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Postoperative Idiopathic Posterior Reversible Encephalopathy Syndrome- A Rare Case Report

Dharmendra Dugar[1], Debajyoti Mohanty[1], Arijit Saha[1], Hari S. Mahobia[1*] and R. Manju[1]

[1]Department of General Surgery, All India Institute of Medical Science, Raipur, India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Background: Posterior reversible encephalopathy syndrome (PRES) is characterized by headache, altered mental functioning, seizures and loss of vision associated with posterior leukoencephalopathy on the imaging studies. The clinical symptom complex as well as the abnormalities in imaging usually resolves within a week with effective management. We report a case of PRES in an operated case of gastric malignancy with no major recognized risk factors other than one episode of mild hypertension and incidentally detected supracardiac partial anomalous venous return.

Case Presentation: A 55-year-old lady underwent D2 subtotal gastrectomy under general anesthesia and epidural analgesia for gastric outlet obstruction secondary to a poorly differentiated gastric adeno-carcinoma. On the first postoperative day she reported sudden loss of vision. Clinical examination revealed presence of bilateral light reflex with absence of visual perception in both the eyes. All necessary examinations and investigations including MRI performed. She was able to regain light perception in the right eye on the 5th postoperative day which was followed by successful finger counting and face recognition within the next couple of days. The patient was well with normal visual acuity in both eyes on follow up at 10 months after discharge.

Conclusion: Sudden development of neurological manifestations in the immediate postoperative period should alert the surgeon regarding PRES. Classical clinical history, detail neurological

**Corresponding author: E-mail: harimahobia@gmail.com,harimahobia@googlemail.com;*

examination supported by neuroimaging clinches the diagnosis of PRES. Prompt and effective treatment results in excellent prognosis in this serious and treatable disease.

Keywords: Posterior reversible encephalopathy syndrome (PRES); Post-operative complications.

1. INTRODUCTION

Posterior reversible encephalopathy syndrome (PRES) is characterized by headache, altered mental functioning, seizures and loss of vision associated with posterior leukoencephalopathy on the imaging studies [1]. This entity was initially reported in 15 patients by Hinchey et al. in 1996. This syndrome is strongly associated with comorbid conditions such as hypertension, vascular and autoimmune diseases, exposure to immunosuppressive drugs and organ transplantation [1,2]. Few of the patients have no identifiable risk factor and are labeled as idiopathic PRES. The clinical symptom complex as well as the abnormalities in imaging usually resolves within a week with effective management. Here we are reporting a case of PRES in an operated case of gastric malignancy with no recognized risk factors other than incidentally detected supracardiac partial anomalous venous return.

2. CASE REPORT

A 55-year-old lady presented with gastric outlet obstruction secondary to a poorly differentiated gastric adeno-carcinoma. She had no recognized comorbidities. Her preoperative hemogram, electrolytes, liver and renal functions were normal. Abdominal CT scan demonstrated huge gastric distension with significant thickening of pyloric wall. D2 subtotal gastrectomy was performed under general anesthesia and epidural analgesia. There was no major fluctuation in the blood pressure of the patient during the surgery. The patient was extubated and immediately shifted to ICU for postoperative care.

On the first postoperative day she reported sudden loss of vision. Clinical examination revealed presence of bilateral light reflex with absence of visual perception in both the eyes. Fundoscopy examination was normal. Neurologic examination failed to detect any focal neurologic deficit or signs of meningism. Her blood pressure in the postoperative period was within normal range apart from a single reading of 150/90 mm of Hg on the first postoperative day. She was advised MRI of brain which revealed heterogeneous hyperintensity predominantly involving the white matter in the bilateral parieto-occipital area, cerebellar hemispheres, medulla, pons and bilateral thalamic regions on T2 weighted images. She was able to regain light perception in the right eye on the 5th postoperative day which was followed by successful finger counting and face recognition within the next couple of days. Follow up ophthalmologic intervention on the 15th postoperative day documented visual acuity of 6/12 and 6/18 in the right and left eye respectively. The patient was well with normal visual acuity on follow up at 10 months after discharge.

3. DISCUSSION

Posterior reversible encephalopathy syndrome is usually encountered in patients with severe hypertension, preeclampsia and eclampsia, allogenic transplantation, autoimmune disease, anti cancer chemotherapy, and sepsis [1,2]. High blood pressure is the single most important trigger factor for PRES. Peak systolic blood pressure in the range of 170 to 190 mm of Hg is often recorded in these patients; however, 10% - 30% of patients have normal or only mildly elevated blood pressure [2,3]. No age group is immune from PRES but majority of cases are reported in the young to middle-aged females [4]. Approximately 50 to 80 percent of PRES patients have encephalopathy, 60 to 75 percent manifest with seizures, 50 percent with headaches, 33 percent with visual disturbances, 10 to 15 percent with focal neurologic deficits, and 5 to 15 percent with status epilepticus [5]. These symptoms persist for approximately 7.5 days in this self limiting condition [6]. Conflicting hypotheses have been proposed regarding the precise mechanism of PRES. The popular vasogenic hypothesis suggests that sudden severe hypertension overwhelms the body autoregulation mechanism leading to breakthrough brain edema [1,2]. Neuropeptide theory suggests that endothelial dysfunction with release of potent vasoconstrictors such as endothelin-1, prostacyclin, and thromboxane A2 results in vasospasm and ischemic vasogenic edema [2,3].

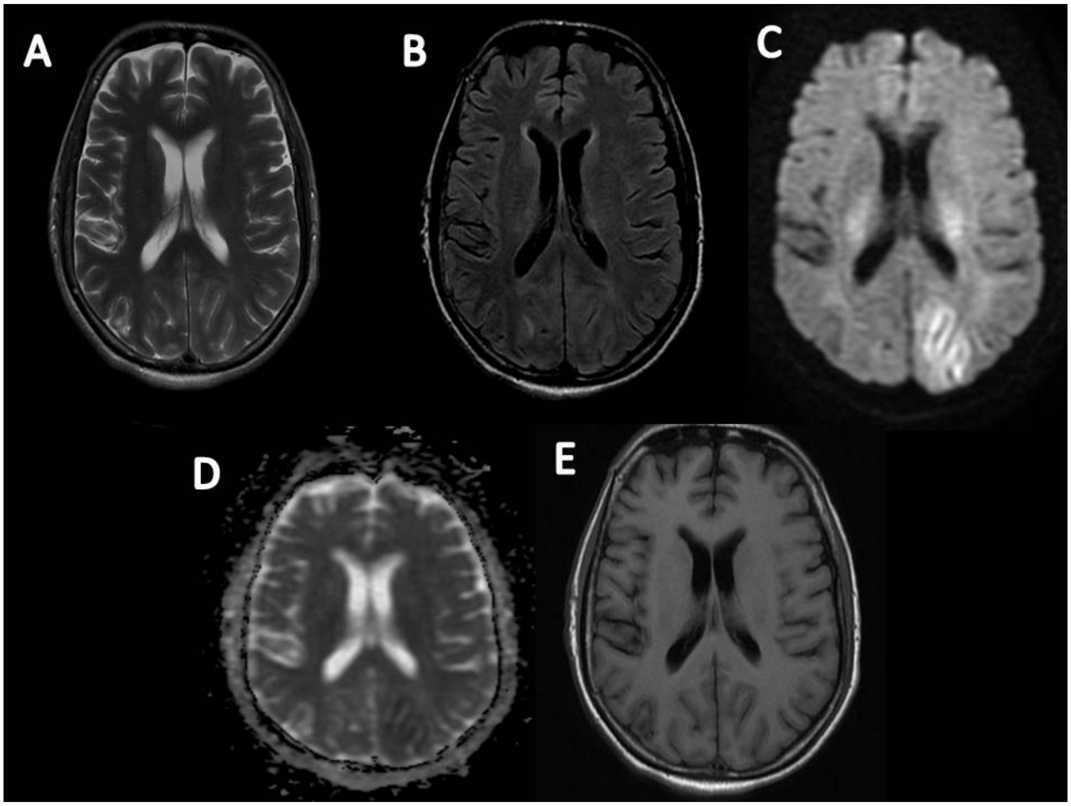

Fig. 1. Axial T2(Fig. A)/FLAIR (Fig. -B) sequences reveals ill-defined areas of asymmetrical hyperintensities in bilateral parieto-occipital lobe. On DWI (Fig. C) gyri form pattern of restriction seen on left side appearing bright and corresponding region on ADC (Fig. D) appear dark. On T1 weighted sequence(Fig. -E) altered area appear isointense

Differential diagnosis of PRES includes cerebro-vascular accidents, brain metastasis, metabolic derangements and infectious etiologies leading to encephalopathy. Vague clinical findings prompt an urgent MRI which often clinches the diagnosis of this rare entity. The characteristic neuroimaging in PRES documents edema in the vascular watershed areas in the posterior regions of both cerebral hemispheres. [7,8]. Three primary descriptive variations of radiographic findings exist in about 70 percent of patients: a dominant parieto-occipital pattern, holo-hemispheric watershed pattern, and superior frontal sulcus pattern [9]. The management of PRES involves prompt diagnosis and institution of supportive treatment, along with control of the underlying causative factor [10,11]. Removal of the triggering factor hastens recovery and avoids delayed complications. Gradual reduction of blood pressure (no more than 20–25% in the first few hours) is ensured in hypertensive patients with PRES to avoid the risk of cerebral, coronary, and renal ischemia [12]. First line antihypertensive agents include nicardipine, labetalol, nimodipine, while second line agents include sodium nitroprusside, hydralazine, and diazoxide [12]. Most authors recommend performing a follow up imaging assessment after symptom resolution, although there is no consensus on the ideal time for the study since resolution is observed between 8 days and 17 months after the initial episode [12]. Effective treatment results in excellent prognosis with recurrence of symptoms observed in only 8% of the cases [6].

4. CONCLUSION

Sudden development of neurological manifestations in the immediate postoperative period should alert the surgeon regarding PRES. Classical clinical history, detail neurological examination supported by neuroimaging clinches the diagnosis of PRES. Prompt and effective treatment results in excellent prognosis in this serious and treatable disease.

CONSENT

Patient's written consent has been taken.

ETHICAL APPROVAL

It is not applicable .

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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