Radiofrequency Bipolar Ablation Therapy for Primary Aldosteronism Patients
- Investigator-Initiated Exploratory Clinical Trial -

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Purpose

To evaluate safety and efficacy of percutaneous radiofrequency ablation therapy for unilateral aldosterone producing adrenal adenoma in normalizing aldosterone secretion.

Patients

Eight cases of aldosterone producing adrenal adenoma with following conditions;
a. CT detectable adenoma without any risky organs on a puncture route.
b. Intervening adipose tissue between target adenoma and adjacent risky organs (pancreas or intestine).
c. Unilateral single functioning macroadenoma with aldosterone hypersecretion proven by adrenal venous sampling.

CT-guided Radiofrequency Ablation

RF needle
Adrenal adenoma
liver
Bipolar ablation needle
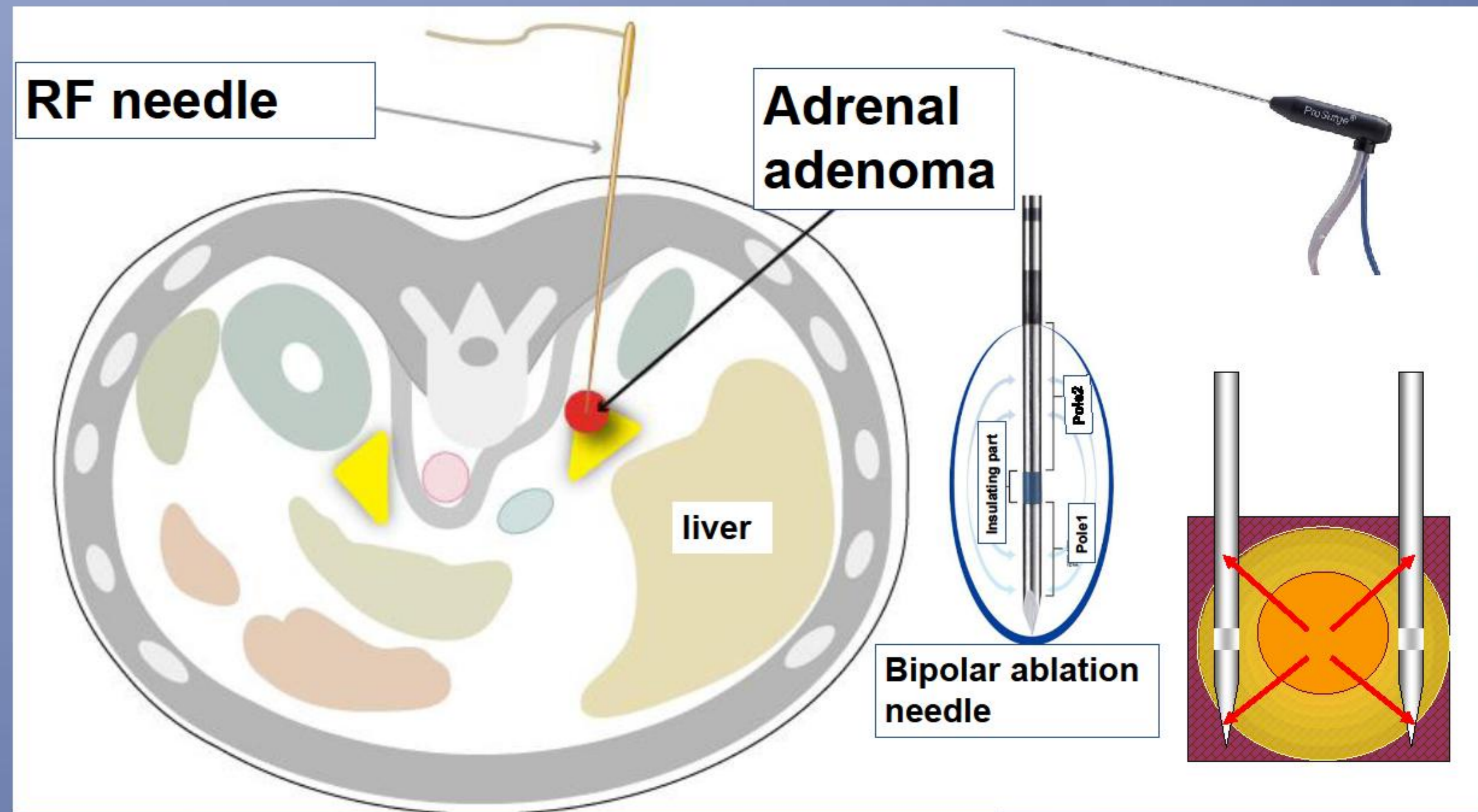
Left aldosterone producing adenoma
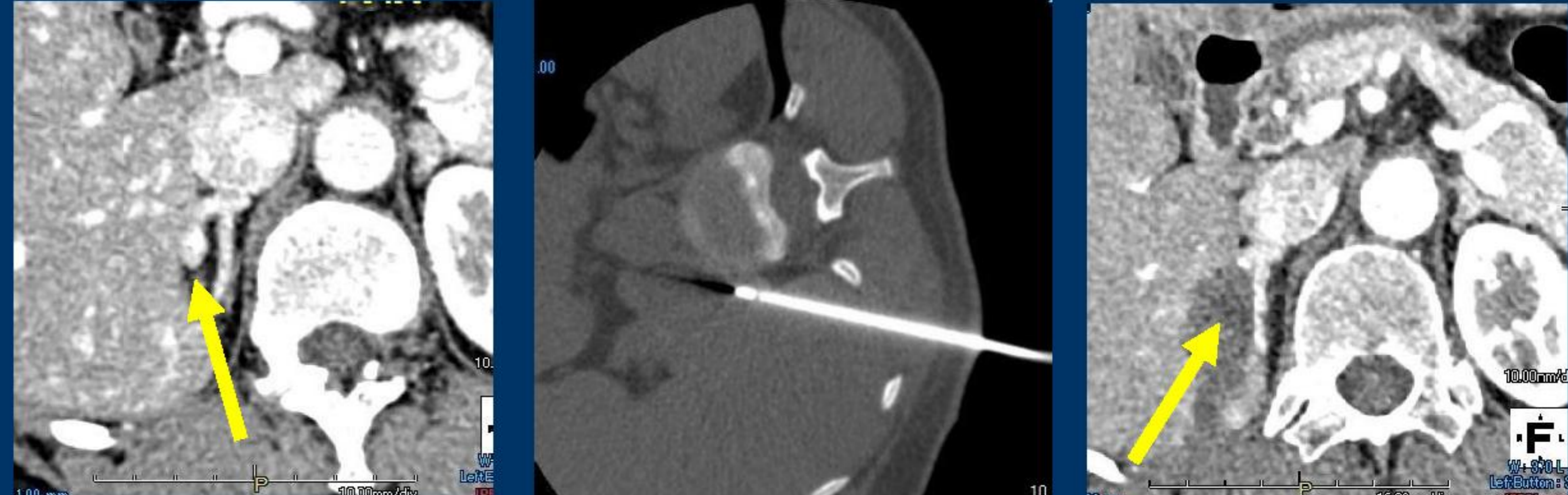
■ Before RFA   R F A   ■ After RFA

- RFA with two bipolar ablation needles
- Enhancement of the adenoma was disappeared after RFA
- Serum aldosterone was decreased

39.0 ng/dL ⟶ 3.8 ng/dL
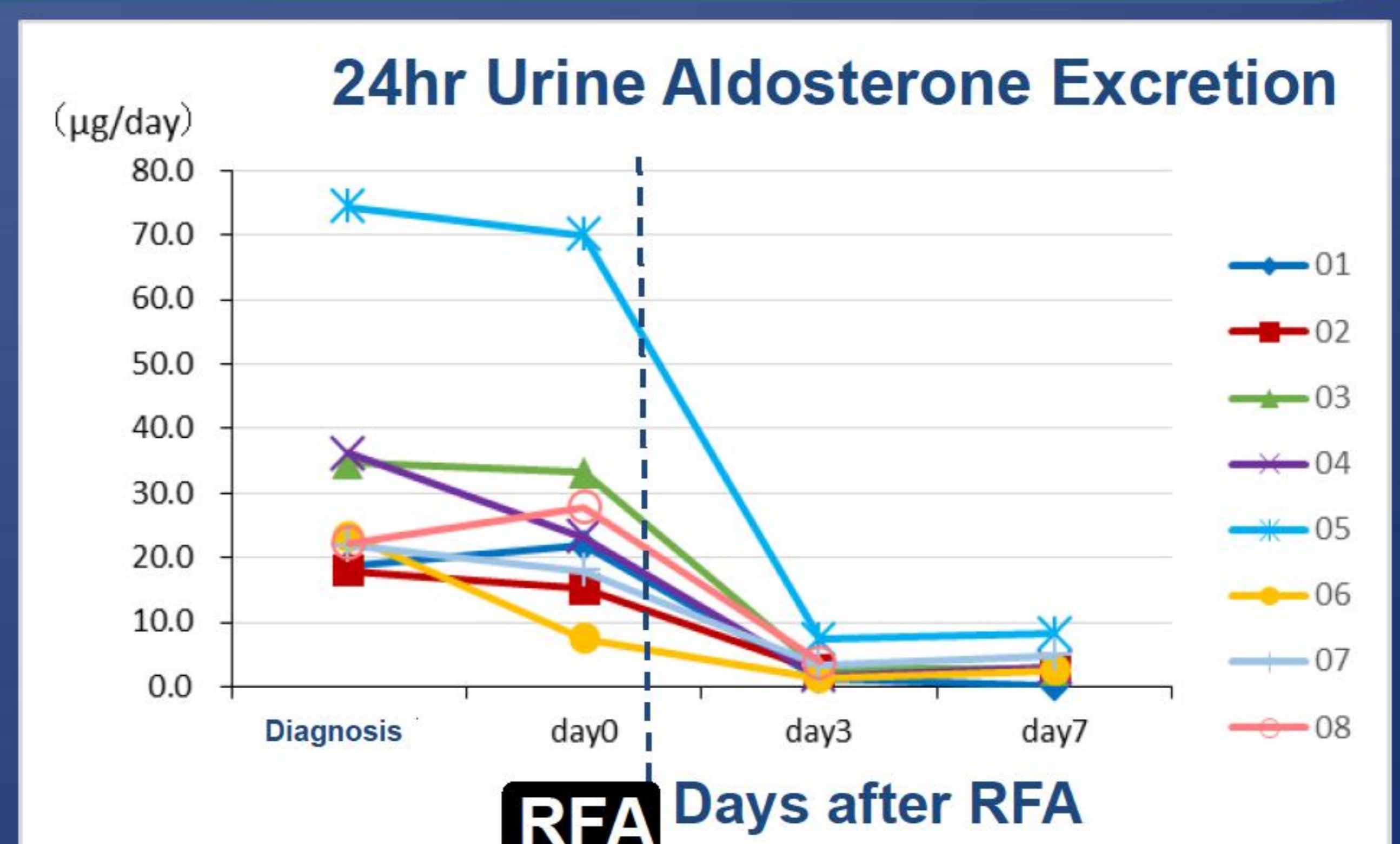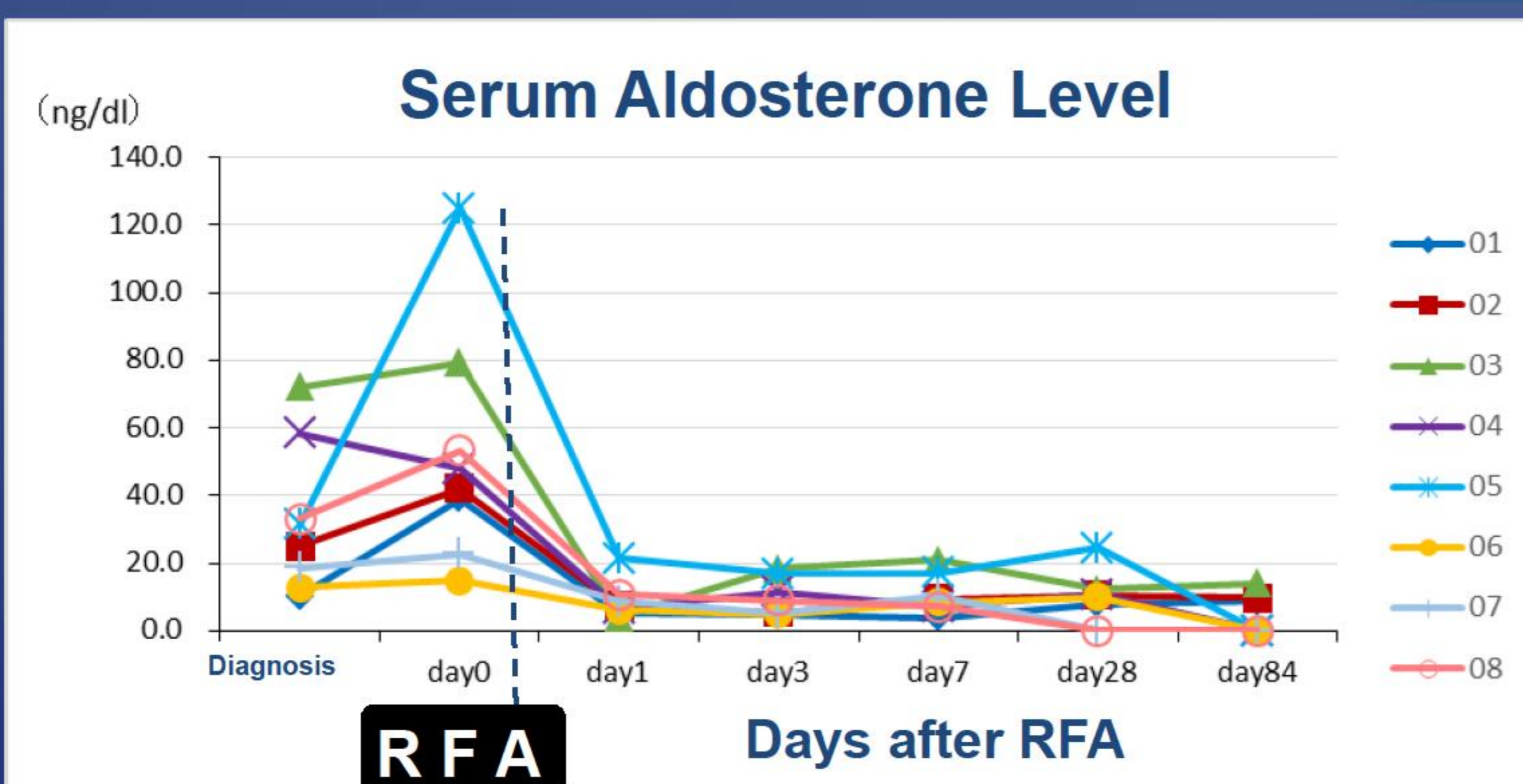
Right aldosterone producing adenoma

■ Before RFA   R F A   ■ After RFA

- Transhepatic puncture of the adenoma
- RFA with single bipolar ablation needle
- Serum aldosterone was decreased

33.4 ng/dL ⟶ 10.6 ng/dL

Results

Serum Aldosterone Level (ng/dl)
Y-axis: 0.0 – 140.0
X-axis: Diagnosis, day0, day1, day3, day7, day28, day84 — Days after RFA
R F A
Series: 01, 02, 03, 04, 05, 06, 07, 08

24hr Urine Aldosterone Excretion (µg/day)
Y-axis: 0.0 – 80.0
X-axis: Diagnosis, day0, day3, day7 — Days after RFA
R F A
Series: 01, 02, 03, 04, 05, 06, 07, 08

In all cases, aldosterone levels in serum and 24-hour aurine were significantly decreased; Serum potassium level was normalized without anti-aldosterone therapy. Postoperative CT showed complete ablation in 6 cases and subtle residual enhanced area in two cases. Doses of anti-hypertensive medication were reduced in all cases including two drug-free patients after ablation. No severe procedure-related complication was observed.

Conclusion

Bipolar radiofrequency ablation is suggested to be safety and effective in treating primary aldosteronism