

Pheochromocytoma Mimicking as Post Dural Puncture Headache

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Abstract: Headache following any spinal anaesthesia is unduly labelled as PDPH (Post Dural Puncture Headache). In depth analysis of the patient and the differential diagnosis will unmask underlying cause of headache. Here we are presenting an interesting case of headache which was wrongly labelled as PDPH which turned out to be pheochromocytoma after correct evaluation.

Keywords: Post Dural Puncture Headache (PDPH), Pheochromocytoma, Cerebrospinal fluid

INTRODUCTION

PDPH can occur following accidental or intentional lumbar puncture. Carrie and Collins defined PDPH as “a headache occurring after dural puncture that has a significant effect on the patient’s post-operative wellbeing i.e. a headache which is not only postural but also continues for more than 24 hours at any level of intensity or so severe at any time that the patient is unable to maintain an upright position” [1]. But all the headache following lumbar puncture should not be termed as PDPH. Persistent headache needs clinical evaluation, correct diagnosis and apt management. We describe a patient who underwent emergency open appendicectomy, who developed headache in the postoperative period which was falsely being diagnosed as PDPH when correct evaluation of patient was done, it turned out to be pheochromocytoma.

CASE REPORT

A 22 year old female patient underwent emergency appendicectomy under spinal anaesthesia with 25 gauge quincke’s needle. Intraoperative period was uneventful and the patient was shifted to postoperative ward. Patient developed headache in the 1st post-operative day for which patient was reviewed. She complained of head ache in the occipital region. Patient did not give history of vomiting, fever and neck rigidity.

On Examination of the patient: Patient was conscious, oriented to time, place and person. She was

not anaemic, her pulse rate was 108 beats per minute regular in rhythm with good volume, and Blood-pressure was 130/80 mm Hg in supine position in left upper limb. Systemic examination of the patient was done and was found to be normal. Post-operative investigations like complete hemogram, blood urea, serum creatinine and serum electrolytes were found to be normal.

Provisionally diagnosis of PDPH was made and conservative medications with Non-Steroidal Anti Inflammatory drugs were advised. Patient was advised bed rest for few days and to maintain adequate hydration. Patient was reexamined on 2nd postoperative day morning, and was found to have elevated blood pressure of about 150/96mmHg and above on more than one occasion. Patient also complained of headache in the frontal region with blurring of vision. All her blood investigations were within normal limits. Neurophysician, Ophthalmologist, Cardiologist opinions were sought. Ophthalmologist found patient to have grade 1 hypertensive retinopathy. Cardiologist suggested tablet Amlodipine 5 mg twice daily and ECHO. Subsequently ECHO was reported to be normal. Neurophysician opinion – no signs of meningism. CT Brain was taken and it was found to be normal. On the same day evening patient’s blood pressure was elevated to 166/106 mmHg and headache was also worsened. Ultra sound abdomen revealed right supra renal mass with no other radiological abnormalities. On suspicion of Pheochromocytoma CT scan and biochemical markers were advised.

CT scan showed defined mass of 4*3 cm in supra renal region with normal adreno-renal vasculature. Urine VMA -83.31 mg for 24 hours normal- upto 15 mg for 24 hours.

Patient was diagnosed to have Right-Pheochromocytoma. On Retrospective evaluation of case records showed that the patient had the following pre op findings: patient was admitted by 11pm with complaints of abdominal pain, vomiting, fever. She gave no other major medical or surgical illness in the past. She had right iliac fossa tenderness. Because of emergency condition, pelvic ultrasonogram was done, probe tenderness was elicited with the portable ultrasound machine and patient was uncooperative for detailed sonologic examination. Preoperative examination revealed, patient to be moderately built, with 155 cm height and not anemic. Her blood pressure was 130/74mmHg. Blood investigations were within normal limits with the Hb-11gm/dl, RBS-138mg/dl, Blood urea- 28mg/dl, Serum creatinine-0.9mg/dl.

Patient was taken under American Society of Anesthesiologist risk stratification IE. She received subarachnoid block with 3ml of 0.5% bupivacaine heavy using 25G quincke needle at L3-L4 space in right lateral position. No history of multiple attempts on obtaining the lumbar puncture. The level of block obtained during intraoperative period was upto T6 and blood pressure varied from 110/70 mm of Hg to 130/90 mm of Hg, since no hypotension was noted vasopressors were not used. Patient underwent the surgery uneventfully and shifted to postop ward.

After diagnosis of pheochromocytoma, patient was optimized with the following drugs: For control of hypertension patient was put on T. Amlodipine 10 mg bid, T. Enalapril 2.5mg HS. Patient was pre optimized with alpha blockers followed by beta blockers, anxiolytics were also advised for the patient.

Patient was optimized for one month and underwent Right adrenalectomy under combined Epidural anesthesia with General Anesthesia uneventfully in our hospital.

DISCUSSION

Postdural puncture headache was the first recognized complication of regional anaesthesia, by Dr. August Bier in 1898 [2]. It usually manifests within 48 hours following a lumbar tap. Incidence of PDPH was estimated to be between 30-50% following diagnostic interventions of epidural or subarachnoid space.

Pathophysiology of PDPH

Dural rent needs to be sealed if not there is loss of CSF and this is proven by the spinal surgeries where

surgeon closes the dural rent [2]. Contrary to the belief, the dural repair by fibroblastic proliferation occurs not from the edges but by the surrounding tissues, especially the pial vessels [3]. This is of correlation that the incidence of PDPH is less after dural bloody tap [4].

The rate of CSF loss through the dural perforation is generally greater than the rate of CSF production (0.35 ml/ min), particularly with needle sizes larger than 25G [5]. Intracranial pressure is reduced from its normal range of 5-15 cm of water to less than 4 cm of water. There are two main hypothesis for the development of headache. First, the intracranial hypotension leading to sagging of the cranial contents which are pain sensitive leads on to headache. According to the second hypothesis, based on the Monro Kellie hypothesis, loss of CSF leads to compensatory venodilation. This venodilation and increased intracranial blood cause headache [2].

Diagnosis

History of headache with postural variation, neck pain aggravated by neck movement with antecedent dural puncture should arouse clinical suspicion of PDPH. In case of doubt diagnostic lumbar tap will reveal low CSF opening pressure or dry tap with raised CSF proteins and lymphocytosis in CSF. An MRI scan may reveal diffuse dural enhancement, with evidence of a sagging brain; descent of the brain, optic chiasma, and brain stem; obliteration of the basilar cisterns; and enlargement of the pituitary gland [2,6].

Factors predisposing to the development of postdural puncture headache are young age, female gender, pregnancy, previous history of headache, usage of larger gauge cutting needles for lumbar puncture, inserting cutting spinal needles with the bevel perpendicular to the long axis of the spine and multiple dural rents.

Clinical Presentation

PDPH appears to have an interesting association with other headaches. Patients who report having had a headache within the week prior to lumbar puncture have been observed to have a higher incidence of PDPH. Only those with chronic bilateral tension-type headaches were found to be at increased risk. Headache is the predominant complaint. The headache is described as severe, searing and spreading like hot metal. It is most commonly present over the frontal and occipital areas radiating to the neck and shoulders. Neck stiffness may be present. The pain is aggravated by upright posture, and head movement and relieved by lying down. An increase in the severity of the headache on standing is the characteristic feature of post-dural puncture headache. Other symptoms associated with dural puncture headache include nausea, vomiting, hearing loss, tinnitus, vertigo, dizziness and paresthesia

of the scalp, and myalgia. Visual disturbances such as diplopia or cortical blindness have been reported.

Treatment

Allowing the patient to be in supine position or over hydrating the patient is not mandated [7]. Patients should be allowed to assume posture which they are maximally comfortable. Abdominal binders can be used to compress the abdomen to raise the intra-abdominal pressure thereby increasing the epidural and hence intracranial pressures. Pharmacologic treatment should be aimed to replace the lost CSF, prevent further loss of CSF or reduce the cerebral vasodilation [2]. Primarily due to the self-limited nature of PDPH, the optimal time course of treatment has not been well-defined. Patient should be advocated 24–48 hours of conservative therapy. Patients should be reassured, parenteral opioids, NSAIDs can be advised. Opioid drugs doesn't have an added advantage over NSAIDs. Oral or intravenous caffeine, Epidural blood patch, epidural saline or dextran administration can also be tried.

Differential Diagnosis

Postdural puncture headache can coexist with headache of any other etiology. Non postdural puncture headache can also occur following dural puncture. Serious causes of non-postdural puncture headache are intracranial hematoma, dural venous sinus thrombosis, meningitis, preeclampsia or eclampsia in pregnant women.

CONCLUSION

Post-dural puncture headache should not to be treated lightly. PDPH is a diagnosis which can be taken after ruling out the other causes of headaches. Proper evaluation of patient's records and examination will reveal the true etiology.

Abbreviations: PDPH: Post Dural Puncture Headache, CSF: Cerebro Spinal Fluid, BD: bis in die or twice a day, HS: horasomni or before sleep

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