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UNRAVELING THE UNFORESEEN: ENCOUNTERING PITUITARY APOPLEXY POST-SPINAL ANESTHESIA

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ABSTRACT This case report explores a rare yet critical postoperative complication - pituitary apoplexy following combined spinal and epidural anesthesia. The case underscores the diagnostic challenge in differentiating between pituitary apoplexy and post-dural puncture headache (PDPH), emphasizing the importance of timely recognition and management to prevent adverse outcomes. The report highlights the need for heightened clinical vigilance and multidisciplinary collaboration in such atypical presentations.

KEYWORDS : Pitutary apoplexy, pitutary adenoma, post dural puncture headache, spinal anaesthesia

INTRODUCTION:

Pituitary apoplexy is a rare but life-threatening condition characterized by hemorrhage or infarction of the pituitary gland, usually occuring within pitutary adenomas(1). They commonly manifest with neurological symptoms and endocrine dysfunction. In contrast, post-dural puncture headache (PDPH) is a complication of neuraxial anesthesia, resulting from cerebrospinal fluid (CSF) leakage. These patients present with headaches, nausea and visual disturbances. Even with overlapping symptoms, the intersection of these two clinical entities is exceptionally rare, making diagnosis challenging.

This case report presents a unique scenario where a patient, initially managed for suspected PDPH following spinal anesthesia, was ultimately diagnosed with pituitary apoplexy preventing dreadful permanent complications. The report aims to shed light on this uncommon association to enhance awareness regarding rare complications, asymptomatic co-existing diseases and emphasizes the critical role of accurate differentiation in clinical decision-making.

Case Presentation:

A 55-year-old male underwent gracilis muscle transposition to address anal sphincter dysfunction, necessitated by anal incontinence following a road traffic accident. His surgical history included pelvic fracture repair under spinal anesthesia, left radio-ulnar K-wiring under regional anesthesia, and laparoscopic appendectomy. He had no significant comorbidities.

The patient received combined spinal and epidural anesthesia under aseptic precautions. The epidural space was identified in the first attempt using an 18G Tuohy needle at 4 cm via the loss-of-resistance technique, and an epidural catheter was placed insitu with the catheter fixed on skin at the 10 cm mark. Spinal anesthesia was administered in the fist attempt at the L3-L4 space using a 25G Quincke needle with 3.2 mL of 0.5% heavy bupivacaine and 0.2 mL of buprenorphine as an adjuvant. The patient's systolic blood pressure was in the range of 90-110mmHg throughout the surgery and the blood loss was 300ml. The intraoperative course was uneventful with the patient having no complaints.

Postoperatively, over the next 18hrs, the patient developed two episodes of vomiting, persistent bifrontal headaches, photophobia, and blurring of vision, raising suspicion of PDPH. He was hemodynamically stable with BP of 110/60 mmhg and no tachycardia. He was managed with hydration, prolonged supination, coffee, paracetamol, and pregabalin administration. However, as symptoms persisted even in the supine position for two to three days, further evaluation was undertaken.

MRI could not be performed because of incompatible implant from previous surgery, hence a CT scan of the head and neck was done which revealed a 2.2 x 2.4 x 3.3 cm heterogeneously hypodense lesion with peripheral enhancement as seen in Figure 1, indenting the optic chiasm and displacing the roof of the third ventricle, indicative of pituitary apoplexy.

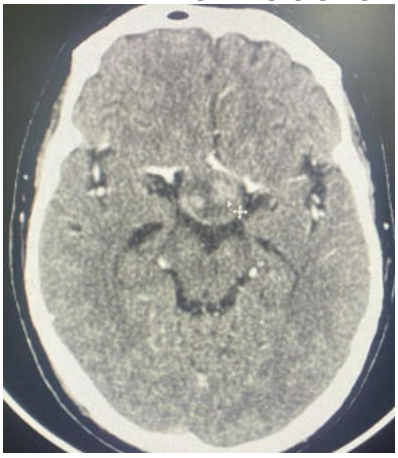

Figure 1- A Computed Tomography (CT) Axial image showing a well defined hypodense lesion suggestive of pitutary adenoma with multiple hyperdense areas suggestive of haemorrhages as shown by the arrowhead.

Neurosurgical consultation was sought, and the patient underwent transnasal transsphenoidal surgical excision of the pituitary macroadenoma under general anesthesia. The posterior surface of the sella was drilled, dura opened, and the macroadenoma removed. The patient was extubated postoperatively and monitored in the surgical ICU for three days. His symptoms resolved immediately after surgery.

DISCUSSION:

The complaints of headache post general surgery conducted under neuraxial anaesthesia usually alert the anaesthetist towards post dural puncture headache. Onset occurs within 3 days of the neuraxial procedure in around 90% of the cases(2).

It is severe in nature and fronto-occipital in distribution in most of the cases. The pathophysiology at play is mainly due to excessive leak of cerebrospinal fluid (CSF) through the dural rent. Traction on the intracranial structures due to reduced CSF levels is the most accepted explanation. The other explanation is given by the Monro-Kellie doctrine which explains the compensatory venodilation post CSF loss(2). Pain increases on movement and is relieved by lying down. Other frequent manifestations are nausea,vomiting, vertigo, tinnitus and visual disturbances like diplopia. Established management includes supine positioning and avoiding hypotension while maintaining adequate hydration. Supportive treatment with coffee and gabapentine have noted to have positive outcomes with epidural blood patch required in severe cases (3).

Absence of any improvement in our case post instituting all these measures reinforced the need for further evaluation. Other differentials which may masquerade as PDPH are intracranial heamorrhage(ICH), cerebral venous sinus thrombosis(CVST), intracranial tumours, meningitis or pituitary apoplexy(2).

Pituitary apoplexy is a rare complication in cases with pituitary adenomas. It can, however, be the first manifestation of an aymptomatic pituitary adenoma, as in our patient(4). Symptoms usually manifest within a few hours, but may even be delayed, with 14 days the mean delay for presentation. Sudden onset, severe thunder clap headache is a ubiquitous symptom, often causing it to be misdiagnosed as sub-arachnoid haematoma(SAH). The headache is frequently retro-orbital or frontal in distribution. The patients develop visual symptoms like diplopia, hemianopia or other visual field defects, and cranial nerve pasies are also commonly noted. Endocrine abnormalities like hyponatremia or hypopituitarism are present in many cases. If not diagnosed and treated promptly, the patient may have permanent neurological damage or even end up in coma. Sudden death, as a result of acute adrenal insufficiency, is the most dreaded complication. MRI is the gold standard for diagnosis, with a full hormonal panel evaluation supporting the diagnosis.

A growing pitutary adenoma has multiple sites of micro-angiogenesis. Even slight changes in intracranial pressures(ICP) may cause infraction or rupture of these friable vessels within an adenomatous pituitary. These changes may occur secondary to transient decline in systemic pressures post neuraxial blockade which may trigger a slight fall in ICP.

Endoscopic trans-sphenoidal surgery, with supplemental hormone replacement therapy if necessary, is deemed to be the preferred treatment in these cases. Surgery should be conducted as early as possible to minimise any permanent residual symptoms(5). Early surgeries have good results. Conservative approach is not an effective management strategy.

This case underscores the necessity of maintaining a high index of suspicion for rarer complications, particularly when a patient's clinical course deviates from the traditional clinical picture. Pitutary apoplexy should always be a differential for PDPH in the anaesthetist's mind whenever neurological, visual deficits resistant to PDPH treatment occur or when they are accompanied with endocrine imbalances(1). The successful management of this patient highlights the importance of considering rarer differential diagnosis, thorough evaluation and prompt initiation of accurate therapy for securing the best outcome for the patient.

CONCLUSION:

This case report highlights an unusual presentation of pituitary macroadenoma manifesting post neuraxial anaesthesia. Initially misdiagnosed as PDPH, the case underscores the necessity of thorough evaluating other differential diagnosis and interdisciplinary collaboration for optimal patient outcomes. Subtle differences in the clinical picture, if observed with a keen eye, can nudge the clinician towards the correct diagnosis. Timely recognition and appropriate intervention leads to a successful resolution, emphasizing the critical role of clinical vigilance in postoperative care.

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