

Vision Loss after Pituitary Adenoma Resection from Postoperative PRES: A Case Report Nicolas Villelli BS; Daniel Satoshi Ikeda MD; Leo F.S. Ditzel Filho MD; Eric Sauvageau MD; Daniel M. Prevedello MD Department of Neurosurgery of the Wexner Medical Center At The Ohio State University, Columbus, Ohio, 43210, USA

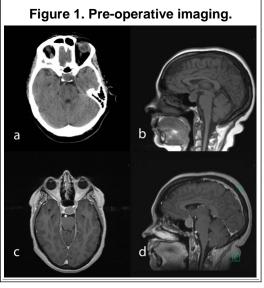


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**Introduction:** First described in 1996, Posterior Reversible Encephalopathy Syndrome (PRES) is characterized by headache, altered mental status, visual changes, and seizure, as well as cerebral imaging that demonstrates extensive white-matter changes consistent with cerebral edema without infarction. The syndrome has been described in association with eclampsia, hypertensive emergency, or exposure to

immunosuppressive medications. Reports of PRES in neurosurgical patients include: spinal cord injury, cranial tumor resection, and hemodynamic augmentation following subarachnoid hemorrhage. This is the first description of a patient developing PRES following an endonasal endoscopic removal of a pituitary macroadenoma.



A axial head CT (a) demonstrates the pituitary adenoma with expansion of the sella turcica. Nonenhanced sagittal T1 MR (b), enhanced axial (c) and sagittal (d) T1 MR images delineate an enhancing adenoma.

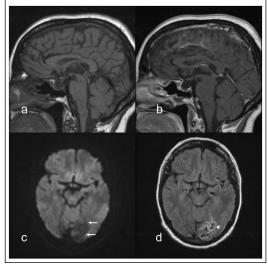
**Methods:** This case was studied with preand post-operative computed tomography (CT) and magnetic resonance imaging (MRI). Diagnostic cerebral arteriography was performed post-operatively. Visual fields were performed at post-operative baseline and 6 months.

**Results:** The patient, a 59-year-old female, presented with one month history of intermittent confusion, speech difficulties, as well as bitemporal hemianopsia. Preoperative MRI showed a pituitary macroadenoma. The patient subsequently underwent an endonasal endoscopic removal of the tumor with no intraoperative complications. After an uneventful initial recovery, the patient experienced sudden onset of emesis, confusion, and vision loss associated with severe hypertension. Emergent CT demonstrated normal post-operative changes, with no sign of hematoma or infarction. MRI revealed FLAIR changes in the posterior lobes and thalamus, consistent with PRES. DCA demonstrated no vascular abnormalities. The patient rapidly became obtunded. The patient's primary treatment was blood pressure control. By the fifth post-operative day, the patient was awake and following commands. Within ten days, she was neurologically intact except for a right homonymous hemianopsia. Follow-up MRI revealed resolution of PRES with an area of small infarction in the left occipital lobe.

## Figure 2. Post-operative imaging.

An post-op CT(A,B) shows expected changes without evidence of hemorrhage. Immediate DWI(c) and FLAIR(d) MR images show no ischemia, however, there is edema in the occipital lobes (white arrows). AP(e) and lat(f) arteriograms of the posterior circulation demonstrate no evidence of PCA occlusion or vasculopathy (black arrowheads). A repeat MR performed 3 days after surgery shows evidence of ischemia in the left occipital lobe (white arrowhead) on DWI(g) and increased edema on FLAIR(h).

Figure 3. Follow-up imaging at three months.



Pre (a) and post (b) Gadolinium enhanced sagittal T1 MR images redemonstrate a successful resection of the pituitary adenoma, while DWI (c) and FLAIR (d) images demonstrate a chronic infarction (white arrows) with evolving encephalomalacia (white arrowhead), respectively.

**Conclusions:** Although rare in neurosurgical patients, PRES must be considered in a patient who develops acute vision loss and mental status changes associated with hypertension following endoscopic endonasal macroadenoma resection. The primary treatment for these patients is blood pressure control.

**Learning Objectives** To make practitioners aware of the presentation posterior reversible encephalopathy syndrome following endoscopic endonasal surgery for skull base lesions.

