



Original research

Autotransplantation of Inferior Parathyroid glands during central neck dissection for papillary thyroid carcinoma: A retrospective cohort study[☆]



Tao Wei^a, Zhihui Li^a, Judy Jin^b, Rui Chen^a, Yanping Gong^a, Zhenhong Du^a,
Rixiang Gong^a, Jingqiang Zhu^{a,*}

^a Department of Thyroid & Breast Surgery, West China Hospital, Sichuan University, Chengdu, Sichuan, PR. China

^b Department of Endocrine Surgery, Endocrine & Metabolism Institute, Cleveland Clinic, Cleveland, OH, USA

HIGHLIGHTS

- Autotransplantation or preservation of inferior parathyroid can be performed.
- Autotransplantation reduced permanent hypoparathyroidism and lymph node recurrence.
- Routine autotransplantation of the inferior parathyroid might be considered.

ARTICLE INFO

Article history:

Received 25 April 2014

Received in revised form

27 October 2014

Accepted 1 November 2014

Available online 4 November 2014

Keywords:

Parathyroids autotransplantation

Central neck dissection

Papillary thyroid carcinoma

ABSTRACT

Introduction: The management of inferior parathyroid glands during central neck dissection (CND) for papillary thyroid carcinoma (PTC) remains controversial. Most surgeons preserve inferior parathyroid glands in situ. Autotransplantation is not routinely performed unless devascularization or inadvertent parathyroidectomy occurs. This retrospective study aimed to compare the incidence of postoperative hypoparathyroidism and central neck lymph node (CNLN) recurrence in patients with PTC who underwent inferior parathyroid glands autotransplantation vs preservation in situ. **Methods:** This is a retrospective study which was conducted in a tertiary referral hospital. A total of 477 patients with PTC (pN1) who underwent total thyroidectomy (TT) and bilateral CND with/without lateral neck dissection were included. Patients' demographical characteristics, tumor stage, incidence of hypoparathyroidism, CNLN recurrence and the number of resected CNLN were analyzed. **Results:** Three hundred and twenty-one patients underwent inferior parathyroid glands autotransplantation (autotransplantation group). Inferior parathyroid glands were preserved in situ among 156 patients (preservation group). Permanent hypoparathyroidism rate was 0.9% (3/321) versus 3.8% (6/156) respectively ($p = 0.028$). Mean numbers of resected CNLN were 15 ± 3 (6–23) (autotransplantation group) versus 11 ± 3 (7–21) (preservation group) ($p < 0.001$). CNLN recurrence rate was 0.3% (1/321) versus 3.8% (6/156) respectively ($p = 0.003$). **Conclusion:** Inferior parathyroid glands autotransplantation during CND of PTC (pN1) might reduce permanent hypoparathyroidism and CNLN recurrence. Further study enrolling more patients with long-term follow-up is needed to support this conclusion.

© 2014 Surgical Associates Ltd. Published by Elsevier Ltd. All rights reserved.

1. Introduction

Papillary thyroid carcinoma (PTC) is the most common endocrine malignancy worldwide and its incidence has increased dramatically over the past decades [1–4]. Although the 10-year survival is over 90%, PTC frequently recurs and metastasizes to the regional lymph nodes [5–7]. A central neck dissection (CND) is strongly recommended for PTC patients who have positive central neck lymph nodes (CNLN) [8,9].

[☆] The abstract of the manuscript was presented in 83rd Annual Meeting of the American Thyroid Association (October 16–20, 2013).

* Corresponding author. No. 37 Guo Xue Xiang, Chengdu, Sichuan 610041, PR. China.

E-mail address: zjq-wkys@163.com (J. Zhu).

The superior parathyroid glands can be routinely preserved in situ during CND unless devascularization occurred or there was tumor involvement. For the inferior parathyroid glands however, the management remains controversial. Most surgeons prefer to preserve the inferior parathyroid glands in situ. Elective excision with autotransplantation is not performed unless devascularization occurs [10,11]. While Kikumori et al. demonstrated in their study that autotransplanted parathyroid gland could survive and function [12,13], it is difficult to estimate the functional status of the parathyroid glands preserved in situ. Further more, it is unclear whether inferior parathyroid glands preservation could potentially jeopardize the extent of CND.

In this study, we sought to compare the incidence of postoperative hypoparathyroidism and CNLN recurrence in PTC patients who underwent inferior parathyroid glands autotransplantation vs preservation in situ.

2. Materials and methods

2.1. Study population

Seven hundred and thirteen patients with PTC (pN1) underwent total thyroidectomy (TT) and bilateral CND with/without lateral neck dissection by the same surgeon at West China Hospital of Sichuan University from February 2007 to February 2012. Patients were enrolled in the study if they (1) were evaluated by preoperative imaging studies including neck ultrasonography and computed tomography (CT); (2) had biopsy proven PTC; (3) underwent total thyroidectomy and bilateral CND as initial treatment; (4) staged as pathological N1.

From the initial cohort of 713 patients, 27 had no records of parathyroid glands, 49 had one or two superior parathyroid glands autotransplantation, 14 had no inferior parathyroid glands found intraoperatively (9 had parathyroid glands identified in the final pathology), 146 had one inferior parathyroid gland autotransplantation and the other one preservation in situ (63 had parathyroid glands at the thymus tongue which could be preserved in situ viably). These patients were excluded.

As a result, 477 patients with both their superior parathyroid glands preserved in situ were included in the final analysis, who had either both of their inferior parathyroid glands preserved in situ or they were both autotransplanted and both their superior parathyroid glands preserved in situ.

2.2. Preoperative imaging studies

All patients underwent ultrasonography and contrast-enhanced CT scan preoperatively. Ultrasound was performed by one of the 2 doctors who specialize in head and neck ultrasonography, which included both thyroid and neck lymph nodes (I–VI levels). CT scan was performed to identify suspected lateral neck lymph nodes involvements and lung metastasis.

2.3. Fine needle aspiration (FNA)

All patients underwent FNA of thyroid nodule and had cytological diagnosis of PTC or suspicious for PTC preoperatively. For suspicious cases, intraoperative frozen section was performed.

2.4. Surgical conduct for PTC at West China Hospital

Total thyroidectomy (TT) was performed for confirmed PTC larger than 1 cm, or bilateral foci, or extrathyroidal extension, or lymph node metastasis, or distant metastasis.

A complete CND was performed first on the side of PTC. If more than 1 lymph node (ipsilateral paratracheal, pretracheal and prelaryngeal nodes) were found to be positive in the central contents by frozen section, a contralateral CND would follow. We did bilateral CND for bilateral foci or isthmus foci. Based on preoperative imaging study, patients with suspected lateral neck lymph nodes metastases will undergo concurrent unilateral or bilateral modified lateral neck dissection.

All surgeries were performed by a single experienced surgeon with high-volume thyroid surgeries. TT and bilateral CND was performed for all patients in this study. Compartment of the central neck is bounded superiorly by the thyroid cartilage, inferiorly by the innominate artery, medially by the trachea, and laterally by the carotid artery (level VI–VII).

Harmonic Scalpels and bipolar coagulation forceps were used. A meticulous capsular dissection technique was applied for. An “en-bloc” resection was used for all cases. The recurrent laryngeal nerve was identified and preserved in the aid of the intraoperative nerve monitoring.

2.5. Parathyroid glands management

When TT and CND was performed, we routinely identified the superior parathyroid gland and preserved it in situ. For inferior parathyroid glands, they were preserved in situ (preservation group) if vascular pedicle was kept intact by the surgeon's verdict. Autotransplantation was performed when devascularization or inadvertent parathyroidectomies occurred (autotransplantation group). A small piece of the suspected inferior parathyroid gland was sent for frozen section, and the rest was placed in iced saline. After pathological confirmation, the parathyroid tissue would be minced into 1 mm pieces and transplanted into sternocleidomastoid. The same procedure is performed for the contralateral CND. We reestimated the viability of preserved parathyroid glands at the end of the surgery. Autotransplantation was then performed if the surgeon predicted a low probability of gland survival.

2.6. Postoperative complications

All patients underwent total serum calcium and intact parathyroid hormone (iPTH) level measurements the first postoperative day. Hypoparathyroidism was defined as a serum iPTH level (the first postoperative day) lower than 1.60 pmol/L (normal range 1.60–6.90 pmol/L). Transient hypoparathyroidism was defined as serum calcium and iPTH level normalization within 6 months after surgery. Permanent hypoparathyroidism was defined as a serum iPTH level lower than 1.60 pmol/L, associated with low serum calcium level and requiring oral calcium supplementation for more than 6 months after surgery. Oral calcium supplementation was administered for all patients with hypoparathyroidism.

If hoarseness occurred postoperatively, a laryngoscopy would be performed to confirm vocal cord palsy.

2.7. Radioiodine treatment and follow-up strategy

Patients were referred to endocrinologist for further treatment after surgery. Radioactive iodine remnant ablation was performed using 100–200 mCi ¹³¹I for patients who indicated according to the American Thyroid Association guidelines. All patients received suppressive doses of levothyroxine immediately after surgery according to risk stratification.

Patients received regular follow-up every 3–6 months. For all patients, the first diagnostic whole body nuclear scan with ¹³¹I (due to unavailability of ¹²³I) and measurement of thyroglobulin levels during thyroid hormone withdrawal were carried out at 6–8

Download English Version:

<https://daneshyari.com/en/article/6251795>

Download Persian Version:

<https://daneshyari.com/article/6251795>

[Daneshyari.com](https://daneshyari.com)