Double whammy after pituitary surgery

Sir,

The management of pituitary adenomas highlights the need of a shared care approach between neurosurgeons and endocrinologists.[1] Pneumocephalus is the presence of air inside the cranium and tension pneumocephalus occurs when air entry is one way with no portal to exit.[2] Tension pneumocephalus with coexisting dyselectrolytemia is unusual after transsphenoidal adenomectomy.

A 52-year-old male patient presented with sudden headache associated with vomiting and diplopia of 2 days duration. He denied loss of consciousness, seizures, and had no features to suggest hormone excess or deficiency. Dynamic magnetic resonance imaging (MRI) study of the sella and pituitary gland showed well-defined intrasellar mass of 2.8 × 2.2 × 3.1 cm with mixed intensity, extending into suprasellar cistern and compressing the optic chiasm [Figure 1a, b].

His investigations revealed post glucose growth hormone (GH) suppressed to less than 0.1 ng/mL, insulin-like growth factor 1 (IGF1) 121 ng/mL (normal 90-340), serum prolactin 4 ng/mL (normal 0-15), thyroid stimulating hormone 1.5 mIU/L (normal 0.3-4.5), free triiodothyronine 2.26 pmol/L (normal 2.3-4.2), and free thyroxine 0.6 ng/dL (normal 0.9-1.76). Other investigations revealed luteinizing hormone (LH) 0.6 IU/L (normal 0-7), follicle stimulating hormone (FSH) 0.2 IU/L (normal 2-10), total testosterone 145 ng/dL (normal 300-1100), 8 a.m. cortisol 19.6 μg/dL (normal 5-25), and adrenocorticotropic hormone (ACTH) 8.4 pmol/L (normal 4.5-22). Ophthalmic examination showed right 3rd cranial nerve palsy. He was diagnosed as a case of nonfunctional pituitary macroadenoma with hypopituitarism and underwent transsphenoidal excision of macroadenoma after adequate levothyroxine replacement.

On postoperative day 3, lumbar drain was placed for a persisting nasal drip of CSF. After 3 days, the patient had sudden polyuria (4 L in 8 h), decrease in central venous pressure (CVP), weight loss, and dull sensorium. His serum sodium (126 meq/L), urine spot sodium (122 meq/L), plasma B-natriuretic peptide BNP (140 pg/mL), plasma osmolality (282 mOsm/L), and urine osmolality (440 mOsm/L) led to the diagnosis of cerebral salt wasting syndrome (CSWS). He was treated with normal saline (2.5-5 mL/kg/h) and hydrocortisone (50 mg 6 hourly). His sensorium worsened further coupled with seizures, despite adequate improvement in hydration and sodium (137 meq/L). Computed tomography (CT) scan brain revealed tension pneumocephalus with compression of the cerebral parenchyma [Figure 2]. A right frontal subdural drain was placed and the CSF leak was surgically repaired after 3 days. Unfortunately, the patient succumbed to a nosocomial lung infection after 72 h.

The temporal profile of postoperative complications in our patient suggests the presentation of tension pneumocephalus as CSWS. CSF rhinorrhea following pituitary surgery is seen in about 10% of cases and is the starting point of the trouble in our patient. Persisting CSF rhinorrhea requires management like repacking of sella and intermittent lumbar drain to decrease the CSF pressure.[3] The placement of a lumbar drain possibly leads to the development of tension pneumocephalus. Hyponatremia is a common feature after

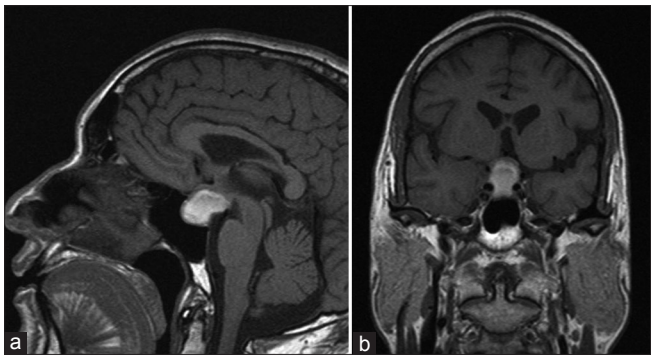

Figure 1: MRI showing pituitary macroadenoma in (a) sagittal and (b) coronal sections

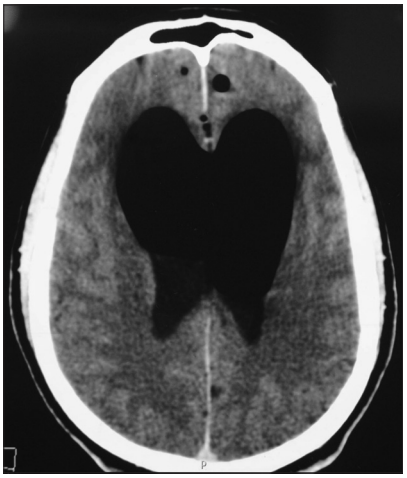

Figure 2: CT scan showing marked air in lateral ventricles and parafalcine area

pituitary surgery.[4] It is essential to differentiate between SIADH and CSWS as fluid restriction, demeclocycline, and vaptans are used in the former, whereas saline replacement with fludrocortisone is the management for CSWS.

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Quick Response Code:	Website: www.ijem.in
	DOI: 10.4103/2230-8210.111682