

The Role of Methylene Blue Spray to Keep Parathyroid Gland and Recurrent Laryngeal Nerve Safe During Thyroidectomy

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Abstract

Background: The main postoperative complications of thyroidectomy are hypoparathyroidism and recurrent laryngeal nerve (RLN) palsy. Methylene blue, which is a drug and dye, is safe and easy to get, and we can use it to avoid complications during thyroidectomy. **Objectives:** We aim to assess that we can spray Methylene blue to allow the identification of important structures intraoperative which are the parathyroid gland and recurrent laryngeal nerve. Also, to evaluate that this technique is safe, effective, technically feasible, and less dangerous than other techniques.

Methods: Our study is a prospective cohort study of patients, patients who presented with simple nodular goiter, solitary thyroid nodule, controlled toxic goiter, and failed medical treatment with the indication for thyroidectomy, suspected malignancy, and retrosternal goiters at El-Demerdash Hospital from the period of August 2021 to August 2022. In the specified study period of 1 year from 1/8/2021 to 31/7/2022.

Results: Sixty patients underwent thyroidectomy 54 underwent total while 6 only underwent hemithyroidectomy. The time taken to wash out the dye over the thyroid gland was 15 to 25 minutes, the parathyroid gland was 4 to 7 minutes and the recurrent laryngeal nerve (RLN) was almost 0 to 1 minute and this indicated that the RLN almost did not take the dye. In the controlled group, two patients had symptoms and signs of hypocalcemia only one of them had signs of tetany, 8 patients had laboratory hypocalcemia, two patients suffered from a change of voice and another two patients suffered difficulty breathing one of which needed temporary tracheostomy while in the interventional group, only one patient had symptoms and signs of hypocalcemia no one had signs of tetany, two patients had laboratory hypocalcemia, one patient suffered from the change of voice and another two patients suffered the difficulty of breathing but no one needed a tracheostomy tube.

Conclusions: It is safe, useful, and suitable to use Methylene blue spraying to keep the parathyroid gland and RLN during thyroidectomy, which led us to reduce the percentage of incidence of postoperative complications. Also, it helped us to find the parathyroid gland and RLN during the surgery, despite some surgeons seeing that searching for the parathyroid and RLN can lead to harmful effects and increase the incidence of injury.

Key words: methylene blue, thyroidectomy, parathyroid, recurrent laryngeal nerve