

Green Urine in A Pediatric Patient- A Case Report

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Abstract

Background: - Methylene blue is a water-soluble dye used intraoperatively for diagnostic tests and marking the implant site. Greenish-blue colour of urine has been reported after oral, intra-venous and intra-parenchymal injections of methylene blue. This blue colour appears in urine within few minutes after an intravenous administration and 2-6 h following oral administration and may persist for up to 24 hours.

Case report: - We discuss the case of a pediatric patient posted for cochlear implant in whom we reported self-limiting greenish-blue urinary discolouration after use of 0.5 ml of methylene blue to mark the bone for cochlear implant site.

Conclusion: - The intra-operative occurrence of green urine is uncommon and warrants prompt evaluation to differentiate a benign entity from a serious pathology.

Keywords: Green urine; methylene blue; dye

Introduction

Methylene blue dye is used in a variety of intra-operative procedures, including for the localization of the implant site. Any change in urine colour warrants further assessment and evaluation for early diagnosis and management. We, after taking informed consent, report a case of a 3yr old patient with self-limiting urinary discolouration intra-operatively, during right cochlear implantation.

Case Report

A three-year-old, 15 kg female child with pre-lingual profound hearing loss and delayed speech was posted for right cochlear implantation. The pre-natal and immediate post-natal history were normal. The immunization history was complete. On admission, her hemoglobin was 10.9g/dl, Total bilirubin was 0.29mg/dl, AST/ALT were 38U/L and 21U/L respectively. Rest all the biochemical investigations were within normal limits. The pre-operative HRCT Temporal bone and MRI were normal. Patient was induced with Inj. Propofol 30mg intravenous (IV), Inj. Fentanyl 30 mcg IV and Inj. Atracurium 8mg IV. Airway was secured with uncuffed endotracheal tube of 5mm internal diameter and the patient was handed over to the surgical team. Anesthesia was maintained with 2% sevoflurane in 0.5-0.5, air-oxygen mixture. To mark the planned position of receiver-stimulator, methylene blue dye was used by the surgeons. After the skin insertion, once, the injection needle touched the bone, 0.5ml of the dye was injected. After a period of one hour, a slight bluish discolouration of urine in the urobag was noticed. (Image 1) The surgery lasted for five hours and the procedure was uneventful. The collected sample of urine had a strong bluish green discolouration. All the medications and foods that the patient was receiving were carefully reviewed. The bluish discolouration of urine returned back to normal the next morning after surgery (12 hours). The post-operative period was otherwise unremarkable.

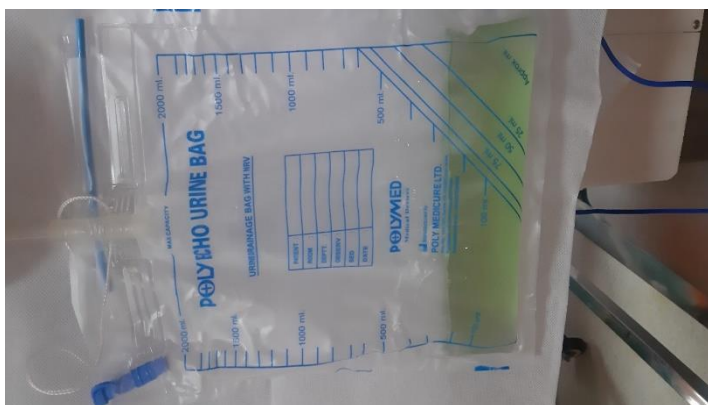


Image 1:- Urobag showing greenish-blue coloured urine

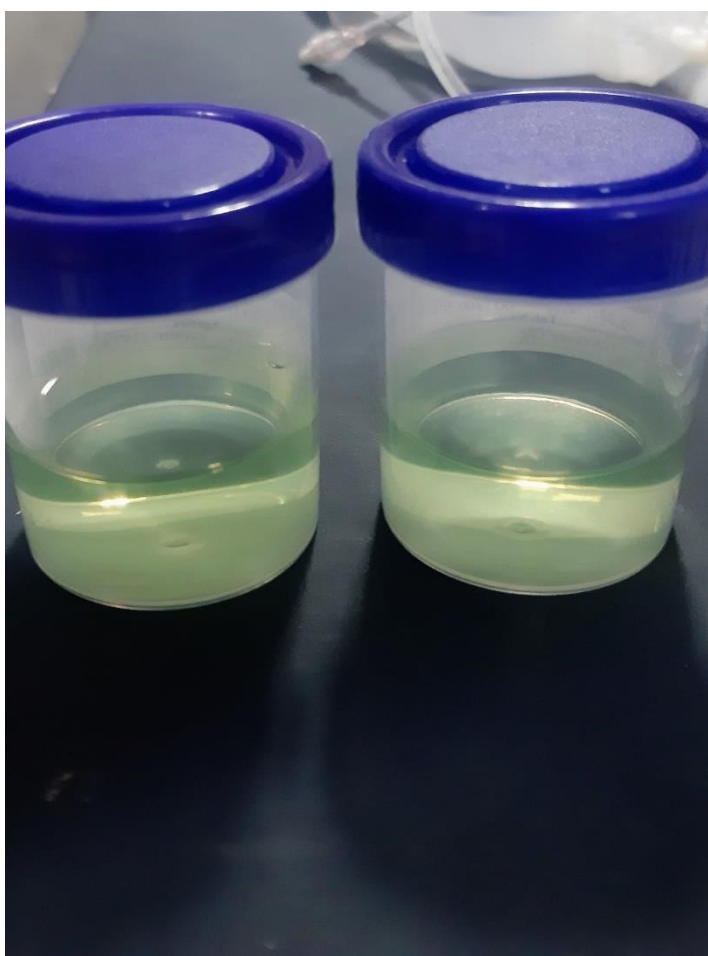


Image 2:- Collected urine sample with clear green-blue discolouration.

Discussion

Intra-operative alteration in the colour of urine can have several causes. The most common causes include deep yellow urine (dehydration); Red or pink urine (hematuria); dark yellow- Orange urine (bilirubinuria, drugs like laxatives, rifampin, and sulfasalazine); Brown urine (foods like fava beans, aloe and myoglobinuria). (1) *Pseudomonas aeruginosa* infection in urine, eating food rich in artificial colors, eating the leaves of *Cytisus alpinus* have also been found as possible causes. Other Miscellaneous Causes of green-blue urine include Familial benign hypercalcemia and Hartnup disease. Various indications for the

use of methylene blue include methemoglobinemia, vasoplegia, septic shock, as antimalarial, ifosfamide neurotoxicity, priapism and as a dye. (2) It is a water-soluble dye used intraoperatively for diagnostic tests and for assessing patency of fallopian tubes, integrity of bowel, lymph nodes mapping, parathyroid glands identification and bone marking etc. Methylene blue is metabolized to form leucomethylene blue which is primarily excreted in the urine. (1) The most common two doses used for intraparenchymal injection for identification and mapping are 2 mL and 5 mL of a 1% solution. (3) In our patient, there was only evidence of infiltration of a very small amount (0.5ml) of methylene blue dye to mark the bone. There was no history of ingestion of any other causative drugs described earlier. The eating habits of the patient also gave no reason for the appearance of green-blue urine. The liver and renal function was normal. There are reports of greenish urine with methylene blue but they all describe it after oral, intravenous or intra-intestinal infiltrations. (4,5) As per available literature, the blue colour appears in urine within few minutes after an intravenous administration and 2-6 h following oral administration. This altered colour may persist for up to 24 hours. (4) In our patient, the greenish discoloration was noticed within one hour and lasted for around 12 hours. To the best of our knowledge, this is the first case reporting occurrence of green discoloration of urine after infiltration with a very small amount of methylene blue for bone site marking in a pediatric patient. The minimum volume of this drug through various routes of administration, that can result in change in urine colour, has not been mentioned in available literature and needs further research. Moreover, we could not find any clear recommendations for the dose of methylene blue as a dye.

CONCLUSION- The intra-operative occurrence of green urine is uncommon and warrants prompt evaluation to differentiate a benign entity from a serious pathology. There needs to be further research to clearly establish the dose recommendations for usage of methylene blue as a dye.

Conflicting Interest (If present, give more details): NONE

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References

1. Prakash S, Saini S, Mullick P, Pawar M (2017) Green urine: A cause for concern? *J Anaesthesiol Clin Pharmacol*;33:128-30
2. Ginimuge PR, Jyothi SD (2010) Methylene blue: revisited. *J Anaesthesiol Clin Pharmacol*.;26(4):517-520.
3. Li J, Chen X, Qi M et al (2018) Sentinel lymph node biopsy mapped with methylene blue dye alone in patients with breast cancer: a systematic review and meta-analysis. *PLoS ONE* 13(9):e0204364
4. Peter C, Hongwan D, K pfer A, Lauterburg BH (2000) Pharmacokinetics and organ distribution of intravenous and oral methylene blue. *Eur J Clin Pharmacol*;56:247-50.
5. Koratala A, Leghrouz M. Green urine. *Clin Case Rep*. 2017;5(4):549-550.