

## Supplementary materials

**Table S1.** Pathological characteristics of TCTs' MTC components in relation to the histopathological prognostic features.

Pathological characteristics	Tumor focality		p-value	mETE		p-value	LVI		p-value	LNM		p-value
	U (#20)	M (#3)		P (#8)	A (#15)		P (#11)	A (#12)		P (#7)	A (#8)	
<b>Sex</b>												
Male	4(20%)	3(100%)	<b>0.020</b>	3(37.5%)	4(26.7%)	0.657	5(45.5%)	2(16.7%)	0.193	3(42.9%)	0(0%)	0.077
Female	16(80%)	0(0%)		5(62.5%)	11(73.3%)		6(54.5%)	10(83.3%)		4(57.1%)	8(100%)	
<b>Tumor size (mm)</b>												
< 10 mm	5(25%)	2(66.7%)	0.253	1(12.5%)	6(40%)	0.107	1(9.1%)	6(50%)	<b>0.002</b>	0(0%)	4(50%)	<b>0.006</b>
10 - 40 mm	9(45%)	0(0%)		2(25%)	7(46.7%)		3(27.3%)	6(50%)		2(28.6%)	4(50%)	
> 40 mm	6(30%)	1(33.3%)		5(62.5%)	2(13.3%)		7(63.6%)	0(0%)		5(71.4%)	0(0%)	
<b>Amyloid</b>												
Present	12(60%)	1(33.3%)	0.560	6(75%)	7(46.7%)	0.379	9(81.8%)	4(33.3%)	<b>0.036</b>	6(85.7%)	3(37.5%)	0.119
Absent	8(40%)	2(66.7%)		2(25%)	8(53.3%)		2(18.2%)	8(66.7%)		1(14.3%)	5(62.5%)	
<b>pT category</b>												
T1	12(60%)	2(66.7%)	1.000	2(25%)	12(80%)	<b>0.025</b>	3(27.3%)	11(91.7%)	<b>0.001</b>	1(14.3%)	7(87.5%)	<b>0.005</b>
T2	2(10%)	0(0%)		1(12.5%)	1(6.7%)		1(9.1%)	1(8.3%)		1(14.3%)	1(12.5%)	
T3	5(25%)	1(33.3%)		4(50%)	2(13.3%)		6(54.5%)	0(0%)		4(57.1%)	0(0%)	
T4	1(5%)	0(0%)		1(12.5%)	0(0%)		1(9.1%)	0(0%)		1(14.3%)	0(0%)	
<b>AJCC stage</b>												
I	11(55%)	2(66.7%)	0.618	2(25%)	11(73.3%)	<b>0.044</b>	2(18.2%)	11(91.7%)	<b>0.000</b>	0(0%)	7(87.5%)	<b>0.000</b>
II	2(10%)	1(33.3%)		1(12.5%)	2(13.3%)		2(18.2%)	1(8.3%)		0(0%)	1(12.5%)	
III	2(10%)	0(0%)		1(12.5%)	1(6.7%)		2(18.2%)	0(0%)		2(28.6%)	0(0%)	
IV	5(25%)	0(0%)		4(50%)	1(6.7%)		5(45.5%)	0(0%)		5(71.4%)	0(0%)	

\*p-value <0.05 was considered to be statistically significant

Abbreviations: LVI, lymphovascular invasion; LNM, lymph node metastasis; mETE, microscopic extrathyroidal extension; P, present; A, absent; U, unifocal; M, multifocal; #, number of cases.

**Table S2.** Pathological characteristics of TCTs' PTC components in relation to the histopathological prognostic features

Pathological characteristics	Focality of the tumor		p-value	mETE		p-value	LVI		p-value
	U (#17)	M (#6)		P (#3)	A (#20)		P (#3)	A (#20)	
<b>Tumor size (mm)</b>									
< 10 mm	16(94.1%)	4(66.7%)	0.155	1(33.3%)	19(95%)	<b>0.034</b>	1(33.3%)	19(95%)	<b>0.034</b>
10 - 40 mm	1(5.9%)	2(33.3%)		2(66.7%)	1(5%)		2(66.7%)	1(5%)	
<b>Growth pattern</b>									
Conventional	11(64.7%)	0(0%)	<b>0.014</b>	2(66.7%)	9(45%)	0.59	2(66.7%)	9(45%)	0.590
Follicular	6(35.3%)	6(100%)		1(33.3%)	11(55%)		1(33.3%)	11(55%)	
<b>pT category</b>									
T1	16(94.1%)	4(66.7%)	0.155	1(33.3%)	19(95%)	<b>0.034</b>	1(33.3%)	19(95%)	<b>0.034</b>
T2	1(5.9%)	2(33.3%)		2(66.7%)	1(5%)		2(66.7%)	1(5%)	
<b>AJCC stage</b>									
I	17(100%)	4(66.7%)	0.059	2(66.7%)	19(95%)	0.249	2(66.7%)	19(95%)	0.249
II	0(0%)	2(33.3%)		1(33.3%)	1(5%)		1(33.3%)	1(5%)	
<b>Coexisting thyroid pathology</b>									
Colloid goiter	10(58.8%)	4(66.7%)	0.100	2(66.7%)	12(60%)	1.000	1(33.3%)	13(65%)	0.190
Nodular goiter	6(35.3%)	0(0%)		1(33.3%)	5(25%)		2(66.7%)	4(20%)	
Hashimoto thyroiditis	1(5.9%)	2(33.3%)		0(0%)	3(15%)		0(0%)	3(15%)	

\*p-value <0.05 was considered to be statistically significant

Abbreviations: RTL right thyroid lobe, LTL left thyroid lobe, LVI lymphovascular invasion, mETE microscopic extrathyroidal extension, P present, A absent, U unifocal, M multifocal, # - number of cases.

**Table S3.** Pathological characteristics of PTC-only tumors in relation to the histopathological prognostic features

Pathological characteristics	Focality of the tumor		p-value	LVI		p-value
	U (#15)	M (#8)		P (#6)	A (#17)	
<b>Age at diagnosis</b>						
<55 yo	4(26.7%)	2(25%)	1.000	4(66.7%)	2(11.8%)	<b>0.021</b>
>55 yo	11(73.3%)	6(75%)		2(33.3%)	15(88.2%)	
<b>Sex</b>						
Male	0(0%)	2(25%)	0.111	1(16.7%)	1(5.9%)	0.462
Female	15(100%)	6(75%)		5(83.3%)	16(94.1%)	
<b>Tumor size (mm)</b>						
< 10 mm	13(86.7%)	6(75%)	0.589	2(33.3%)	17(100%)	<b>0.002</b>
10 - 40 mm	2(13.3%)	2(25%)		4(66.7%)	0(0%)	
<b>Thyroid location</b>						
RTL	9(60%)	3(37.5%)	0.360	3(50%)	9(52.9%)	1.000
LTL	6(40%)	4(50%)		3(50%)	7(41.2%)	
Isthmus	0(0%)	1(12.5%)		0(0%)	1(5.9%)	
<b>Growth pattern</b>						
Conventional	8(53.3%)	6(75%)	0.400	6(100%)	8(47.1%)	<b>0.048</b>
Follicular	7(46.7%)	2(25%)		0(0%)	9(52.9%)	
<b>pT category</b>						
T1	14(93.3%)	6(75%)	0.269	3(50%)	17(100%)	<b>0.011</b>
T2	1(6.7%)	2(25%)		3(50%)	0(0%)	

\*p-value <0.05 was considered to be statistically significant

Abbreviations: RTL right thyroid lobe, LTL left thyroid lobe, LVI lymphovascular invasion, P present, A absent, U unifocal, M multifocal, # - number of cases.

**Table S4.** Pathological characteristics of the TCTs' PTC component compared to PTC-only tumors

		Mean value	t-test value	degrees of freedom (df)	p-value
<b>Age at diagnosis (years)</b>	PTCc	61.700	0.748	44.000	0.458
	PTC-only	59.740			
<b>Sex (M/F)</b>	PTCc	1.300	1.890	36.466	0.67
	PTC-only	1.090			
<b>Diameter (mm)</b>	PTCc	6.174	-0.889	44.000	0.379
	PTC-only	8.483			
<b>Thyroid site (LTL/RTL/Isthmus)</b>	PTCc	2.430	-0.222	44.000	0.825
	PTC-only	2.480			
<b>Growth pattern (Conventional/Follicular)</b>	PTCc	1.520	0.876	44.000	0.386
	PTC-only	1.390			
<b>Focality of the tumor (Unifocal/Multifocal)</b>	PTCc	1.740	0.630	44.000	0.532
	PTC-only	1.650			
<b>mETE (Present/Absent)</b>	PTCc	1.130	1.817	22.000	0.083
	PTC-only	1.000			
<b>LVI (Present/Absent)</b>	PTCc	1.130	-1.106	41.229	0.275
	PTC-only	1.260			
<b>PNI (Present/Absent)</b>	PTCc	1.040	0.000	44.000	1.000
	PTC-only	1.040			
<b>Lymph node metastasis (Present/Absent)</b>	PTCc	1.200	-0.765	25.000	0.452
	PTC-only	1.330			
<b>pathologic T category (T1/T2)</b>	PTCc	1.130	0.000	44.000	1.000

	PTC-only	1.130			
AJCC stage (I/II)	PTCc	1.090	0.000	44.000	1.000
	PTC-only	1.090			

\*p-value <0.05 was considered to be statistically significant

Abbreviations: M male, F female, LTL left thyroid lobe, RTL right thyroid lobe, mETE microscopic extrathyroidal extension, LVI lymphovascular invasion, PNI perineural invasion, PTCc papillary thyroid carcinoma component, PTC-only papillary thyroid carcinoma-only.