

A Rare Occurrence of Delirium Following Sole Intravenous Sedation in a Child - A Case Report

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Abstract: Background: Emergence Delirium is a rare complication following sole intravenous sedation. Delirium in a child also leads to parental worry, which warrants proper counselling. It also raises a question on the quality of care delivered. Case Scenario: A child posted for endoscopy developed post anaesthetic emergence delirium in the absence of any inhalational agents. The plan to sedate the child using intravenous drugs worsened the delirium. Haloperidol was administered, to which the child responded. Extrapyramidal symptoms manifested in the form of torticollis, as a side effect of Haloperidol, adding to parental worry. Promethazine relieved the extrapyramidal symptoms and was put on maintenance anticholinergics. The child was discharged on the third day after properly counselling and reassuring the parents. Discussion: Emergence delirium is usually self-limiting. Quick clinical judgment is the key to rule out organic causes. Established delirium requires medical management. Haloperidol is the drug of choice. Extrapyramidal side effects are common following Haloperidol. Antihistamines, anticholinergics, and dopaminergic agonists form the mainstay of treatment of extrapyramidal symptoms. Conclusion: Anaesthesiologists should be aware that even sole intravenous sedation is not free of causing post anaesthetic delirium. Empirical treatment should be started early based on clinical judgment, without delaying for imaging. Proper and graded dosing of drugs is safer. It is advisable to consider the routine addition of Promethazine to Haloperidol.

Keywords: Children, Emergence Delirium, Intravenous sedation, Haloperidol, Torticollis

1. Background

Delirium is a complication of rare occurrence following intravenous sedation, as compared to that with inhalational agents.¹ Delirium is often multifactorial, the cause of which is difficult to differentiate. It is important to differentiate organic causes from drug-induced, using quick clinical judgment. Delirium in a child also leads to parental worry, which warrants proper counseling.¹

2. Case Scenario

A 9-year-old male child, weighing 17.3 kg was admitted with complaints of abdominal pain of 3 months duration along with bloating sensation for 1 month. He was planned for diagnostic colonoscopy. The pre-anaesthetic evaluation was performed 2 days prior to the endoscopy. He was hemodynamically stable with a heart rate of 88/min and blood pressure of 100/60 mm Hg. Systemic examination was also found to be normal. Information regarding the anaesthetic plan was given to the child and his parents. Anaesthetic re-evaluation was performed on the day of surgery. He was wheeled in from the preoperative room after administering Midazolam 1 mg. The child was induced with Propofol 40 mg and Fentanyl 25 mcg. The anaesthetic plane was maintained with intermittent 10 mg boluses of propofol as required, total dose amounting to 50 mg. The procedure was completed uneventfully and the child was fully awake and shifted to post anaesthesia care unit for observation.

The child was talking to his father in the PACU. He was conscious and was behaving normally. All of a sudden he started showing alterations in his level of consciousness. To

add on to the panic, he developed sudden involuntary movements, kicking, biting and thrashing and was not able to obey commands or maintain eye contact [Watcha score-4]. Some physical restraint was required in order to avoid self-injury. He was hemodynamically stable. Hypoglycemia was also ruled out with the help of a glucometer. Pupils were bilaterally equal with no neurological deficit on examination. Midazolam 1mg and Propofol 20 mg was administered intravenously for sedation, to which he didn't respond. In fact, his condition worsened with these intravenous sedative agents, thus raising the suspicion of post anaesthetic delirium. Neurologist's and Paediatrician's opinions were sought and Haloperidol 1.2 mg IV was administered slowly. Within a few minutes, the child became calm, conscious, and oriented [Watcha score -1]. He was obeying commands and his involuntary movements also stopped. Blood parameters and serum electrolytes were found to be normal. The child was monitored in PACU throughout the night and was comfortable.



Figure 1: The child agitated, disoriented, and trying to hit his father

On the following day, the child developed dystonia, manifesting in the form of torticollis. A diagnosis of extrapyramidal symptoms due to Haloperidol was made, after consulting the Paediatrician. Promethazine 7.5 mg was administered intravenously which relieved the torticollis. Oral Trihexyphenidyl 1 mg and Diphenhydramine 6 ml were given thrice daily for 2 days. The child recovered fully with no residual effects. The parents were given proper counselling and re-assurance, following which the child was discharged on the third day.



Figure 2: The child having torticollis following Haloperidol

3. Discussion

Emergence delirium typically presents in the form of agitation, confused state, failure to maintain eye contact, or to recognize the surrounding environment. The usual onset is soon after emergence from anaesthesia (mean 14 ± 11 min), but delayed onset (up to 45 min), as in our case has been reported.²

Delirium in the post-operative period triggers anxiety in parents as well as physicians. It is of prime importance to rule out the cause and initiate empirical therapy at the earliest. Delirium can occur even in the absence of inhalational agents, though it is more commonly associated with their use. The risk of delirium following intravenous anaesthetic drugs have been reported and has to be given due consideration in the event of a delirium.

The Watcha scoring is a sensitive and specific test for the diagnosis of delirium as compared to the alternate scoring systems.¹

WATCHA SCORING¹

Score	Behaviour
0	Asleep
1	Calm
2	Crying can be consoled
3	Crying, cannot be consoled
4	Agitated and thrashing around

Although Propofol and Sevoflurane have a comparable and rapid emergence profile, emergence delirium is found to be more common with sevoflurane.³ Children aged 2-5 years, anxious children, use of short-acting inhalational agents, presence of perioperative pain, and those who experience rapid emergence from anaesthesia are at a higher risk for emergence delirium. The co-administration of intravenous Propofol, Midazolam, or Fentanyl is considered to be a prophylactic measure⁴, but unfortunately, it was not found to be fully effective in this child.

The emergence delirium is usually self-limiting.⁴ But once the emergence delirium is established, it is advisable to start the patient on drugs.⁵ Haloperidol is effective intravenously at a dose of 0.02 to 0.1 mg/kg, in case of persistent delirium. The extrapyramidal side effects following Haloperidol are attributed to the blockade of the D2 receptors by the drug. The dystonia with Haloperidol, typically occurs in the neck muscles, as seen in this child. Another common site is the tongue and it may even cause an oculogyric crisis.⁶ The choice of treatment of EPS includes antihistaminic agents such as Promethazine and anticholinergic agents such as Benztropine (Cogentin), Diphenhydramine 1-2 mg/kg (Benadryl), and Trihexyphenidyl 0.1 -0.3mg/kg (Pacitane). Another class of drug for treatment is dopamine agonist agents, such as Pramipexole. These medications reverse the EPS caused by antipsychotics or other drugs that inhibit dopaminergic neurotransmission.⁷

4. Conclusion

Anaesthesiologists should be aware that delirium can be precipitated even without inhalational agents.

Empirical therapy to be initiated based on clinical assessment and not to be delayed for imaging.

Proper and graded dosing of the drugs are to be followed in the treatment of emergence delirium. The addition of Promethazine routinely along with Haloperidol is to be considered.

Anxiolysis and analgesia should be given more importance in the pediatric age group.

Awareness could also be a possible explanation as the cause of events.

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