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Risk of Needing Completion Thyroidectomy for Low-Risk Papillary Thyroid Cancer Treated by Lobectomy

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Abstract: Background: Differentiated thyroid cancers, particularly papillary thyroid carcinoma, have increased in incidence worldwide. For carefully selected low-risk disease, thyroid lobectomy is increasingly used to reduce surgical morbidity, although some patients later require completion thyroidectomy due to postoperative histopathological findings. **Aim of the study:** To evaluate the risk of requiring completion thyroidectomy among patients with low-risk papillary thyroid carcinoma treated initially with thyroid lobectomy. **Patients and methods**: A prospective observational cohort study was conducted at Baghdad Teaching Hospital, Medical City Complex, including 45 patients managed between 1 January 2025 and 1 January 2026. Baseline clinical, ultrasound, cytology, operative, and histopathological variables were collected. Logistic regression analyses were performed to identify predictors of completion thyroidectomy. **Results:** The cohort included 45 patients with a mean age of 45.6 ± 8.4 years; 71.1% were female. Mean preoperative nodule size was 1.74 ± 0.53 cm. Completion thyroidectomy was performed in 62.2%, with a mean interval of 1.9 ± 0.5 months. Postoperative hypocalcemia occurred in 26.7% and hematoma in 8.9%. In multivariable analysis, larger nodule size (adjusted odds ratio 6.59 per 1 cm; 95% confidence interval 1.28–33.91; probability value = 0.024), preoperative multifocality (adjusted odds ratio 5.20; 95% confidence interval 1.03–26.39; probability value = 0.046), and Bethesda category V cytology (adjusted odds ratio 9.56; 95% confidence interval 1.47–62.09; probability value = 0.018) were significant predictors. **Conclusion:** A substantial proportion of low-risk papillary thyroid carcinoma patients treated with lobectomy required completion thyroidectomy. Nodule size, preoperative multifocality, and Bethesda category V cytology were independent predictors, supporting enhanced preoperative counseling and risk-adapted surgical planning.

Keywords: Papillary thyroid carcinoma; thyroid lobectomy; completion thyroidectomy.

INTRODUCTION

The incidence of differentiated thyroid cancers (DTCs) has been steadily increasing worldwide over recent decades, largely attributed to improved diagnostic techniques and heightened clinical awareness. Despite this rise, DTCs, and particularly papillary thyroid carcinoma (PTC), are characterized by indolent behavior and excellent survival outcomes. This favorable prognosis has fueled an ongoing debate regarding the optimal extent of surgery for low-risk disease, balancing oncological safety with minimization of surgical morbidity. (van Houten, P. *et al*., 2023)

Historically, total thyroidectomy was considered the standard approach for most DTCs, including those greater than 1 cm in size. However, the 2021 American Thyroid Association (ATA) guidelines marked a significant paradigm shift, endorsing thyroid lobectomy as an acceptable initial surgical option for carefully selected low-risk patients. These include individuals with tumors less than 4 cm, without extrathyroidal extension, angioinvasion, or nodal metastasis. The rationale for this more conservative strategy lies in reducing complications such as recurrent laryngeal nerve injury and hypoparathyroidism, as well as sparing patients from lifelong thyroid hormone replacement when feasible. (Bible, K. C. *et al*., 2021)

Nevertheless, certain histopathological features—such as vascular invasion, microscopic extrathyroidal extension, or multifocality—may only be identified after lobectomy. When such adverse features are detected postoperatively, completion thyroidectomy is often indicated. This creates a clinical dilemma: while lobectomy may initially appear sufficient, a subset of patients will require a second surgical procedure, with its own risks and implications. (Robenshtok, E. *et al*., 2025)

Although previous research has examined completion thyroidectomy rates in DTC more broadly, specific data regarding the need for completion thyroidectomy in patients with low-risk papillary thyroid carcinoma treated with lobectomy remains limited. Given that PTC accounts for approximately 85% of all DTCs, and that it represents the subgroup most frequently managed with lobectomy under current guidelines, clarifying this issue is of considerable clinical importance. (DiMarco, A. N. *et al*., 2019)

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The aim of this study is to evaluate the risk of requiring completion thyroidectomy among patients with low-risk papillary thyroid carcinoma who undergo initial management with thyroid lobectomy.

PATIENTS AND METHODS

This study is designed as a prospective observational cohort evaluating the risk of requiring completion thyroidectomy among patients with low-risk papillary thyroid carcinoma (PTC) initially treated by thyroid lobectomy. The study was conducted at Baghdad Teaching Hospital, Medical City Complex, and included 45 eligible cases managed during 1st of January 2025 till 1st of January 2026. A convenience sampling approach was applied, enrolling all eligible patients captured during the study period.

Ethical and scientific approval for the research was obtained from the Scientific Committee at the Department of General Surgery, Iraqi board for medical specialization. Informed consent was obtained from all patients before starting data collection and after explaining the details of the study and assuring confidentiality.

Inclusion Criteria

- Patients with a diagnosis of papillary thyroid carcinoma managed initially with unilateral thyroid lobectomy (right or left).
- Classification as low-risk PTC at the time of initial surgical planning.
- Availability of core preoperative documentation, including ultrasound assessment of the index nodule size and lymph node status, and FNA Bethesda category.
- Availability of final histopathology report for the lobectomy specimen.

Exclusion Criteria

- Non-papillary thyroid malignancies or mixed histology not classified as papillary thyroid carcinoma.
- Initial total thyroidectomy as the primary operation (i.e., no initial lobectomy).
- Prior thyroid surgery before the index lobectomy.

Data was collected using a structured case report. Baseline patient characteristics included age, sex, residence (urban/rural), comorbidities (e.g., diabetes mellitus, hypertension, coronary artery disease), family history of thyroid cancer, and presenting scenario (symptomatic nodule vs. incidental finding). Preoperative assessment variables included ultrasound-derived nodule size (cm), suspected multifocality, suspected extrathyroidal extension, and cervical lymph node status (suspicious vs. negative), as well as FNA Bethesda category (II–VI).

Operative variables included side of lobectomy (right vs. left) and immediate postoperative complications (none, hematoma, recurrent laryngeal nerve palsy, hypocalcemia) as documented in inpatient and follow-up notes. Pathology variables from the lobectomy specimen include tumor size (cm), histological variant, multifocality, extrathyroidal extension, vascular invasion, and margin status (positive vs. negative).

All participants underwent a standardized preoperative work-up within the study framework. High-resolution neck ultrasound was performed preoperatively to characterize the index nodule (maximum diameter in centimeters), assess suspected multifocality, evaluate for sonographic suspicion of extrathyroidal extension, and determine cervical lymph node status (suspicious versus negative). Fine needle aspiration cytology was obtained and was recorded using the Bethesda category. The operative plan (right versus left lobectomy) was finalized preoperatively and recorded.

All initial operations were performed as unilateral thyroid lobectomy under general anesthesia through a standard anterior cervical (collar) incision. Following creation of subplatysmal flaps and midline separation of the strap muscles, the thyroid lobe was exposed and mobilized using a capsular dissection technique. Particular attention was directed to the deliberate identification and preservation of key structures, including the recurrent laryngeal nerve and the parathyroid glands, with preservation of parathyroid vascularity prioritized throughout dissection. The superior pole vessels were controlled with careful technique to reduce risk to adjacent laryngeal innervation, and the isthmus was divided to complete the unilateral resection. Hemostasis was secured before layered closure according to institutional practice. Intraoperative findings relevant to oncologic risk (e.g., macroscopic invasion beyond the thyroid, or clinically suspicious nodal disease) were documented in the operative record.

Preoperative ultrasound assessment informed intraoperative vigilance for nodal disease. When lymph nodes were clinically suspicious based on

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preoperative imaging and/or intraoperative assessment, nodal sampling or therapeutic compartmental dissection was performed according to the operating surgeon's judgment and institutional standards.

All lobectomy specimens were submitted for formal histopathological evaluation using institutional pathology protocols. The operating team ensured appropriate specimen labeling and laterality identification. Pathology reporting elements were captured on the study form and included tumor size (cm), histological variant, multifocality, extrathyroidal extension, vascular invasion, and margin status (positive versus negative). Where multiple foci were reported, multifocality was recorded as present. These pathological variables were treated as the primary determinants for postoperative risk characterization and for identifying indications that could necessitate completion thyroidectomy.

Patients were monitored for early neck complications, including hematoma, and for symptoms or signs suggestive of recurrent laryngeal nerve dysfunction. Biochemical assessment was performed and hypocalcemia was recorded when diagnosed biochemically.

For participants who underwent completion thyroidectomy, the procedure was performed as a planned re-operative neck surgery through the prior cervical incision. Dissection proceeded with heightened attention to altered tissue planes and postoperative scarring, with systematic identification and preservation of the recurrent laryngeal nerve and parathyroid glands emphasized throughout the operation.

Low-risk papillary thyroid cancer (PTC) operationally defined as papillary thyroid carcinoma in which preoperative evaluation demonstrates no local or distant metastases, no macroscopic invasion of locoregional tissues/structures (i.e., no gross extrathyroidal extension), consistent with the American Thyroid Association (ATA) low-risk recurrence category. For the purposes of defining a cohort appropriate for initial lobectomy, eligibility may be further restricted to tumors >1 cm and <4 cm on ultrasonography, without extrathyroidal extension, and without clinical evidence of lymph node metastasis (cN0) on examination and ultrasound. (Haugen, B. R. *et al*., 2016)

Primary outcome is the proportion of patients requiring completion thyroidectomy after initial lobectomy.

Indication(s) for completion thyroidectomy included (based on histopathological findings):

1. Tumor >4 cm.
2. Multifocal disease.
3. Extrathyroidal extension.
4. Vascular invasion.
5. Positive margin.
6. Lymph node metastasis.

Continuous variables were expressed as means and standard deviations. Categorical variables were expressed as frequency and percentages. Univariate and multivariable logistic regression were performed to identify factors associated with completion thyroidectomy, reporting OR/adjusted OR with 95% CI. R software packages were used for data processing, visualization, and statistical analysis ("R version 4.3.0, R Foundation for Statistical Computing, Vienna, Austria").

RESULTS

The cohort (N = 45) had a mean age of 45.6 ± 8.4 years; 32 (71.1%) were female and 13 (28.9%) were male. Most participants lived in urban areas (41, 91.1%), with 4 (8.9%) from rural areas. Diabetes was reported in 29 (64.4%) and hypertension in 13 (28.9%); family history of thyroid cancer was present in 6 (13.3%). Presentation was most commonly a palpable/known nodule (34, 75.6%), while 11 (24.4%) were incidentally detected; as seen in Table 1.

Table 1: Baseline demographic and clinical characteristics of the study cohort (N = 45).

Characteristic		**N = 45**[1]
Age (years)		45.6 ± 8.4
Sex	Male	13 (28.9%)
	Female	32 (71.1%)
Residence	Urban	41 (91.1%)
	Rural	4 (8.9%)
Comorbidity	DM	29 (64.4%)
	HTN	13 (28.9%)

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Family history of thyroid cancer		6 (13.3%)
Presenting symptoms	Nodule	34 (75.6%)
	Incidental	11 (24.4%)
[1] Mean ± SD; n (%)		

Mean preoperative nodule size was 1.7 ± 0.6 cm. Ultrasound-reported multifocality was present in 18 (40.0%), and suspected extrathyroidal extension was noted in 3 (6.7%). Lymph node status was negative in all patients (45, 100.0%). Fine-needle aspiration cytology showed Bethesda III in 3 (6.7%), Bethesda IV in 19 (42.2%), and Bethesda V in 23 (51.1%). Initial surgery was left lobectomy in 21 (46.7%) and right lobectomy in 24 (53.3%) as seen in Table 2.

Table 2: Preoperative ultrasound, cytology, and initial surgical approach (N = 45).

Characteristic		**N = 45[1]**
Preoperative ultrasound findings	Nodule size (cm)	1.74 ± 0.53
	Presence of Multifocality	18 (40.0%)
	Extrathyroidal extension suspected	3 (6.7%)
Lymph node status	Negative	45 (100.0%)
	Suspicious	0 (0.0%)
Fine needle aspiration (Bethesda category)	III	3 (6.7%)
	IV	19 (42.2%)
	V	23 (51.1%)
Initial surgery	Left lobectomy	21 (46.7%)
	Right lobectomy	24 (53.3%)
[1] Mean ± SD; n (%)		

Mean tumor size on pathology was 1.71 ± 0.53 cm, and all cases were papillary histology (45, 100.0%). Pathology-confirmed multifocality was observed in 7 (15.6%), extrathyroidal extension in 6 (13.3%), and vascular invasion in 14 (31.1%). Margins were negative in 40 (88.9%) and positive in 5 (11.1%), as seen in Table 3.

Table 3: Histopathologic findings from the lobectomy specimen (N = 45).

Characteristic		**N = 45[1]**
Pathology results (lobectomy specimen)	Tumor size (cm)	1.71 ± 0.53
	Histological variant (Papillary)	45 (100.0%)
	Multifocality (pathology)	7 (15.6%)
	Extrathyroidal extension	6 (13.3%)
	Vascular invasion	14 (31.1%)
Margins	Negative	40 (88.9%)
	Positive	5 (11.1%)
[1]Mean ± SD; n (%)		

Postoperative complications were absent in 29 (64.4%), while hypocalcemia occurred in 12 (26.7%) and hematoma in 4 (8.9%). Completion thyroidectomy was performed in 28 (62.2%). The mean interval between surgeries was 1.9 ± 0.5 months, and all patients were NED (45, 100.0%) as seen in Table 4.

Table 4: Postoperative outcomes, completion thyroidectomy frequency (N = 45).

Characteristic		**N = 45[1]**
Postoperative complications	None	29 (64.4%)
	Hypocalcemia	12 (26.7%)
	Hematoma	4 (8.9%)
Completion thyroidectomy performed		**28 (62.2%)**
Interval between surgeries (months)		1.9 ± 0.5
Current disease status	NED (No evidence of disease)	45 (100.0%)
[1] n (%); Mean ± SD		

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In univariate analysis, statistically significant factors ($p < 0.05$) included nodule size (per 1 cm; OR 4.58, 95% CI 1.27–16.56; $p = 0.020$), preoperative multifocality (OR 5.71, 95% CI 1.55–21.06; $p = 0.009$), and Bethesda V (vs IV) cytology (OR 6.22, 95% CI 1.45–26.64; $p = 0.014$). Other variables were not statistically significant, including age ($p = 0.581$), sex ($p = 0.624$), diabetes ($p = 0.390$), and hypertension ($p = 0.193$), while suspected extrathyroidal extension showed $p = 0.053$, as seen in Table 5.

Table 5: Univariate logistic regression for factors associated with needing completion thyroidectomy (N = 45).

Characteristic	**OR (95% CI)**	**p-value**
Age (per 1 year)	0.99 (0.94–1.03)	0.581
Male (vs Female)	1.47 (0.32–6.80)	0.624
Urban (vs Rural)	0.33 (0.10–1.16)	0.083
Diabetes	2.04 (0.40–10.46)	0.390
Hypertension	2.45 (0.64–9.44)	0.193
Family history of thyroid CA	0.39 (0.07–2.20)	0.288
Incidental presentation (vs Nodule)	1.71 (0.47–6.24)	0.414
Nodule size (per 1 cm)	4.58 (1.27–16.56)	**0.020**
Preop multifocality	5.71 (1.55–21.06)	**0.009**
Preop suspected extrathyroidal extension	5.54 (0.98–31.45)	0.053
Bethesda V (vs IV)	6.22 (1.45–26.64)	**0.014**
Abbreviations: CI = Confidence Interval, OR = Odds Ratio, US = Ultrasound, ETE = Extrathyroidal extension		

In the multivariable model, statistically significant factors ($p < 0.05$) were ultrasound nodule size (per 1 cm; adjusted OR 6.59, 95% CI 1.28–33.91; $p = 0.024$), preoperative multifocality (adjusted OR 5.20, 95% CI 1.03–26.39; $p = 0.046$), and Bethesda V cytology (vs IV and III; adjusted OR 9.56, 95% CI 1.47–62.09; $p = 0.018$). Age and sex were not statistically significant ($p = 0.820$ and $p = 0.817$, respectively), as seen in Table 6.

Table 6: Multivariable logistic regression for factors associated with needing completion thyroidectomy (N = 45).

Characteristic	Adjusted OR (95% CI)	p-value
Age (per 1 year)	0.99 (0.93–1.06)	0.820
Male (vs Female)	1.26 (0.18–8.96)	0.817
US Nodule size (per 1 cm)	6.59 (1.28–33.91)	**0.024**
Preop multifocality (	5.20 (1.03–26.39)	**0.046**
Bethesda V (vs IV and III)	9.56 (1.47–62.09)	**0.018**
Abbreviations: CI = Confidence Interval, OR = Odds Ratio, US = Ultrasound		

DISCUSSION

Low-risk papillary thyroid carcinoma (PTC) is increasingly managed with thyroid lobectomy in carefully selected patients (typically intrathyroidal tumors up to 4 cm, cN0, and no gross extrathyroidal extension), as endorsed by modern guideline-based practice [34]. However, because definitive risk stratification depends on final histopathology, a meaningful proportion of patients may later require completion thyroidectomy when adverse features (e.g., multifocality, extrathyroidal extension, vascular invasion, or positive margins) are discovered after the initial operation. The present prospective cohort evaluated 45 patients with preoperatively low-risk papillary thyroid carcinoma (PTC) treated initially with thyroid lobectomy. Despite low-risk eligibility at the time of planning, completion thyroidectomy was performed in 62.2% of patients, with a mean interval between surgeries of 1.9 ± 0.5 months.

A completion thyroidectomy rate of 62.2% is higher than what many guideline-driven cohorts report, but it is not entirely unexpected when lobectomy eligibility is defined only by preoperative features. The 2015 American Thyroid Association (ATA) broadened the role of lobectomy for selected intrathyroidal PTC (roughly 1–4 cm) without clinically evident nodal disease or gross extrathyroidal extension, aiming

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to reduce morbidity from routine total thyroidectomy. (Haugen, B. R. *et al*., 2025)

However, several studies demonstrate that final pathology often reveals adverse features that were not confidently detected preoperatively, leading to recommendations for completion surgery. DiMarco *et al*. (2019) reported that just under half of "low-risk 1–4 cm" patients would ultimately be advised to undergo completion thyroidectomy after lobectomy when full pathology becomes available. Similarly, Worrall *et al*. (2023) observed that 38% of patients undergoing lobectomy later required completion thyroidectomy after comprehensive histopathologic review. Vargas-Pinto *et al*. (2019) also emphasized that across studies, the proportion of lobectomy-eligible patients who later meet criteria for completion can vary widely, often clustering around one-third to one-half depending on definitions and thresholds. (Vargas-Pinto, S., & Arenas, M. A. R. 2019)

The present cohort's higher proportion may reflect local clinical decision thresholds and the burden of adverse histopathology observed after lobectomy: vascular invasion (31.1%), extrathyroidal extension (13.3%), positive margins (11.1%), and pathology-confirmed multifocality (15.6%). Even when each individual feature is moderate in frequency, multiple findings can coexist in the same patient, meaning the overall "trigger" for completion accumulates across the cohort. Moreover, completion thyroidectomy may be selected to enable radioiodine planning, thyroglobulin surveillance, and reassurance in settings where structured long-term monitoring may be logistically variable (Ward *et al*., 2022).

In the present study, ultrasound nodule size was a strong independent predictor of completion thyroidectomy, with an adjusted OR of 6.59 per 1 cm increase. The magnitude suggests that size meaningfully influences the likelihood of discovering features that prompt escalation.

Larger tumors more often correlate with microscopic extension beyond the thyroid capsule, vascular invasion, and occult multifocality, all of which can shift risk classification after surgery (Haugen *et al*., 2016; Filetti *et al*., 2019; Rossi *et al*. (2025) similarly emphasized tumor size and vascular invasion as key histologic parameters driving completion thyroidectomy decisions, and identified a size threshold around ~21 mm in their ROC-based approach, reinforcing that size near or above 2 cm can meaningfully change risk expectations. (Rossi, L. *et al*., 2019)

Size influences decision-making in two ways. First, it affects the preoperative choice between lobectomy and total thyroidectomy. Second, it predicts the probability of postoperative discordance, where a "low-risk" preoperative plan becomes "intermediate-risk" after histology. Therefore, in patients near upper size limits (for example, 2–4 cm), counseling should clearly include the possibility that lobectomy may not be definitive, particularly when other suspicious features are present. This is especially important because a second operation increases patient burden, delays definitive endocrine planning, and may increase complication risk compared with completing treatment in a single-stage approach .

Preoperative ultrasound-reported multifocality was present in 40.0%, while pathology-confirmed multifocality was only 15.6%. This gap is clinically important. On one hand, ultrasound may overcall multifocality, particularly when benign nodules or pseudonodules exist. On the other hand, ultrasound can also miss microscopic multifocal foci, especially when lesions are small or obscured by multinodular backgrounds.

Evidence supports that ultrasound sensitivity for multicentric or multifocal PTC is limited. Lu *et al*. (2020) concluded that ultrasonography is not sufficiently sensitive to detect multicentric PTC consistently, meaning that preoperative mapping alone may not prevent postoperative surprises. (Lu, C. *et al*., 2020)

Clinically, this finding suggests two balanced implications. First, a report of multifocality on ultrasound should prompt careful review (repeat imaging, expert radiology input, or targeted sampling when appropriate). Second, it supports the concept that the "lobectomy-first" approach works best when preoperative imaging is high-quality and standardized, because decision-making is only as reliable as staging accuracy.

Fine-needle aspiration cytology (FNAC) showed a high proportion of Bethesda V nodules (51.1%). Bethesda V ("suspicious for malignancy") is widely used as part of a standardized reporting framework, with the 2017 Bethesda revision reinforcing its role in communicating malignancy risk and guiding surgical planning. (Cibas, E. S. & Ali, S. Z. 2017)

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In the present cohort, Bethesda V independently predicted completion thyroidectomy (adjusted OR 9.56). Several published studies support the idea that Bethesda V/VI results can correlate with a higher prevalence of aggressive clinicopathologic findings, including extrathyroidal extension and multifocality. Kleiman *et al*. (2013) observed higher rates of extrathyroidal extension and multifocality among Bethesda V/VI malignancies compared with Bethesda III/IV, although they also noted that differences can partly reflect underlying histologic subtype distribution. Lima *et al*. (2019) similarly reported that Bethesda V/VI nodules may be associated with more aggressive features and may influence treatment intensity. (Lima, A. R. L. R. *et al*., 2019)

A central message from the present results is that preoperative "low-risk" does not guarantee postoperative low-risk pathology. Completion thyroidectomy is typically recommended when adverse findings are discovered that alter recurrence risk stratification or management options. In this cohort, the frequency of vascular invasion (31.1%), extrathyroidal extension (13.3%), and positive margins (11.1%) suggests meaningful postoperative reclassification.

The prognostic role of some findings, however, remains debated. Vascular invasion has been historically associated with more aggressive behavior in thyroid carcinoma, and earlier work reported that it can correlate with more aggressive disease at diagnosis. (Parvathareddy, S. K. *et al*., 2021)

For extrathyroidal extension, modern evidence increasingly distinguishes between minimal/microscopic ETE and gross ETE. Some studies report that microscopic ETE may increase recurrence risk (Pacini *et al*., 2020), while others find limited or no independent effect when confounders are controlled (Jiang *et al*., 2024). Parvathareddy *et al*. (2021) reported microscopic ETE associations with poorer outcomes in a Middle Eastern PTC cohort, suggesting that local tumor biology or stage distributions could affect prognostic impact. (Parvathareddy, S. K. *et al*., 2021)

Therefore, the present results support a nuanced approach: lobectomy remains valid for selected patients, but "selection" must be rigorous, and postoperative decisions should weigh the benefit of completion against the risk and burden of reoperation.

The present cohort reported postoperative complications including hypocalcemia (26.7%) and hematoma (8.9%), with most patients (64.4%) having no reported complications. In standard practice, transient hypocalcemia is expected to be more common after total or completion thyroidectomy than after lobectomy alone, because additional parathyroid manipulation can occur during bilateral surgery.

Vaiman *et al*. (2010) described clinically relevant risks in completion thyroidectomy, including permanent hypocalcemia and recurrent laryngeal nerve injury rates. Gulcelik *et al*. (2012) found no major differences between completion and total thyroidectomy complications except for temporary hypocalcemia, reinforcing that completion can be safe but still carries meaningful morbidity. (Gulcelik, M. A. *et al*., 2012)

Limitations

- Single-center design may limit generalizability to other hospitals with different imaging standards and surgical thresholds.
- Short follow-up duration limits assessment of long-term recurrence, survival, and late complications.

CONCLUSION

- Completion thyroidectomy occurred in nearly two-thirds of patients initially treated by lobectomy for preoperatively low-risk PTC.
- Larger ultrasound nodule size, preoperative multifocality, and Bethesda V cytology independently predicted the need for completion thyroidectomy.
- Histopathologic upstaging after lobectomy remains a major reason for two-stage surgical management in "low-risk" disease.
- Short-term outcomes were favorable, with all patients reported as having no evidence of disease at current evaluation.

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