

Allergy due to the use of dye during diagnostic laparoscopy and its management : a case report

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I. Introduction

A laparoscopy and dye test is an operation to help find out the cause for infertility mostly tubal patency. The dye used during diagnostic lap many a times causes allergic reaction in susceptible individuals.

Methylene blue is a commonly used dye in diagnostic procedures such as detection of fistulae, delineation of body tissues during surgery and checking the patency of the fallopian tubes.¹ This compound has an oxidation–reduction function and a tissue staining property. It has opposite actions on haemoglobin depending on the concentration. In high concentrations, methylene blue converts the ferrous iron of reduced haemoglobin to the ferric form to produce methaemoglobin. In contrast, low concentrations (in recommended doses) help in the conversion of methaemoglobin to haemoglobin in drug-induced methaemoglobinaemia. Methylene blue is a new tool to evaluate in vivo cytohistological tubal damage, and is a useful and simple method of estimating salpingeal function.

II. Case Report

A 28 yr old female, married for 5 yr presented with complain of infertility in OPD. was posted for diagnostic laparoscopy for knowing the cause for infertility. It's a case study of the allergy caused due to dye and its management during the diagnostic laparoscopy.

The procedure was performed in Dept of Obs&Gyn in Darbhanga medical college and hospital.

All routine investigations were done and results were within normal limits.

Mallampatti grading I, ASA GRADE I, Neck movement-Adequate, Mouth opening-Adequate(3 F), No artificial dentures.

No significant surgical, medical, addiction or family history

Patient was given Tab alprazolam a night before and kept nil per oral 8hrs before procedure.

PRE-OP vitals were Pulse-78/min, BP-124/80, SpO₂-99% without O₂ supplementation.

CNS-well oriented wrt T/P/P, Chest-B/L clear, CVS-S1/S2 normal, Abdomen-soft, bowel sound+.

In OT premedication was done with 0.2 mg glycopyrrolate, 25 mg ranitidine, 1 gm ceftriaxone, 1 amp metochlopramide.

Two i.v lines were secured using 18 G cannula and RL as intraop fluid was given @10ml/kg.

After pre-oxygenation with oxygen for 3 min, Induction was done with 2mg/kg propofol, fentanyl 2 mic/kg and cisatracurium 0.2 mg/kg and patient was intubated with 7.0 no ET tube under Direct Laryngoscopy. Maintenance with 1L NO₂, 1L O₂, 2% sevoflurane and 1/5th intubating dose of vecuronium. HR and BP were maintained within 20% of baseline level.

After confirming the weaning of relaxation by eye lash reflex and proper suctioning of oral cavity and endotracheal tube, 0.05 mg/kg neostigmine and 0.02 mg/kg glycopyrrolate were given and patient was extubated. Return of adequate muscle tone was confirmed by neck holding and oxygen was supplemented for 5 min after extubation. Before extubation ondansetron 4 mg i.v and diclofenac 75 mg i.m were given.

Patient was shifted to recovery room. After 15 min of extubation the patient became breathless, developed tachycardia, and BP dropped to 80/60. SpO₂ fell to 84%. Immediately, 9 mg mephentermine, O₂ supplementation, 45 mg of avil (pheniramine), 100 mg of hydrocortisone and 2 ml of 1:10000 dilution adrenaline was given. BP rose to 110/80, SpO₂ 98% and Pulse 99 bpm. The vitals thereafter remained stable.

III. Inference And Discussion

The dye used in diagnostic laparoscopy many a times causes allergic reaction to susceptible individuals characterized by fall in saturation, hypotension, tachycardia etc. Even patients themselves are unaware of it, so no prior significant history is obtained. The anaesthetic concerned should keep this untoward event in mind during injection of dye.

In this case, pulmonary oedema may be caused due to anaphylaxis, intravenous fluid overload, glucose-6-phosphate dehydrogenase deficiency or an overdose of methylene blue. Clinical data, history and investigations exclude the possibility of fluid overload and glucose-6-phosphate dehydrogenase deficiency. Although a toxic overdose cannot be ruled out, it is unlikely because dye was instilled into the uterine cavity and not given systemically. The rapidity of the symptoms as per the records and presence of massive pulmonary oedema point towards anaphylactic reaction due to dye.

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