Clinical and biochemical criteria for the prognosis of small medullary thyroid carcinomas

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Introduction - Aim of the study

- ✓ The prevalence of small medullary thyroid carcinomas (sMTCs, ≤1.5cm) has increased during recent years.
- ✓ They are frequently diagnosed as incidental findings in surgical and occasionally in autopsy specimens.
- ✓ As their clinical course varies, various prognostic risk factors for their biological behaviour have been repeatedly investigated.

We examined whether tumor size is a predictor of clinical behaviour of these tumours.

Patients - Methods

204 MTC patients underwent total thyroidectomy.

119 patients had sMTC (≤1.5 cm)

- Mean age at diagnosis 41.33±17.15 yrs (range 5-78)
- 37% men (n=44)
- Mean time of follow-up: 6.16±5.9 yrs (range 0.9-34)
- 47.1% familial

Patients were classified according to tumor size (cm) in:

1. **group1: 0.1-0.5 (n=25, 24.8%)**
2. **group2: 0.6-0.8 (n=22, 21.8%)**
3. **group3: 0.8-1.0 (n=23, 22.8%)**
4. **group4: 1.1-1.5 (n=31, 30.7%)**

Clinical and biochemical parameters at diagnosis and during follow-up were recorded.

Results

- ✓ The demographic characteristics are shown in table 1.
- ✓ Familial cases did not differ from sporadic ones concerning stage at diagnosis or outcome.
- ✓ Cervical lymph node and capsular invasion were more frequent with increasing tumor size (fig 1).
- ✓ No distant metastases at diagnosis were found in the four groups (fig 1).
- ✓ Preoperative and postoperative calcitonin levels were positively associated with tumour size (p<0.001).
- ✓ The stage at diagnosis was more advanced and the outcome less favourable with increasing tumour size (p<0.004, fig 2, 3).
- ✓ Group 1 and 2 patients were more frequently cured (group1: 88%, group2: 86.7%, group3: 72.7%, group4: 51.7%, p=0.009).
- ✓ The 10year probability of lack of progression of disease according to tumour size did not differ significantly between the 4 groups (group1: 96%, group2: 100%, group3:100%, group4: 81.5%, x2=4.61, p=0.2, Log Rank, fig 4).
- ✓ It differed marginally between patients with tumour 0.1-1.0 and 1.1-1.5cm (98.5%, 81.5%, x2=4.15, p=0.042, log rank, fig 5).
- ✓ In the subgroup of microMTCs (≤1.0 cm) patients with microMTC ≤0.8 had less advanced stage at diagnosis compared to 0.9-1.0cm (stage I&II: 89.4% vs 66.7%, stage III: 8.5% vs 33.3% and stage IV: 2.1% vs 0%, p=0.032, table 2).
- ✓ No differences in the outcome were found between microMTC subgroups.

Table 1. Demographic characteristics according to the tumor size (≤1.5 cm)

	Largest tumor diameter (cm)				
	Group1 0.1-0.5 n=30	Group 2 0.6-0.8 n=31	Group 3 0.9-1.0 n=26	Group 4 1.1-1.5 n=32	P
Age (yrs ±SD)	32.83±17	45.84±14	45.08±18	41.88±16	**0.011**
Sex: males (%)	40%	32.3%	46.2%	31.3%	0.6
Family history: sporadic (%)	29.6%	54.8%	52.2%	46.7%	0.3
Years of follow up (±SD) Median (IQR)	5.0±5.94 2 (8.5)	3.33±4.97 1 (3)	4.9±5.12 3 (4)	7.05±6.8 5 (9)	0.12

Fig 1. Clinical and histological characteristics according to the tumour size (≤1.5 cm)

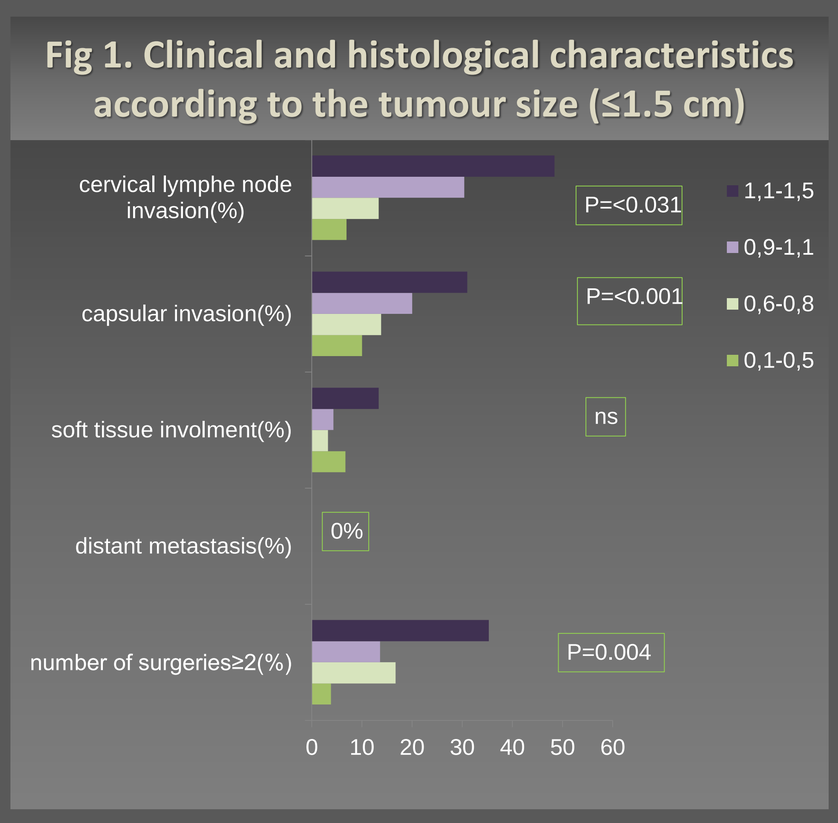

Fig 2. Stage at diagnosis according to the tumor size (≤1.5 cm)

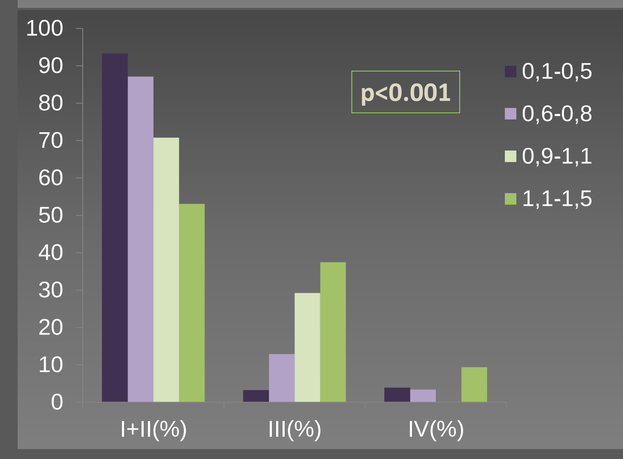

Fig 3. Outcome of the disease according to the tumour size of sMTCs (≤1.5 cm)

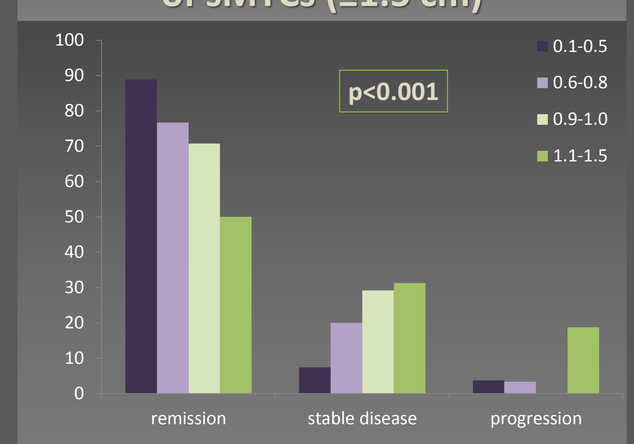

Fig 4. 10-year probability of lack of progression of disease according to the tumour size (0.1-1.5 cm)

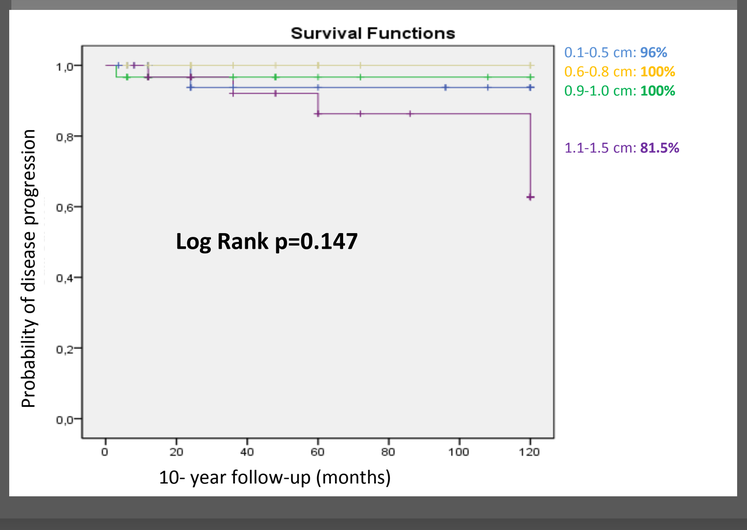

Fig 5. 10-year probability of lack of progression of disease according to the tumour size (0.1-1.0 and 1.1-1.5 cm)

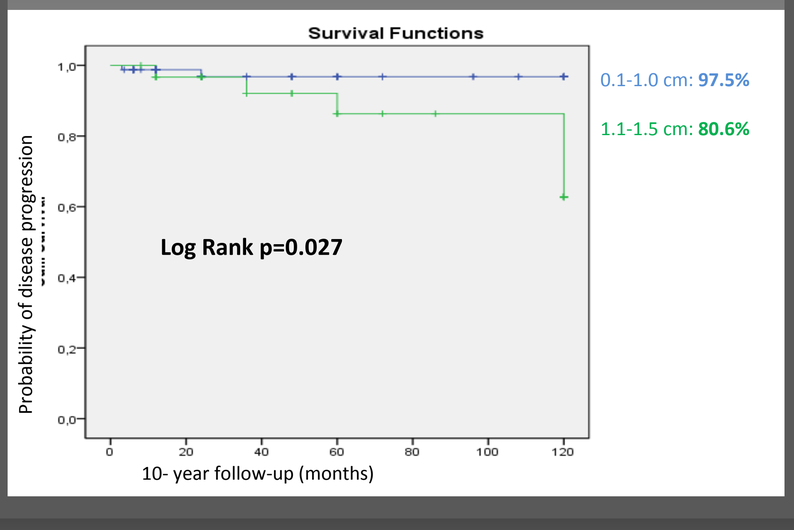

Table 2. Results in the subgroup of patients with micro MTC (≤1.0 cm)

	Largest tumor diameter (cm)		
	0.1-0.8 cm	0.9-1.0 cm	P
Stage at diagnosis:			
I+II	90.2%	70.8%	
III	8.2%	29.2%	0.04
IV	1.6%	0.0%	
Outcome :			
Remission	82.5%	66.6%	
Stable	14%	33.3%	0.2
Progression	3.5%	0.0%	

Conclusions

- Within the group of small MTCs (≤1.5 cm) the probability of 10yr-disease progression slightly increases in those with tumour size >1.0 cm.
- In the subgroup of microMTCs (≤1.0 cm) the stage is less advanced in tumours ≤0.8cm, while the outcome is similar to those with tumour size 0.9-1.0cm.
- Thus tumour size may be of clinical importance for the progression of disease only in patients with MTCs >1cm.