NEURO-ONCOLOGY

Abstracts

OT-03. WHEN TO BIOPSY A PINEAL REGION MASS IN CHILDREN
Craig Erker, Subramanian Subramanian, Teresa Kelly, and Sachin Jogal; Medical College of Wisconsin, Milwaukee, WI, USA

Pineal region tumors account for 2.8-9% of all CNS malignancies in children. The differential diagnosis of a pediatric pineal region tumor is broad and diagnostic strategies can vary. Literature combining medical and radiographic data prior to considering surgical biopsy is sparse. At times a biopsy and/or resection may not be necessary and carries associated morbidity. By using specific criteria to direct diagnosis these risks can be minimized. The criteria utilized show how tumor markers and presence of bifocal disease are utilized to diagnose different germ cell tumors without a biopsy. A pineal region tumor with elevation of AFP or B-hCG greater than 100mIU/ml is consistent with a nongerminomatous germ cell tumor. A pineal region tumor with normal AFP and B-hCG elevated but less than < 50mIU/ml is consistent with a germinoma. The presence of fat on MRI makes mature teratoma likely and upfront resection should be pursued. Other important imaging features that help narrow differential diagnosis include presence of central calcification engulfed by tumor can be seen in germinoma, presence of peripheral calcification in pinealoblastoma. Low ADC values are typical of cellular tumors like papillary tumors of the pineal region, germ cell tumor, and pinealoblastoma. High ADC values are noted in tectal gliomas or mature teratomas. By combining clinical, laboratory and radiographic modalities to derive the most accurate pre-surgical diagnosis a high pretest probability is achieved. Our proposed model facilitates consistent decision making as to whether or not to biopsy pediatric pineal region tumors.