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Introduction

Cushing's disease (CD) is a rare endocrine disease caused by the circulation of excess cortisol due to hypersecretion of adrenocorticotrophic hormone (ACTH) from a pituitary adenoma.

Transphenoidal surgery is the primary treatment for CD although the biochemical criteria used to define remission varies between studies and the long-term management of patients with CD remains challenging. In particular, there is little evidence concerning the optimal management of patients who fail to enter complete biochemical remission (basal serum cortisol level <50 nmol/L) following their initial surgical treatment.

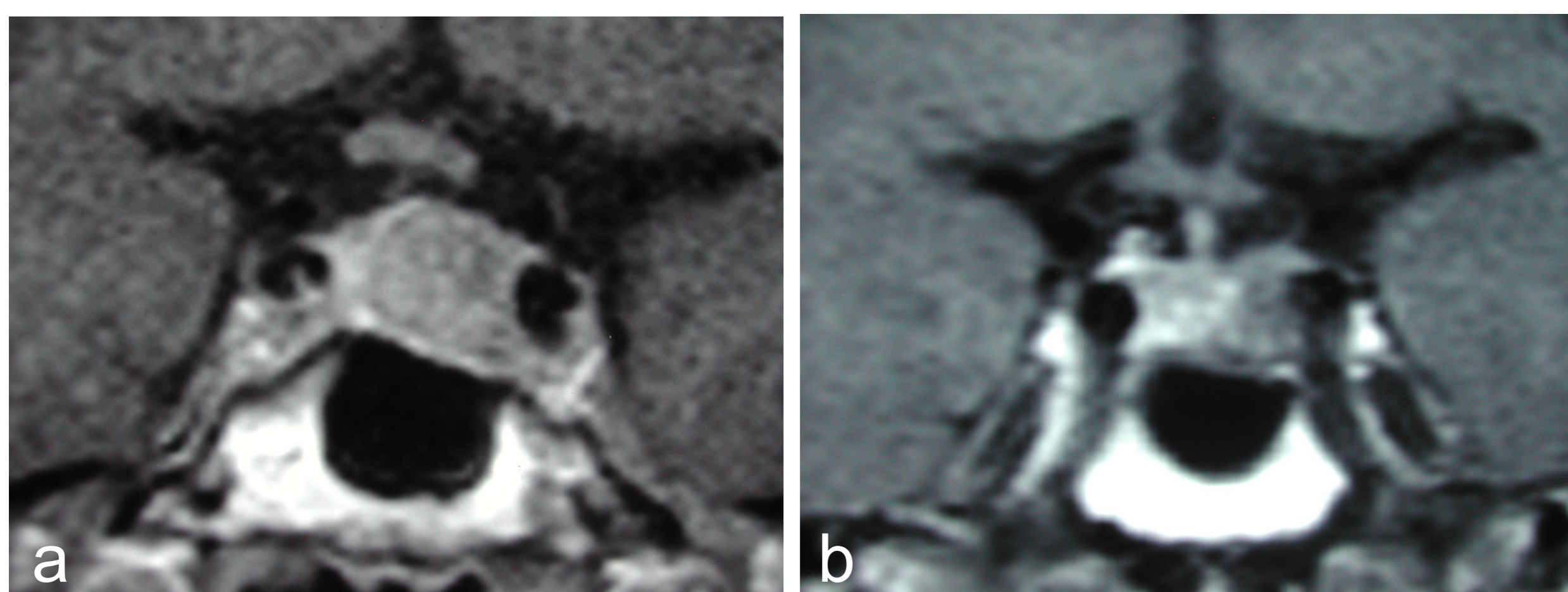


Figure 1. a) Macroadenoma; b) Microadenoma

Aim

To assess the surgical and endocrinological outcomes of patients with Cushing's Disease (CD) following endoscopic pituitary surgery using strict biochemical criteria.

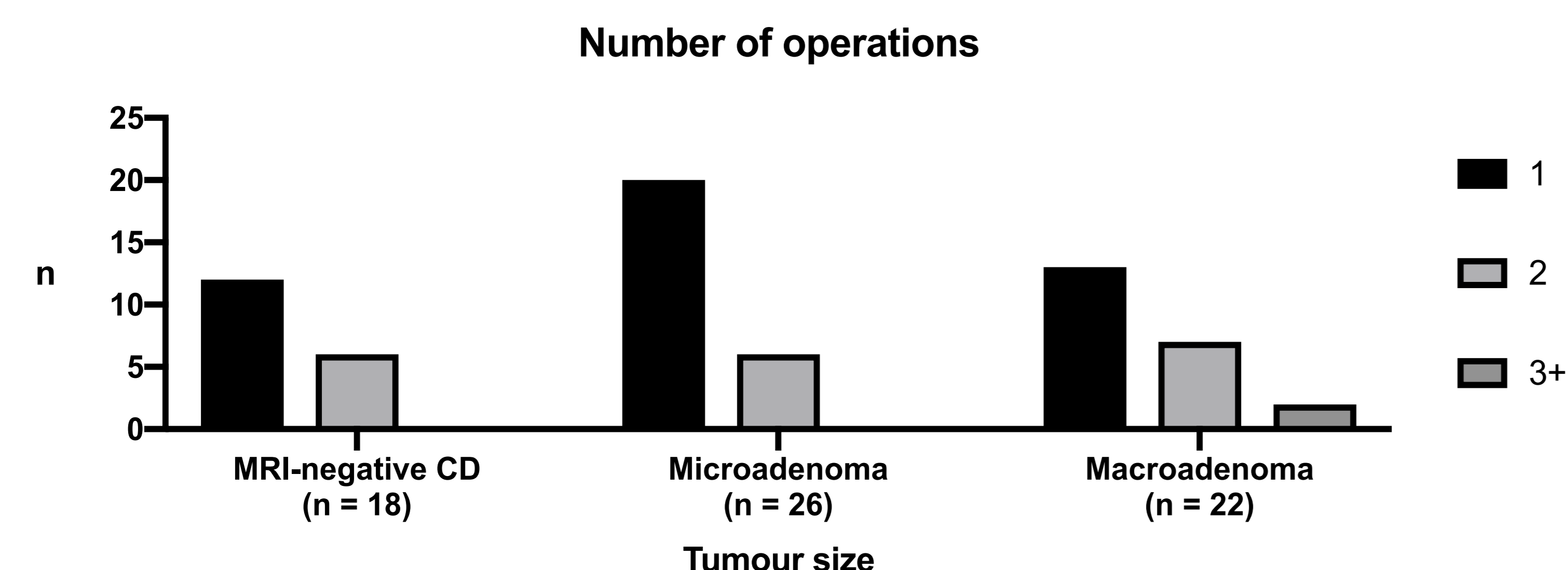
Methods

The medical records of all patients with Cushing's Disease who underwent endoscopic transsphenoidal surgery at King's College Hospital between 2004 and 2016 were retrospectively reviewed. Remission was defined as a fasting serum cortisol level <50 nmol/L either basal or after 1 mg dexamethasone.

Results

Study population

Sixty-six patients (M:F 15:51; age 14-77 years (median: 48 years) underwent surgery in the study period



Surgical experience

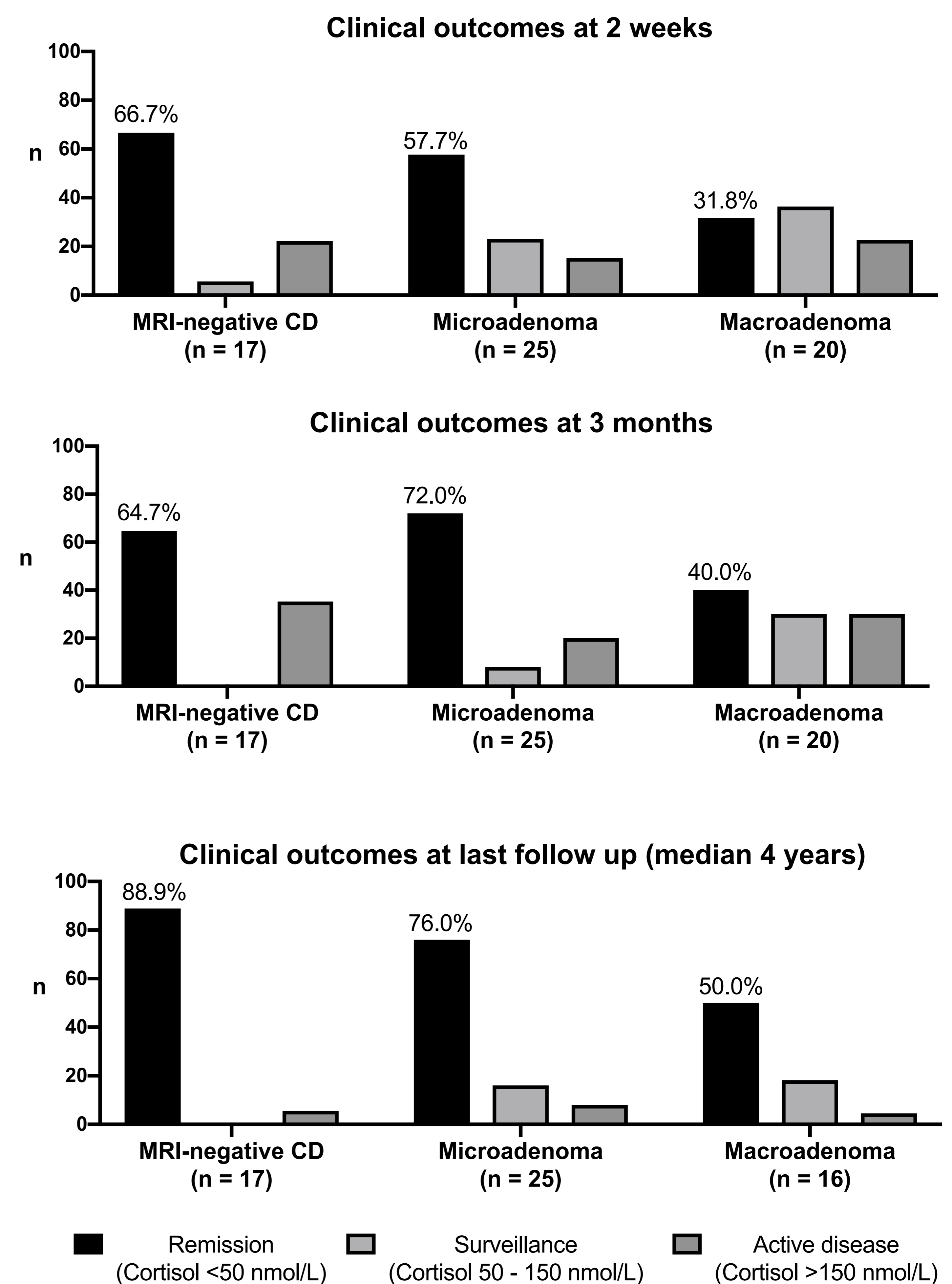
- The study period was divided into Period 1 (2004 – 2010) and Period 2 (2011 – 2016)
- Well matched cohort in Period 1 (34 patients) and Period 2 (32 patients)
- 3-month remission rates for MRI-negative CD and microadenoma were noticeably higher in Period 2 (p = 0.099)

Clinical Outcomes

Disease status determined by a fasting serum cortisol level: remission defined as serum cortisol <50 nmol/L (basal or after 1 mg dexamethasone)

Follow up

Data obtained at 2 weeks, 3 months and last follow up. Median follow up = 4 years (range 1 month to 12 years)



Key findings

- Endoscopic transsphenoidal surgery is an effective first line treatment for patients with CD.
- Remission at 3 months was the single strongest predictive factor for achieving long-term remission (OR 6.6; 95% CI: 1.99, 21.85, p = 0.002)
- Higher remission rates were observed in patients with MRI-negative CDs and microadenomas compared to macroadenomas at all 3 time points
- Patients with a macroadenoma had significantly lower odds of being in remission at their last follow up (OR 0.15 95% CI: 0.03 - 0.92, p = 0.028)
- Increasing age was independently associated with decreasing odds of remission at last follow up (OR 0.94, 95% CI: 0.90, 0.99 p = 0.016)