



# The Epidemiology and Management Patterns of Pediatric Pituitary Tumors in the U.S.

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## Background

- Hypothalamic-pituitary axis dysfunction & mass effect symptoms (headaches & visual defects) in the pediatric population can indicate a pituitary region tumor.
- Although brain tumors are the most common solid tumor type in children (15-20% of all childhood cancers), pituitary tumors are rare in the pediatric population.
- We therefore evaluated the epidemiology & management patterns of this rare entity.

## Methods

- Retrospective analysis of the National Cancer Database, which comprises >75% of all newly-diagnosed cancer patients in the U.S.
- Patients ≤21yo who presented from 2004-2017 with a pituitary tumor were identified.
- Tumors were classified using WHO 2017.
- The distributions & management patterns were assessed by:
  - Tumor type & size;
  - Patients' age, sex, race/ethnicity, & insurance status
  - Using multivariable linear & logistic regression.
- OR: odds ratio; 95%CI: confidence interval
- 2-sided p≤0.001 were significant.

## Results

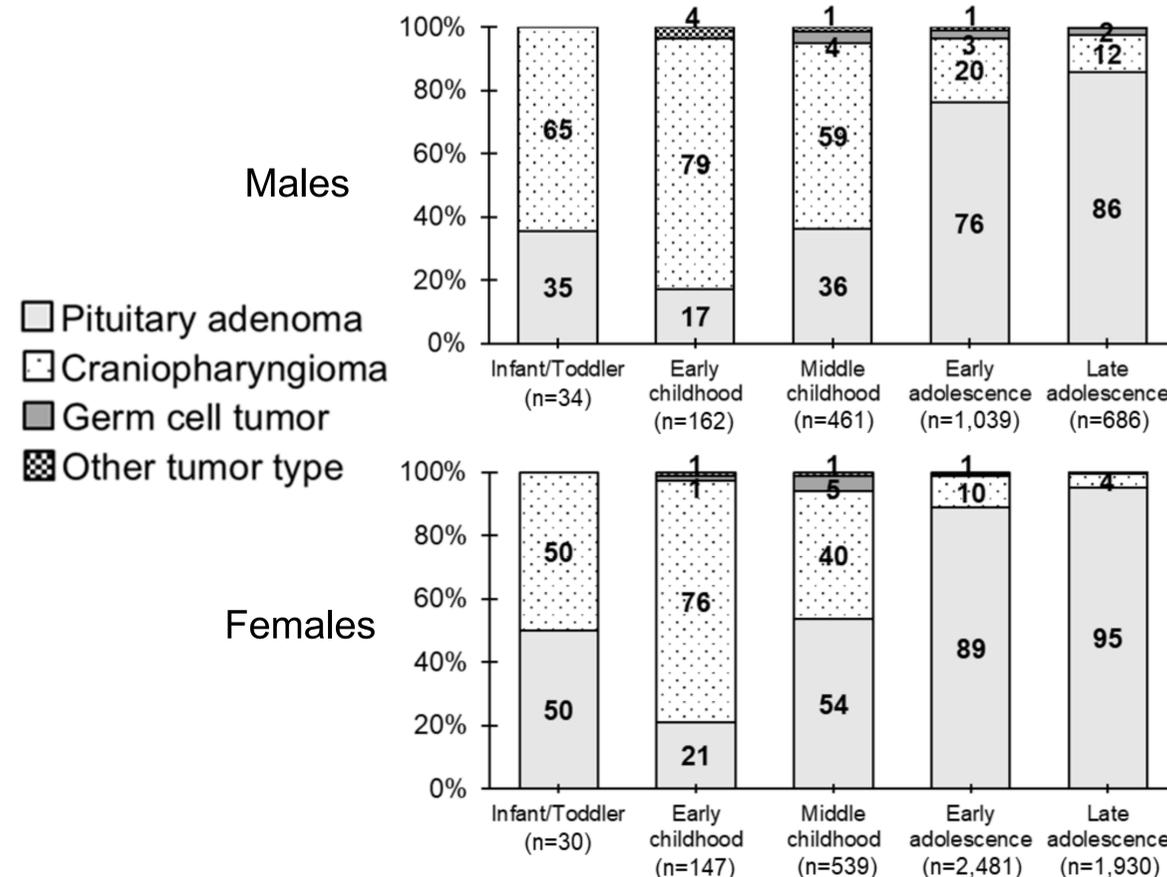
### 19.7% of pediatric intracranial tumors arose in the pituitary region

- Ranging from 2% of intracranial tumors in Infants/Toddlers to 5% in Early Childhood, 27% in Early Adolescence, & 33% in Late Adolescence.
- In contrast, only 12.4% of adult intracranial tumors originated in the pituitary region (p<0.001).

### 7,653 pediatric patients with pituitary region tumors were identified

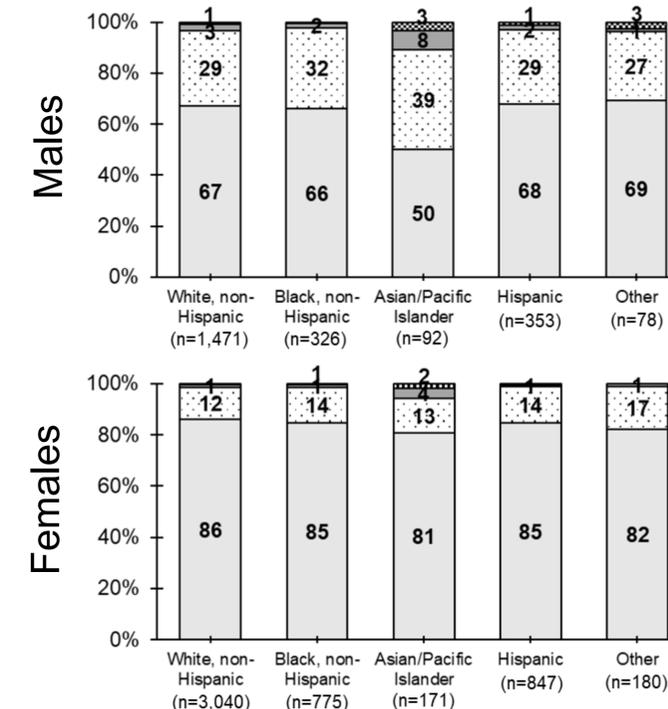
- 68% were female.
- Most tumors arose in Early (47%) and Late (35%) Adolescence.
- 78% were Pituitary Adenomas, 18% were Craniopharyngiomas, 2% were Germ Cell Tumors (GCTs), & <2% were other tumor types.

### Girls had higher proportions of Pituitary Adenomas across all ages



### Pituitary GCTs were more likely in Asian/Pacific Islander patients

- Pituitary adenoma
- Craniopharyngioma
- Germ cell tumor
- Other tumor type



Asian/ Pacific Islander patients also presented at younger ages (mean 13.9 yo) than other races/ethnicities (by an adjusted 1.4-1.8 yrs on avg, all p<0.001).

### Management patterns by insurance status

5.5% of patients were uninsured (mean 17.9 yo), but they presented at older ages (by an adjusted 2.0-3.7 yrs, all p<0.001) & were less likely to undergo surgery than patients with private insurance (OR 1.93, 95%CI 1.47-2.52, p<0.001) or Medicaid (OR 1.51, 95%CI 1.14-2.00, p=0.004).

## Conclusions

- Pituitary region tumors comprise a significant fraction of intracranial pediatric tumors (a fifth overall), particularly in adolescent girls.
- The differential diagnosis of pituitary tumor types differed significantly by patients' age, sex, and race/ethnicity.
- In young patients of Asian/Pacific Islander race/ethnicity with pituitary masses, germ cell tumors should be specifically considered.
- Uninsured patients were associated with delayed diagnosis & reduced rates of surgery, suggesting opportunities for improving timely access to optimal management for pituitary tumors in pediatric patients.