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Case Report

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Spontaneous Intracranial Hypotension

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ABSTRACT

Spontaneous intracranial hypotension is not uncommon disease after lumbar puncture due to CSF Dural leak causing decrease CSF volume and CSF pressure below normal range (6-24 mm water) Headache usually affects both occipts, but it could be migrainous or tension headache like, it is characterized by occurring on standing from reaccompany from bed, usually abrupt on onset after one minute or more and usually settled by reaccompany, other symptoms like neck pain, dizziness, tinnitus, decreased hearing, nausea, vomiting, occasionally it could affect one side of the head, It could also be manifested by increased sensitivity to light or sounds, patients like to isolate in a dark room which let clinicians to investigate or even treat empirically as meningitis, We will present one of our patients who is athlete soccer player who suffered from postural headache and facial pain who received few investigations and have to resign from playing until got the right diagnosis after 8 months and would be able to return back to play again, We also will review the literatures about the recent advance on spontaneous intracranial hypotension.

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24 years goalkeeper seeked medical advice for having nausea, headache and tinnitus after walking up from bed, Patient was examined by the team doctor, he was afebrile, supine blood pressure 110/80mm/hg Standing blood pressure 120/80 His supine heart rate 90/min regular, pulse on standing 100 /. min Normal cardiac sounds and no murmurs, chest and abdominal examination were unremarkable, Neurological examination showed normal cranial nerves, strength, sensation, reflexes and coordination in upper and lower limps were unremarkable, his gait was unstable as he could not tandem gait, patient was admitted in the hospital for investigation, the following blood tests were done,FBC, ESR, CRP, urea, electrolytes, Metabolic panel including Mg, Phosphate, Hco3, HBA1c, fasting blood sugar, liver function test, carbohydrate deficient transferrin (for chronic alcohol use) Lipid profile, autoimmune screen, Vasculitis screen, Blood Culture, procalcitonin, methionine, methyl malonic acid, B12, Folate, Thiamine, Vitamin C level, tumor markers, CT head and spine with and without contrast, audiogram, ECG, Echocardiogram, cardiac MR, ultrasound abdomen and pelvis, Skeletal survey for all bones, thyroid and parathyroid function, 9 am steroid, cynacthen test, All after mentioned tests results came negative or normal, patient was discharged and advised to have vestibular physiotherapy, patient had home vestibular therapy for three weeks with no improvement, Nausea and vomiting persisted, head and facial pain increased after walking up from sleep which let the patient to be isolated at home and gave up his job as a soccer player, neck pain and tinnitus got worse, Patient seen by his GP , repeated examination was unremarkable apart from increase in heart rate with standing from 100 - 105/min and regular , in consultation with a specialist , patient given a diagnosis of postural orthostatic tachycardia and adviced to start on propranolol 10 mg BD in addition to physiotherapy, which did not help his symptoms , patient was admitted to the hospital under neurology service, lumbar puncture revealed acellular CSF with normal protein and CSF pressure of 4 cm water(reference 6 -25 cm/water), dynamic CT myelogram confirmed egress of CSF from the subarachnoid space into the epidural space at the level T2/3 patient was treated with fluids and coffee with no response , in the third day , he was taken to theater and received blood patch under fluoroscopy, All patient symptoms were abated, and he was able to be discharged home in the same day.

Discussion

Symptoms of spontaneous intracranial hypotension are debilitating and underdiagnosed, it is caused by CSF leak from the spinal Dural space which could be due to a Dural tear, or leakage from meningeal diverticula or from Dural ectasia which is not uncommon in ankylosing spondylitis, and rarely could be due to spinal CSF venous fistula, this caused fall in opening pressure of cerebrospinal fluid causing sagging of pain sensitive structures causing few heterogenous symptoms like orthostatic tinnitus headache, palpitation, nausea, vomiting, dizziness, auditory disturbance, nuchal pain, positional thunderclap headache, diplopia sensonironal deafness, impaired tandem gait, fascial pain, symptoms of posterior reversable Leukoencephalopathy, (PRES) or reversable cerebral vasoconstrictor syndrome(RCVS), positional vertigo, non-convulsive status epilepticus in one report, few patients with subarachnoid hemorrhage develop secondary intracranial hypotension, Patients with Sagging of frontal and temporal lobes could develop altered behavior, personality changes and executive dysfunction and receive a diagnosis of frontotemporal dementia, Few patients with spontaneous intracranial hypotension have underlying connective tissue disease, Ehlers Donald Syndrome and Marfan syndrome were reported with the disease, spinal oseaphytes and calcifications can penetrate dura causing pachymeningitis syndrome with Dural enhancement, secondary to venous dilation

in the cranium due to low CSF pressure, Bariatric surgery had been reported as the second most common cause after connective tissue disease To cause intracranial hypotension after excluding the electrolytes disturbances, Other differential diagnoses which needed to be ruled are Chiari malformation, positional vertigo, postural orthostatic tachycardia, Pathognomonic signs are pachymeningeal enhancement, tonsillar ectopia, venous distension, pituitary congestion - non-traumatic subdural hematoma, Low -lying cerebellar tonsils, spinal pachymeningeal enhancement, spinel meningeal diverticula, dilated epidural veins, Nuclear cisternography are no longer recommended for investigation, epidural blood patch is the standard of care, reported risk with high volume patch are arachnoiditis, chemical meningitis and tethered cord, especially if the blood injected intrathecally, Patient should be treated conservative first with bed rest, fluids, abdominal binder and coffee, patients who failed to improve with conventional management should be receiving autologous blood patch obtained via venipuncture and injected into lumbar spine epidural space, most patients have immediate cure and discharge home same day, due to increase in CSF pressure due to epidural hematoma, identification of the CSF leak is not required to achieve successful response, Patients who did not respond to the first blood patch, needs to have a dedicated CT myelography or MRI with contrast to localize the site of leaking and treatment with blood patch or glue injection directed to the site of leak.

In Conclusion

Spontaneous intracranial hypotension is a cause of heterogenous symptoms in the form of postural headache , nausea, vomiting, vertigo, tinnitus, impaired hearing, underlying collagen disease, lumbar puncture and spinal injury are risk factors, most patients improve with conventional measures , some patients will need to receive a blood patch , patients who did not improve with a lumbar blood patch , should be investigated with MRI Myelogram or CT Myelogram to rule out other causes and identify the site of leak to be directly treated with blood patch or Glue.

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