

중앙 경부 재발 유두 갑상선암으로 수술한 환자의 재발 양상과 수술 합병증

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Central Neck Recurrence Patterns and Morbidity Following Reoperation for Recurrent Papillary Thyroid Carcinoma

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Purpose: Central compartment reoperation for recurrent thyroid carcinoma is challenging to surgeons due to the scar tissues and adhesions and the distortion of the normal anatomic relationships. This study was carried out to investigate the central neck recurrence patterns and the surgical morbidity of reoperation for patients with papillary thyroid carcinoma.

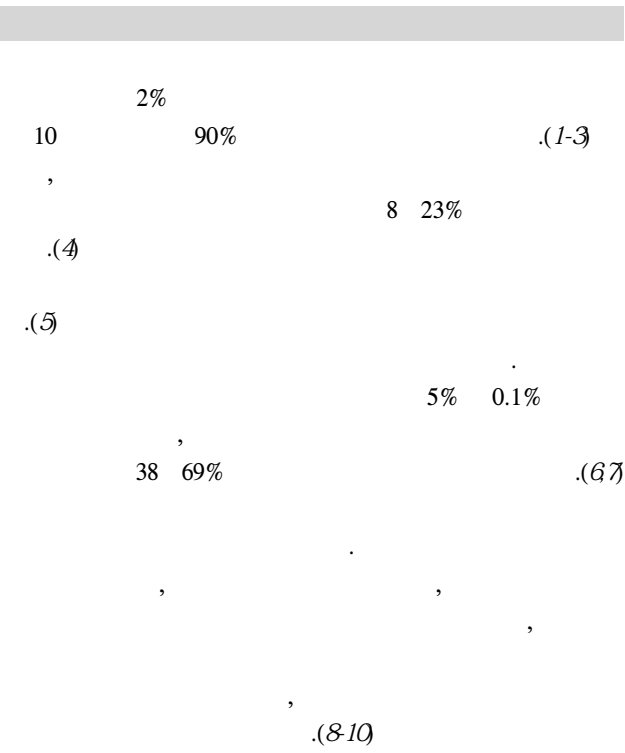
Methods: The study population was comprised 68 papillary thyroid carcinoma patients (15 males and 53 females, median age: 50.8 years [range: 12–78 years]) who underwent reoperation for recurrent tumors in the central compartment of the neck between January 1999 and June 2007. All of the patients had undergone prior total thyroidectomy.

Results: Of the 68 patients, 21 recurrences occurred in the proper thyroid tissue of the thyroid bed, 43 in the central neck nodes and 4 in a combination of the central nodes and proper thyroid tissue. The common recurrent site from the proper thyroid tissue were at the berry ligaments and at the level of the upper one-third of the recurrent laryngeal nerves, while the common nodal recurrence sites were the lower-most portion of the paratracheal nodes and the right paraesophageal nodes (the lymph nodes posterior to the right recurrent laryngeal nerve). Eleven cases of transient hy-

pocalcemia (17.5%, 11/63) and 3 cases of permanent hypocalcemia (4.3%, 3/63) were noted after reoperation. Recurrent laryngeal nerve injury occurred in 5 patients (8.1%, 5/62), but three of them were intentionally resected with the recurrent cancers.

Conclusion: Reoperation for central neck recurrence of papillary thyroid carcinoma is associated with a higher complication rate. Meticulous surgical dissection of the central compartment based on the recurrent patterns is important to reduce injury to the recurrent laryngeal nerves and parathyroid glands. (*J Korean Surg Soc* 2008;74:42-47)

Key Words: Central neck, Recurrence, Reoperation, Surgical morbidity, Papillary thyroid carcinoma



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1999 1 2007 6

(percutaneous ethanol injection)

68

53), 50.8 (12 78)

1 3.5 (15 43)

25

1

, computed tomography, magnetic resonance imaging, PET-scan

77.6 (12 290)

45 , 8 , 15

1 42 , 2 15 , 3 7 , 4 2 , 5 2

111 1.6

21

43

4

17

11

3

18

7

17

8

15

(pyriform sinus)

(paratracheal node) 29

1 cm 1 cm

5

(right paraesophageal node)

5 , 2

(pretracheal node)

2 , 1

(prelaryngeal node)

2 , 4

2.5

5

(anterior superior mediastinal node) 1

1

1 2 mm 10 15

1

0.5 cc 1 cc

17G (injection) 1

Table 1. Recurrence sites by sequence of recurrence

	Thyroid bed (thyroid tissue)		Central compartment neck node				
	BL	Nearby RLN	pT	PT	PE	VII	PL
1st (n=68)	18	7	3	36	12	3	3
2nd (n=26)	12	7	2	5	2	0	0
3rd (n=11)	4	1	0	3	3	0	0
4th (n=4)	0	0	0	2	2	0	0
5th (n=2)	1	0	0	1	1	0	0
Total	35	15	5	47	20	3	3

BL = berry ligament; RLN = recurrent laryngeal nerve; pT = pretracheal node; PT = paratracheal node; PE = paraesophageal node (posterior portion of right recurrent laryngeal nerve); VII = anterior superior mediastinal node; PL = prelaryngeal node.

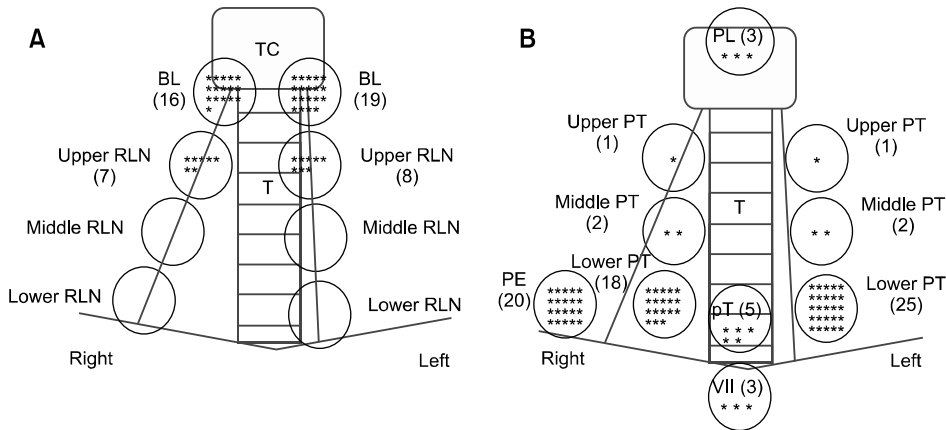


Fig. 1. Recurrence sites in thyroid bed (A) and central compartment lymph nodes (B). TC = thyroid cartilage; T = trachea; BL = berry ligament; RLN = recurrent laryngeal nerve; pT = pretracheal node; PT = paratracheal node; PE = paraesophageal node (posterior portion of right recurrent laryngeal nerve); VII = anterior superior mediastinal node; PL = prelaryngeal node.

(Table 1).

2, 4, 41

35,

15, 49 (2, 2)

), 20,

3, 5, 3

130 (Fig. 1).

(thoracic inlet)

5 63

, 102

11 (17.5%, 10.8%), 3

(4.8%, 2.9%)

62, 102

5 (8.1%,

5.0%) 2 (3.2%,

2.0%) 3

(n=63, 5)

, (n=24,

2) 2 (8.3%),

(n=3, 1) 1

(33.3%)

(n=62, 6) 1

(1.6%), (n=24,

2) 3 (12.5%), (n=10,

1) 1 (10.0%)

Table 2. Complication rates according to each reoperation.

	Hypocalcemia*		RLN injury†	
	Transient	Permanent	Iatrogenic	Intentional
1st (n=68)	11 (17.5%)	0	0	1 (1.6)
2nd (n=26)	0	2 (8.3%)	1 (4.2%)	2 (8.3%)
3rd (n=11)	0	0	1 (10.0%)	0
4th (n=4)	0	1 (33.3%)	0	0
5th (n=2)	0	0	0	0
Total	11 (10.8%)	3 (2.9%)	2 (2.0%)	3 (3.0%)

* = excluded 5 cases who occurred permanent hypocalcemia at initial operation (1st recurrence 3, 2nd recurrence 1, 4th recurrence 1),
 † = excluded 6 cases who occurred RLN injury at initial operation (1st recurrence 4, 2nd recurrence 1, 5th recurrence 1).

1

3 2

(Table 2).

60 70%

. Mazzaferri(11)

(5,12-15)

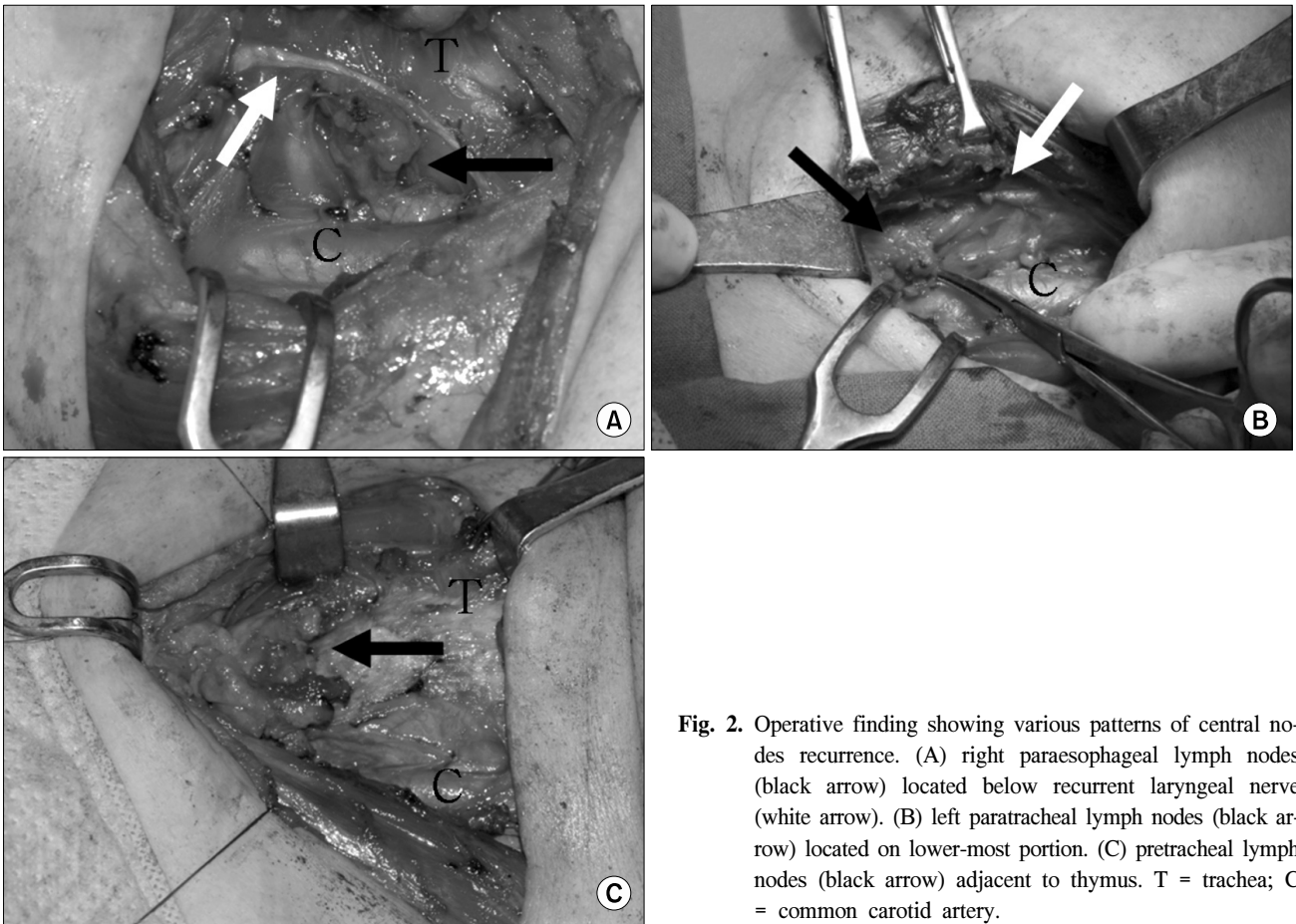


Fig. 2. Operative finding showing various patterns of central nodes recurrence. (A) right paraesophageal lymph nodes (black arrow) located below recurrent laryngeal nerve (white arrow). (B) left paratracheal lymph nodes (black arrow) located on lower-most portion. (C) pretracheal lymph nodes (black arrow) adjacent to thymus. T = trachea; C = common carotid artery.

(posterolateral side)
 (right posterior paratracheal nodes)
 (right paraesophageal nodes) (Fig. 2A). (16)
 (carotid sheath)
 47 12
 14 8
 (Fig. 2B).
 (common carotid artery)
 (brachiocephalic trunk)

47 28 , 14 11
 (Fig. 2C).
 (thyro-thymic ligament)
 (partial sternotomy)
 (video-assisted mediastinoscopic lymphadenectomy, VAMLA) (17-19) Leschber (18)
 VAMLA , , ,
 4.6%

3, 2, 47, 14, Tisell (20)

(surgical loupes)

1 cm, 1 cm

(percutaneous ethanol injection) (percutaneous radio-frequency ablation)

Beahrs Vandertoll(25) 17%

(26)

(8-10) Seiler (10) 5.6% 2.0%

(intraoperative electromyographic monitoring) (8,27)

10.8%, 2.9%

(28,29)

(cotton sponge)

(hemostatic clamp) (blunt dissection),

(sternocleidomastoid muscle)

(89)

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