure nor migraine condition, besides metabolic and structural brain conditions were excluded after a comprehensive blood workup and brain scans normal results, completed in the emergency room [11-13]. Patient didn't receive any treatment at the emergency and was directed by attending pediatric neurologist and pain specialist to use simple analgesics if needed for headache episodes, consume regular healthy meals, reduce exposure for smart screens, compliance with a regular sleeping routine and to follow-up after two months for reassessment.

Conclusion

Complicated migraine might present in pediatric age group. Keeping a good diary of symptoms is important to have a clear informative history, facilitating comparison between attacks and identifying complicated scenario. Complete blood workup, brain scans, Electroencephalogram (EEG), Cerebrospinal Fluid (CSF) study and genetic testing might be needed to exclude organic and genetic brain conditions.

Data Availability Statement

The original contributions presented in the study are included in the article.

Supplementary Material

Further inquiries can be directed to the corresponding author.

Ethics Statement

The patient and participants provided their written informed consent to participate in this case report.

Author Contributions

The authors listed have made a substantial, direct and intellectual contribution to the work and approved it for publication.

Conflict of Interest

The authors declare that the report was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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