

## Potential benefits for the protection of parathyroid gland function using indocyanine green in near-infrared laparoscopy-assisted thyroidectomy: A case report

Peng SJ *et al.* Protection of parathyroid gland function using ICG

### Abstract

#### BACKGROUND

In recent decades, significant advances have been achieved in the protection of the parathyroid glands and recurrent laryngeal nerves during thyroidectomy. However, reliable and convenient technical means are still lacking. In this study, the reliability, safety and feasibility of near-infrared (NIR) laparoscopy-assisted thyroid lobectomy with isthmectomy and prophylactic central lymph node dissection (CLND) are reported.

#### CASE SUMMARY

A 63-year-old female patient with a free previous medical history, was admitted to our department due to multiple thyroid nodules. Ultrasonic examination suggested diffuse thyroid changes and one thyroid nodule in the right upper lobe with the largest diameter of 1.5 cm adjacent to the trachea and Breast Imaging Reporting and Data System grade 4B. Imaging examination of the neck showed no obvious enlarged lymph nodes. Fine needle aspiration biopsy suggested a papillary thyroid carcinoma. Combined with thyroid function examination, the patient was diagnosed with papillary thyroid carcinoma and Hashimoto's thyroiditis. Considering the risk of invading the capsule and the patient's extreme anxiety, a right thyroid lobectomy with isthmectomy

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Conclusions: This report suggests a potential utility of ICG imaging in intraoperative localization of **parathyroid glands** in reoperative neck surgery. Future work is necessary to assess its ...

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The factors associated with ICG uptake were also evaluated. Results: Overall 64 lesions were resected. Final histopathologic analysis confirmed the **parathyroid** origin of 62 of them (96,8%). Intraoperative ICG fluorescence imaging successfully identified 59 of 62 (95, 16%) **parathyroid glands**.

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**Parathyroid glands** (PGs) are small, nodular, endocrine structures that lie posterior to the thyroid. They are involved in the production of **parathyroid** hormone (PTH), which is a major hormone involved in the calcium homeostasis [1,2]. Any disruptions in PTH production might induce various **parathyroid** abnormalities such as primary hyperparathyroidism (PHPT), characterized by excessive PTH ...

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## (PDF) Parathyroid Autofluorescence—How Does It Affect ...

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**ICG** fluorescence was detected **using** the same **NIR/ICG** imaging system. Well-vascularized **parathyroid glands** were expected to show a strong fluorescence in contrast to surrounding lymphatic and ...

## Near-infrared autofluorescence for the detection of ...

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Moreover, with regard to secondary endpoint, **ICG** correctly identified **parathyroid glands** in 98.3% of cases. **ICG** score was not affected by age, gender, duration of operation or thyroid **gland** pathology.

## Abstracts DGAV - ncbi.nlm.nih.gov

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Mar 20, 2019 · The factors associated with **ICG** uptake were also evaluated. Results: Overall 64 lesions were resected. Final histopathologic analysis confirmed the **parathyroid** origin of 62 of them (96,8%). Intraoperative **ICG** fluorescence imaging successfully identified 59 of 62 (95, 16%) **parathyroid glands**.

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Conclusion: **ICG** fluorescence imaging is a simple, fast and reproducible method capable of

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Jan 03, 2020 - Intraoperative identification of the **parathyroid** glands (PG) is a major concern either **during** parathyroidectomy (PTX) or when performing total **thyroidectomy** (TT) (). Intraoperatively, the identification of PGs can be performed by two invasive alternatives: i) the frozen section method or ii) the "float or sink" technique.

**Cited by:** 1

**Author:** Eleftherios Spartalis, Georgios Ntokos, K...

**Publish Year:** 2020

### [Parathyroid gland angiography with indocyanine green ...](https://bjssjournals.onlinelibrary.wiley.com/doi/10.1002/bjs.10101)

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Among the newer techniques 2, 6, 7, intraoperative **parathyroid gland** angiography **during thyroidectomy** might be used to evaluate **parathyroid gland** perfusion and **function**. Initially used in the detection of macular degeneration 8, the technique of angiography using **indocyanine green** (ICG) has been used to identify sentinel lymph nodes 9, to ...

**Cited by:** 64

**Author:** J. Vidal Fortuny, V. Belfontali, S. M. Sado...

**Publish Year:** 2016

### [Indocyanine green-enhanced fluorescence for assessing ...](https://gs.amegroups.com/article/view/12059/12491)

<https://gs.amegroups.com/article/view/12059/12491> ▾

Introduction. Recently, **indocyanine green** (ICG)-enhanced fluorescence has been used to improve visualization and to provide detailed anatomical information **during** different surgical procedures, especially laparoscopic surgery (1-8). Fluorescent optical guidance minimizes inadvertent tissue injury while enhancing procedural efficiency (). **Indocyanine green** is a water-soluble anionic amphiphilic ...

**Cited by:** 20

**Author:** Matteo Lavazza, Xiaoli Liu, Chewei Wu, A...

**Publish Year:** 2016

### [Near-infrared autofluorescence in thyroid and parathyroid ...](https://gs.amegroups.com/article/view/36346/28209)

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Kahramangil B, Berber E. Comparison of **indocyanine green** fluorescence and **parathyroid** autofluorescence imaging in the identification of **parathyroid glands during thyroidectomy**. **Gland Surg** 2017;6:644-8. Kim SW, Lee HS, Ahn YC, et al. **Near-Infrared** Autofluorescence Image-Guided