

# FOLLICULAR VARIANT OF PAPILLARY THYROID CARCINOMA: AN INTERMEDIATE CLINICAL ENTITY

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## BACKGROUND

Majority of well-differentiated thyroid cancers are commonly classified as either papillary thyroid carcinoma (PTC) or follicular thyroid carcinoma (FTC) based on their predominant histology. It has been observed that only half of the PTC cases were considered as classic type papillary thyroid carcinoma (C-PTC). Follicular variant papillary thyroid cancer (FV-PTC) appeared to be the most common subtype representing between 9% - 22.5% of all PTC cases. With the dramatic increase in thyroid cancer incidence, FV-PTC has also been increasingly diagnosed in recent times. Despite its high incidence, the clinical behaviour, prognosis and outcome of FV-PTC remains controversial and challenging for most physicians. This study aims to determine the disease characteristics of FV-PTC, compare its clinical profile, behaviour and outcomes with C-PTC and FTC in a single institution in the Philippines (Philippine General Hospital).

## METHODOLOGY

This is a retrospective cohort study of 606 thyroid cancer patients diagnosed as C-PTC (n=440), FV-PTC (n=87) or FTC (n=79) by biopsy seen at the Philippine General Hospital between January 1990 and June 2014. Age at diagnosis, male percentage, tumor size, extrathyroidal extension, multifocality, bilaterality, nodal and distant metastases at presentation, treatment modalities received, recurrence and mortality rates were all tabulated and recorded using a descriptive statistical analysis (mean, standard deviation). Different clinical variables of 3 groups were then compared using a univariate logistic regression analysis.

## Comparison of Clinico-pathologic Features of Classical and Follicular Variant of Papillary Thyroid Carcinoma and Follicular Thyroid Carcinoma

Characteristic	Follicular Variant Papillary Thyroid Carcinoma (N = 87)	Classic Papillary Thyroid Carcinoma (N = 440)	Follicular Thyroid Carcinoma (N = 79)	p-Value (<0.05)
Age at Diagnosis (years)	43 ± 13	43 ± 13	44 ± 13	0.523
Male Percentage (%)	13 (14.9)	72 (16.4)	7 (8.9)	0.231
Tumor Size (cm)	3.6 ± 2.1	3.3 ± 1.8	3.5 ± 1.9	0.725
Extrathyroidal Extension (%)	5 (5.7)	38 (8.7)	4 (5.1)	0.112
<b>Multifocality (%)</b>	<b>22 (25.3)</b>	<b>100 (22.7)</b>	6 (7.6)	<b>0.003</b>
<b>Bilateral Involvement (%)</b>	<b>18 (20.7)</b>	<b>75 (17.1)</b>	5 (6.3)	<b>0.017</b>
<b>Lymph Node Involvement (%)</b>	7 (8.1)	<b>166 (37.7)</b>	6 (7.6)	<b>&lt;0.001</b>
<b>Distant Metastases (%)</b>	5 (5.8)	15 (3.4)	<b>10 (12.7)</b>	<b>0.004</b>

## Comparison of Treatment Modalities and Clinical Outcomes of Classical and Follicular Variant of Papillary Thyroid Carcinoma and Follicular Thyroid Carcinoma

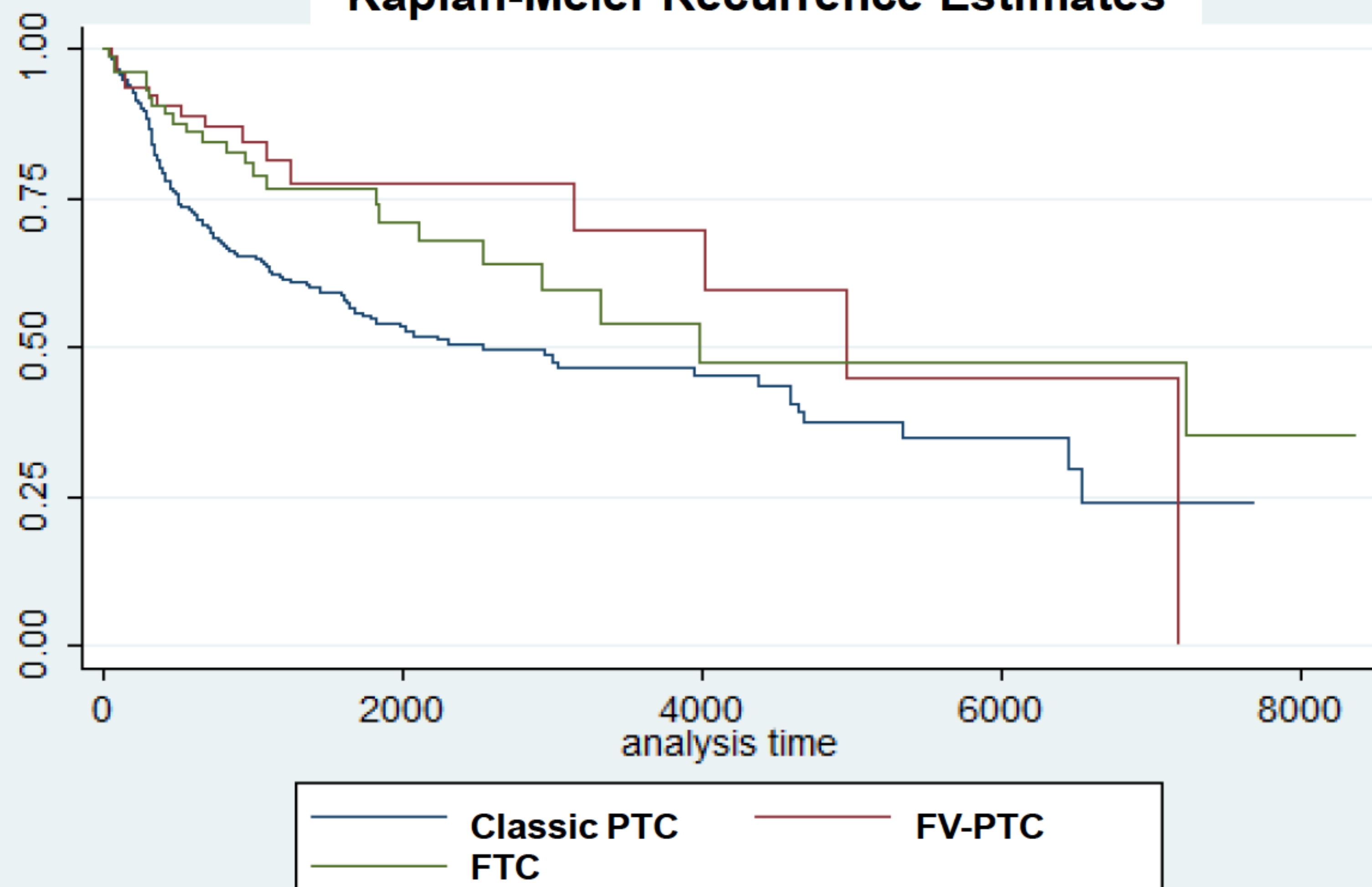
Characteristic	Follicular Variant Papillary Thyroid Carcinoma (N = 87)	Classic Papillary Thyroid Carcinoma (N = 440)	Follicular Thyroid Carcinoma (N = 79)	p-Value (<0.05)
Complete Thyroidectomy	80 (92.0)	413 (93.9)	71 (89.9)	0.339
Radioactive Iodine Therapy (%)	61 (70.1)	338 (76.8)	58 (73.4)	0.370
<b>Recurrence Rate (%)</b>	16 (18.4)	<b>173 (39.4)</b>	23 (29.1)	<b>0.007</b>
<b>Mortality Rate (%)</b>	0 (0)	2 (0.5)	<b>2 (2.5)</b>	<b>0.015</b>

## Comparison of Clinical Behaviour of Follicular Variant of Papillary Thyroid Carcinoma Across Different Studies

FV-PTC Clinical Behaviour	Present Study (2014)	Yu et.al. [15] (2013)	Lin et.al. [11] (2010)	Chang et.al. [8] (2006)
Percentage	<b>20%</b>	33%	32%	33%
Age at Diagnosis (yrs)	<b>43</b>	46	48	43
Tumor Size (cm)	<b>3.6</b>	2.8	-	2.7
Multifocality	<b>High</b>	-	-	-
Bilateral Involvement	<b>High</b>	-	-	-
Nodal Metastases	<b>Low</b>	Low	Low	Low
Distant Metastases	<b>Intermediate</b>	Intermediate	-	High
Mortality Rate	<b>Low</b>	Low	Low	Low
Recurrence Rate	<b>Low</b>	Low	-	Low

## Kaplan-Meier Recurrence Curve for Classical and Follicular Variant of Papillary Thyroid Carcinoma and Follicular Thyroid Carcinoma

### Kaplan-Meier Recurrence Estimates



## CONCLUSION

FV-PTC represents a major sub-type of PTC that represents an intermediate entity between C-PTC and FTC. Although it behaves clinically like FTC presenting with lower lymph node metastases and higher distant metastases than C-PTC, its long-term survival and prognosis is quite similar with that of C-PTC. Treatment recommendations (complete thyroidectomy with ablative radioactive iodine therapy) for C-PTC and FTC can be applied to FV-PTC cases.

