

A Case of Operative Hysteroscopy Intravascular Absorption syndrome: Gynaecological TURP syndrome

Sir,

For optimal visualisation during operative hysteroscopy, liquid distension media like 1.5%

glycine/Cytal (Mannitol + sorbitol) are used.^[1] Though 1.5% glycine is hypo-osmolar and acidic, it is the choice of irrigating fluid due to its favourable optical properties. When excess absorption of this irrigation fluid occurs through uterine venous sinuses, it may rarely lead to fluid overload and glycine toxicity, a rare complication known as Operative Hysteroscopy Intravascular Absorption (OHIA) syndrome.^[2] Although the classic syndrome is rare (<1% incidence), its sudden intraoperative presentation is noteworthy.



Figure 1: Chest X-ray showing perihilar interstitial infiltrates and an increase in the pulmonary vasculature

A 33-year-old female, with no known comorbidity presented with abnormal uterine bleeding and was subsequently posted for hysteroscopic polypectomy. In the operation theatre, patient was induced with standard drugs as per the institutional protocol. General anaesthesia (GA) was maintained with air, oxygen and sevoflurane 0.5-1% and intravenous (IV) atracurium in divided doses. A total of 700 ml of ringer lactate was infused intravenously. Resection of the polyp was started after distending the uterine cavity with a 90 ml/min rate of 1.5% glycine from a height of standard 50 cm. After 40 minutes, the peripheral oxygen saturation (SpO₂) serially dropped to 65%, accompanied by tachycardia {heart rate (HR) -130-140/min} and hypotension {non-invasive blood pressure (NIBP) -86/52 mm of Hg}. There was a simultaneous rise in airway pressure (P_{peak} from 14 to 21cm of water) with bilateral diminished breath sounds and basal crackles on chest auscultation. Based on these clinical signs, pulmonary edema was suspected and surgery was immediately stopped after achieving haemostasis. The patient was managed with manual ventilation using 100% oxygen, phenylephrine boluses, and deepening the plane of anaesthesia.^[3] Electrocardiography on the monitor showed ST depression in leads II, III. Arterial blood gas (ABG) analysis revealed paO₂: 165.3 mmHg, paCO₂: 50.5 mmHg, pH: 7.17, K⁺: 5.1mmol/L, Na⁺: 98 mmol/L, HCO₃⁻: 17.8 mmol/L, BE: -6.2 mmol/L and oxygen saturation (SaO₂): 98.6% on 100% oxygen. The measured glycine deficit was approximately 2 L (glycine used minus efflux; Efflux was calculated via resectoscope, suction, and perineal drapes). Based on the clinical scenario, a diagnosis of OHIA syndrome was made. The patient was shifted to the intensive

care unit for elective mechanical ventilation where in chest X-ray revealed bilateral interstitial infiltrates in the perihilar regions and an increase in the pulmonary vasculature [Figure 1]. Cardiac biomarkers were within normal limits. Urgent 2D Echocardiography was within normal limits. Hyponatremia was corrected, along with fluid restriction and diuretics. Shortness of breath (SOB) profile (Troponin I, Creatine Kinase-MB, D-Dimer, and blood myoglobin concentration) was within normal limits. In view of tachyarrhythmia followed by persistent hypotension, noradrenaline infusion was started and titrated to keep blood pressure within normal limits. ABG analysis showed improvement in paO₂: 263.0 mmHg, paCO₂: 35.2 mmHg, pH: 7.37, HCO₃⁻: 20.1 mmol/L, Na⁺: 132 mmol/L, SaO₂: 99.8% following which the inotropes were tapered off and the patient was extubated on the first postoperative day.

Reports are available of gynaecologists using higher distension pressures (40–60 mm Hg) which results in rapid absorption of the irrigation fluid.^[4] Other factors contributing to the risk are a high volume of irrigation fluid, the extent of the transaction of vascular beds, duration of the procedure, and surgical expertise. In this case, the duration of surgery and intrauterine pressure were within the standard limit but the measured glycine deficit was high. Management of OHIA is mainly governed by the clinical presentation and correction of hyponatremia. Regional anaesthesia should be instituted whenever feasible to detect early signs and symptoms.

Glycine toxicity in awake patients may present with perioral paraesthesia, headache, visual disturbances followed by systemic features like bradycardia, hypotension and desaturation.^[5] Pulmonary edema classically occurs in the later part or after the surgery. This case was done under GA which itself imposes the risk of delayed diagnosis.

This case highlights a rare complication of a very common procedure and its management for the benefit of the caregiver. Eternal vigilance to the complications, meticulous calculation of glycine deficit, quick response, and time management is the key to safely cruise through this serious complication. It is very unsafe to be using glycine as a medium for hysteroscopy. The current practice is to use a bipolar cautery and use normal saline as the fluid medium, which takes away the glycine related complications. This practice of using glycine is ancient and needs to change.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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