Hemorrhagic and Non-hemorrhagic Pituitary Apoplexy: A Cohort Study

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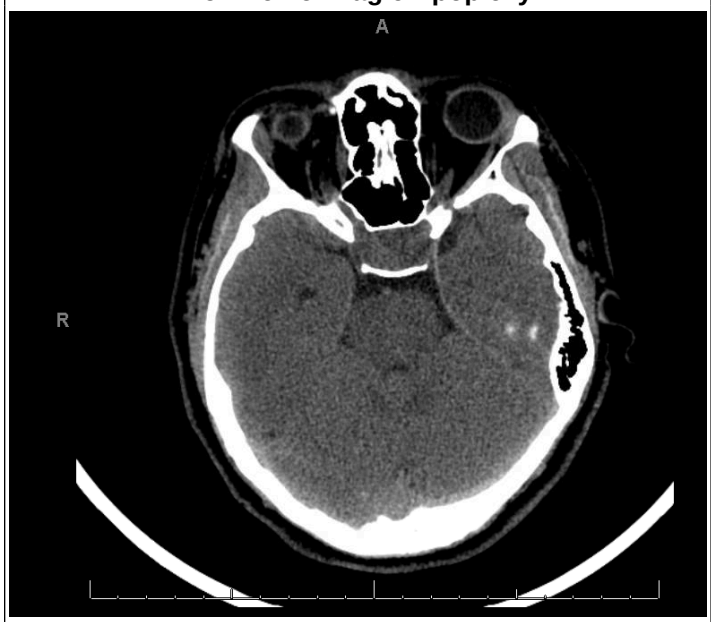
Introduction

The diagnosis of pituitary apoplexy can be difficult as both the clinical presentation and radiographic appearance can be variable. A subset of patients will present with non-hemorrhagic pituitary apoplexy. Early identification and treatment of these patients is essential to prevent further visual decline, acute adrenal insufficiency, and poor outcomes.

Methods

Three hundred and eleven consecutive operative pituitary tumor patients were reviewed for evidence of pituitary apoplexy. Forty patients were found to have hemorrhagic or non-hemorrhagic pituitary apoplexy. A cohort statistical analysis was performed between the two groups.

Non-hemorrhagic Apoplexy



21 year-old female with acute bilateral visual decline and non-hemorrhagic pituitary apoplexy (Axial non-contrast CT)

Conclusions

Hemorrhagic and non-hemorrhagic pituitary apoplexy are similar clinical entities that require prompt surgical decompression of the optic apparatus and medical therapy aimed at treating acute adrenal insufficiency.

Results

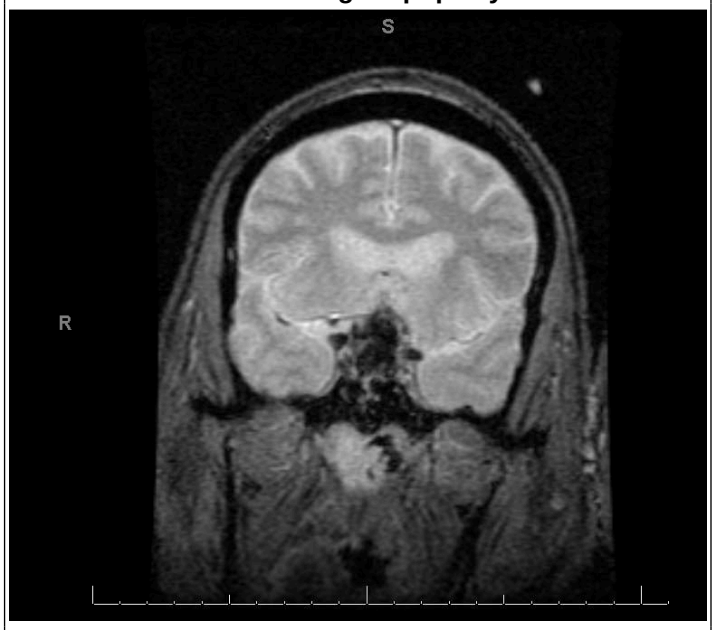
Patients with hemorrhagic (n = 23, 57.5%) and non-hemorrhagic (n=17, 42.5%) pituitary apoplexy were similar except the hemorrhagic cohort was older (mean age 51.5 versus 40.6, p=0.03) and more hypertensive (n=16, p=0.03).

Clinical presentation was similar between groups in terms of headache (p=0.2) and visual complaints (p = 0.8). Radiographic analysis demonstrated a significant difference in the hemorrhagic cohort's computed tomography (CT) finding of hyperdensity within the sella (p = 0.02) and sellar Hounsfield units (mean 45 versus 38.1, p=0.05). Hyperintensity on T1 magnetic resonance imaging was more indicative of patients with hemorrhagic apoplexy (p = 0.004).

Risks of post-operative complications were similar in both hemorrhagic (n=5: RR 1.13, 95% CI 0.59-2.1) and non-hemorrhagic cohorts (n=3: RR 0.84, 95% CI 0.31-2.3). Achievement of a good functional outcome as measured by modified Rankin scale better than 4 at last follow-up was not statistically different among cohorts (p = 0.74). No patient's vision worsened following surgery and 72.2% had improved visual acuity at discharge or last follow-up.

Patients with post-apoplexy pituitary dysfunction were similar in the hemorrhagic (n =18, 48.7%)

Hemorrhagic Apoplexy



69 year-old male with headache, altered mental status, and hemorrhagic apoplexy (Coronal Gradient-echo MRI)

Learning Objectives

Learning objectives: By the conclusion of this session, participants should be able to: 1) Describe the importance of diagnosing and treating both hemorrhagic and non-hemorrhagic pituitary apoplexy