

SURGICAL AND PATHOLOGICAL CHANGES AFTER RADIOFREQUENCY ABLATION OF THYROID NODULES

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INTRODUCTION: Radiofrequency ablation (RFA) is not only an effective but also a reasonably safe treatment option for benign thyroid nodules causing cosmetic concerns, local pain, hyperthyroidism [1]. However, since RFA is relatively new, some concerns on its outcomes still exist. For example would RFA jeopardize a subsequent operation and/or hinder histological diagnosis? Here we present the 2-year follow-up results of 70 patients who underwent RFA. Because of nodule regrowth, two of these patients underwent surgery after being treated with RFA.

OBJECTIVE: The aim of this study was to describe the surgical and pathological changes of the thyroid nodules that were initially treated with RFA and then, due to their regrowth, were surgically removed.

METHODS: This is a retrospective study on the 2-year follow-up results of 64 patients with Thy2 thyroid nodules and 6 patients with Thy3 nodules (case 1-6) who underwent a single session of RFA. Thy2 nodules were selected according to current recommendations [2]. The Thy3 nodules treated with RFA were symptomatic nodules in high-risk individuals or patients refusing surgery. These patients did not have family history of thyroid cancer, did not present suspicious lymph nodes, and had single thyroid nodules, unchanged over the last three years, with no calcifications, and no evidence of nuclear atypia. Since two Thy3 nodules (case 1, case 2) regrew after RFA, the patients underwent surgery. Both RFA and surgery were performed as already described [3]. Patients signed an informed consent before the procedure/s and in order to use their clinical data for scientific purposes.

RESULTS:

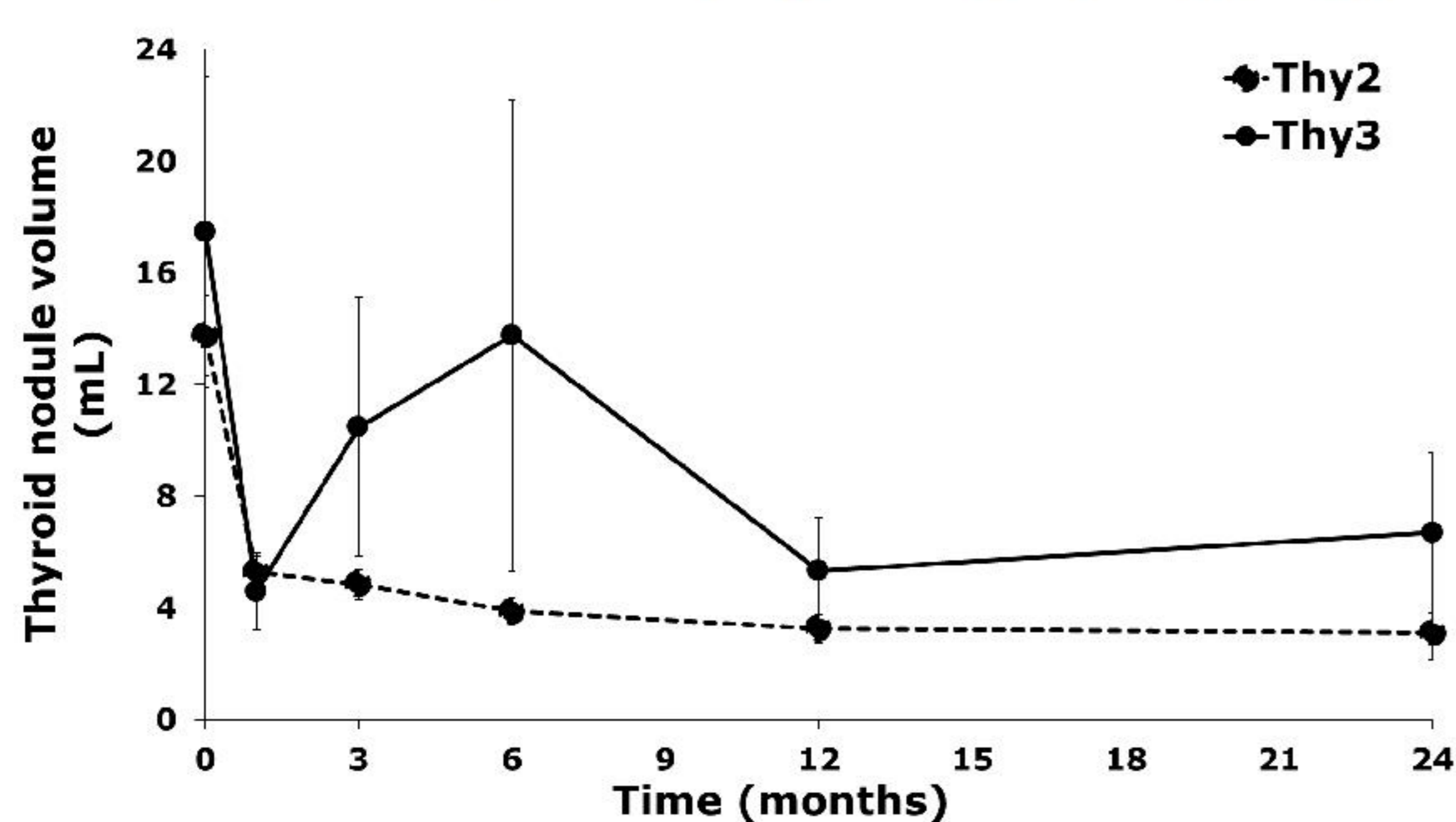
Characteristics of all the patients

Characteristics	Thy2 (n=64)	Thy3 (n=6)	p value
Age (years)	60.47±1.89	61.16±5.62	n.s.
Sex (M)	17	3	n.s.
Nodule max diameter (mm)	36.04±2.40	38.17±4.12	n.s.
Nodule volume (mL)	13.81±1.86	17.46±5.57	n.s.
Solidity > 50%	55	6	n.s.
Solidity < 50%	9	0	n.s.
BRAF mutations	Not tested	Absent	-
NRAS mutations	Not tested	Absent	-
TSH (μU/mL)	1.35±0.23	1.41±0.47	n.s.
Calcitonin (pg/mL)	1.62±0.14	1.42±0.36	n.s.

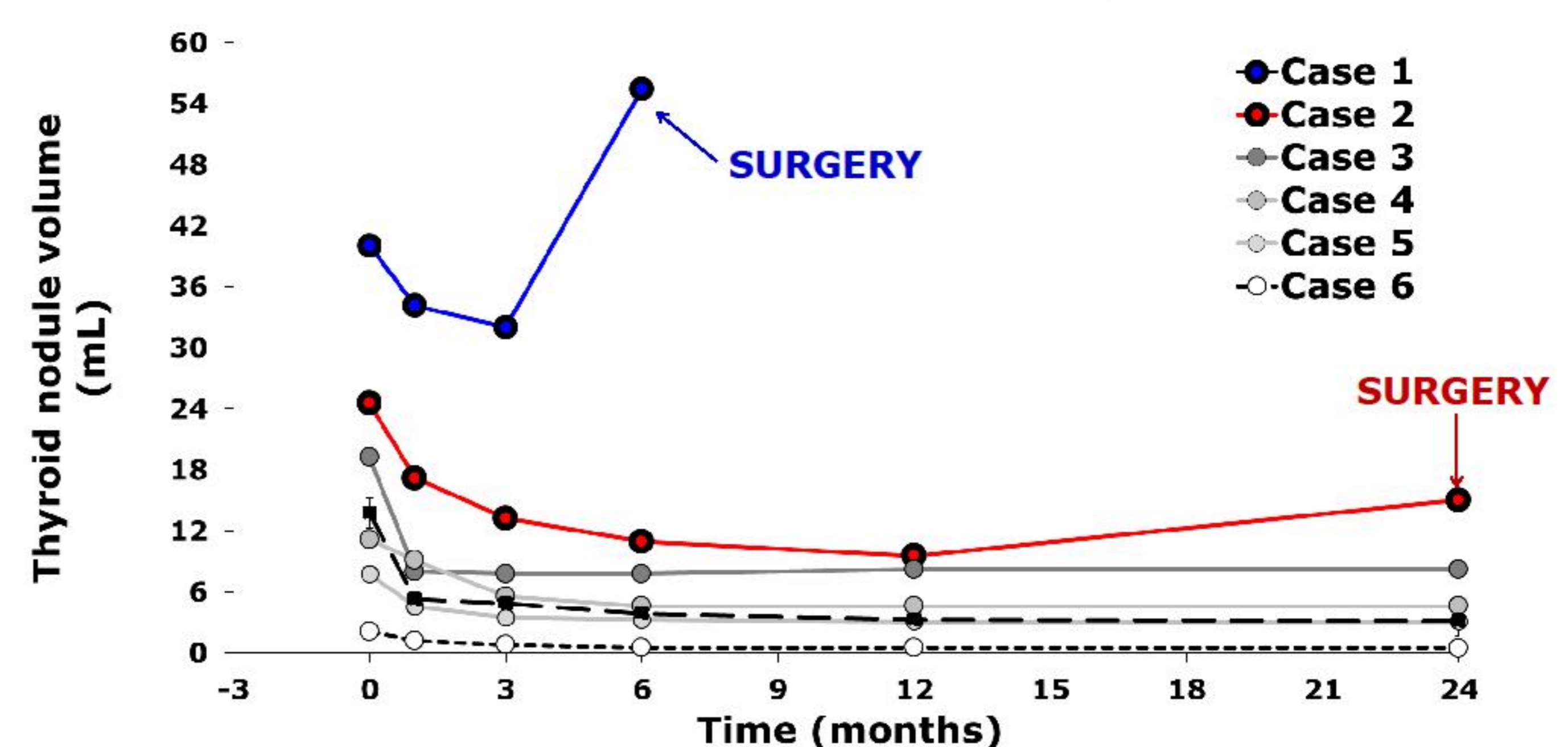
Characteristics of the patients with Thy3 nodules

Characteristics	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Age (years)	71	60	50	53	79	42
Sex	M	F	F	F	M	M
Nodule max diameter (mm)	53	42	41	38	32	23
Nodule volume (mL)	40	24	19	11	7	2
Type of nodule	Solid nodule	Solid nodule	Solid nodule	Solid nodule	Solid nodule	Solid nodule
FNAB	Thy3	Thy3	Thy3	Thy3	Thy3	Thy3
BRAF mutations	Absent	Absent	Absent	Absent	Absent	Absent
NRAS mutations	Absent	Absent	Absent	Absent	Absent	Absent
TSH (μU/mL)	1.38	1.94	1.22	0.65	0.02	3.35
Calcitonin (pg/mL)	1.3	1	1	1	1	3.2
Anti-TPO and/or Anti-TG Abs	Absent	Absent	Absent	Absent	Absent	Absent

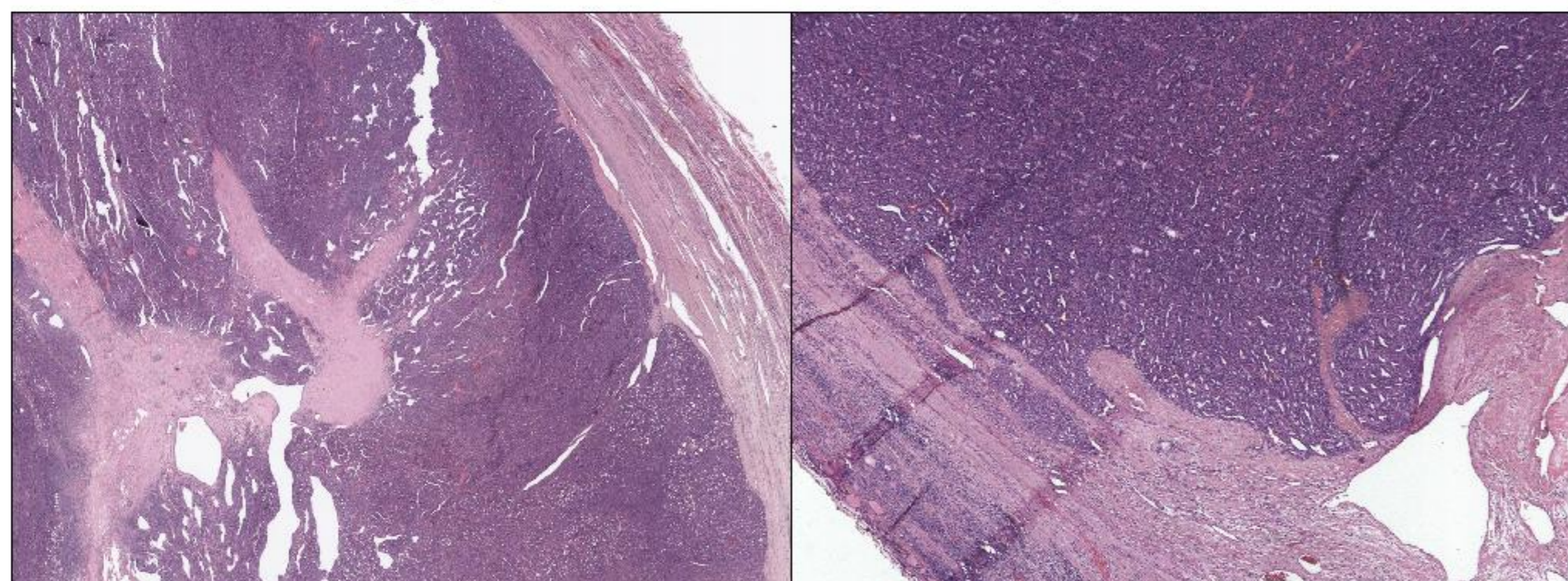
Volume reduction of Thy2 (n=64) and Thy3 (n=6) nodules



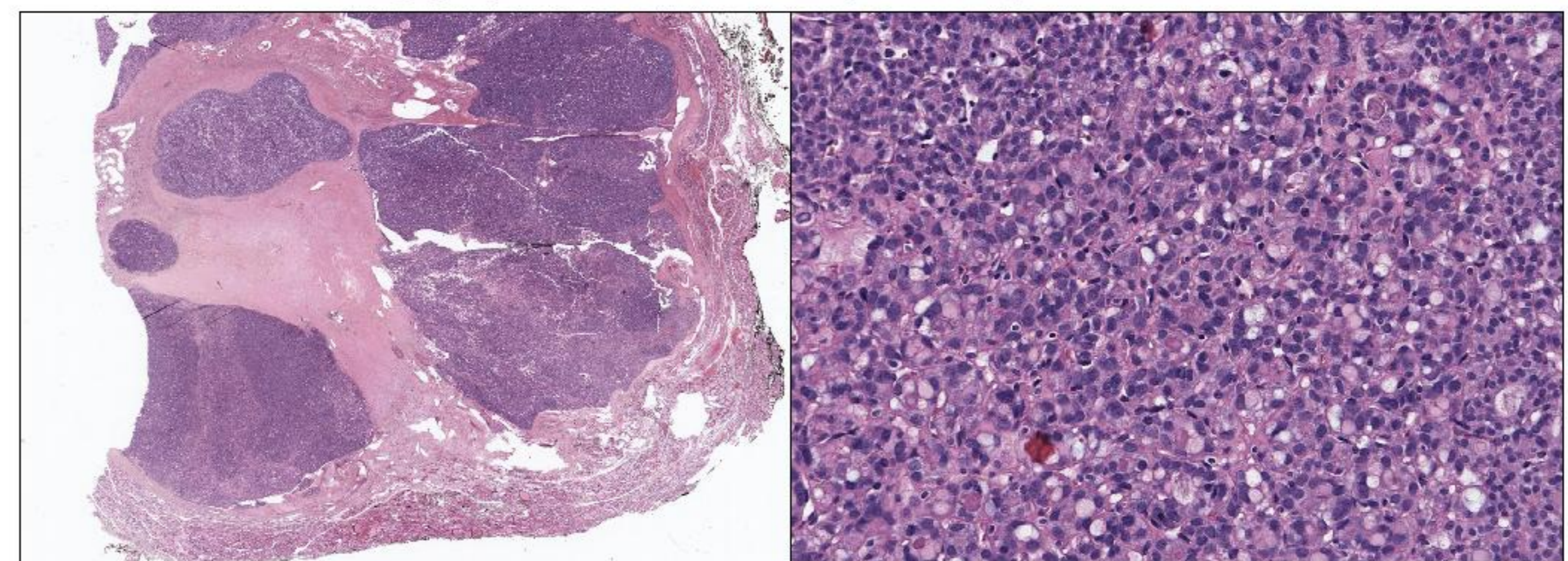
Volume reduction of each Thy3 nodule (cases 1-6)



Case 1 histology (follicular carcinoma)



Case 2 histology (follicular neoplasm)



CONCLUSIONS: RFA is effective for the treatment of Thy2 nodules, but it should not be recommended for the treatment of Thy3 nodules, independently from their mutational status, as it delays surgery in case of malignancy. Nevertheless, here we show for the first time that one session of RFA does not affect subsequent thyroid surgery and/or histological diagnosis.

REFERENCES:

- [1] Gharib H et al, Journal of Clinical Endocrinology and Metabolism, 2013; 98 (10): 3949-3957
- [2] Na DG et al, Korean Journal of Radiology 2012; 13(2): 117-125
- [3] Bernardi S et al, International Journal of Endocrinology, 2014: 934595

