Empty Sella in Neuro-Ophthalmology Patients Without Raised Intracranial Pressure

Aman P. Sayal1, Aaditeya Jhaveri1, Ange Diouf2, Cindy T.Y Lam3, Suradech Suthiphosuwan2, Jonathan A. Micieli3

1University of Toronto, Faculty of Medicine  2University of Toronto, Department of Medical Imaging  3University of Toronto, Department of Ophthalmology and Vision Sciences

INTRODUCTION:
• Empty sella often supports a diagnosis of raised intracranial pressure (ICP)
• It is also seen in normal individuals
• This study’s objective is to determine the prevalence of empty and partially empty sella in neuro-ophthalmology patients undergoing MRI for indications other than papilledema or raised ICP

METHODS:
• Consecutive patients without papilledema or suspected raised ICP who underwent brain MRI between August 2017 and May 2021 were included in the study
• Sagittal T1-weighted images were evaluated by two independent, blinded neuroradiologists who graded the sella using published criteria (categories 1-5, with 1 being normal and 5 showing no visible pituitary tissue)
• Gender, age, OCT RNFL and GCIP thickness, BCVA, IOP, Humphrey mean deviation, BMI, afferent visual issues and efferent visual issues were collected

RESULTS:
• 613 patients (309 men; average age 56.69±18.06 years) were included in the study
• 176 patients had moderate concavity of the pituitary gland (category 3), 81 had severe concavity (category 4) and 26 had no visible pituitary tissue (category 5) (Figure 1)
• There was a statistically significant difference in age between composite categories 1&2 (mean 52.89±18.91; P<0.001) and composite categories 4&5 (mean 63.41±15.44), but not the other clinical parameters
• Female patients in categories 2 to 5 were significantly older than female patients in category 1 (category 2: p<0.023, categories 3-5: p<0.001) (Figure 2)

CONCLUSIONS:
• Empty sella is common in neuro-ophthalmology patients without raised ICP; 17.4% of patients have severe concavity or no pituitary tissue visible
• An isolated finding of empty or partially empty sella on imaging is therefore of questionable clinical value in this patient population