after the end of the radiation treatment, which required the use of high dose-opioid and gabaergic pain relievers, chronically. In fact, this was the main factor to consider in our study. Local control was analyzed too.

Results: Eight patients were treated with 3 Gy / fraction, four of them suffered neuropathic pain in radiation field that required chronic drug treatment. (RR 50%). None of the five patients treated with the 2 Gy per fraction technique had neuropathic pain in legs.

Conclusion: Our preliminary results indicate that the 2 Gy per fraction treatment avoids the onset of neuropathic pain after the radiation treatment. Although the patient recruitment was low, we can affirm that both radiation techniques were very useful in the classic KS local control. The 2 Gy per fraction treatment was not associated to neuropathic pain, compared with the hypofractioned radiation treatment.

EP-1410 
BBRT in the treatment of metastases from soft tissue sarcoma (STS): Single-institution Experience
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Purpose or Objective: To evaluate the results of stereotactic ablative radiotherapy (SABR) in selected metastatic sarcomas patients

Material and Methods: Outcomes of 21 consecutive metastatic STS patients (32 consecutive lesions) receiving SABR between 2012 and 2015 at our center were retrospectively analyzed.

Results: Most patients (85%) had a performance status of 0-1 and the median age at treatment was 62.4 years. Metastases treated were localized in lung (37,5%), brain (37,5%), liver (9,5%), soft-tissue (12,5%) and pancreas (3%). The median size of the treated lesion was 2.1 cm. The median biologic equivalent dose delivered was 120 Gy (range, 52.7-213.8 Gy) delivered in a median number of 5 fractions (range, 1-13). The majority of patients received systemic agents prior SABR (16/21). With a median follow-up of 18 months, the 2 years local control rate was 86% (CI 95%: 51-100%; median: not reached), with four progressives lesions. Only one patient experienced a grade 3 toxicity consisting of an ear bleeding. Two years overall survival and progression free survival rates were respectively 72% (CI 95%: 47-96%) and 39% (CI 95%: 15-63%).

Conclusion: SABR in metastatic sarcoma seems to be an effective tool in local control that might be used as an alternative to other local treatments in highly selected patients.

Electronic Poster: Clinical track: Paediatric tumours
EP-1411
Evaluating the utility of ¹⁸F-DOPA-PET imaging for neurosurgical planning of pediatric gliomas
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Purpose or Objective: MRI characteristics and extent of disease in glioma is important for surgical planning. However, MRI may not adequately guide biopsy location in non-enhancing tumors. Furthermore, post-radiation changes are difficult to differentiate from progressive tumor. We previously demonstrated the PET tracer 3,4-dihydroxy-6-[¹⁸F]fluoro-l-phenylalanine (FDOPA) has a sensitivity for gliomas and may improve neurosurgical planning in adults. This study evaluates the utility of FDOPA-PET/CT imaging in biopsy and resection planning in pediatric patients.

Material and Methods: MR/CT and FDOPA-PET/CT images were obtained in 5 patients with primary or recurrent malignant gliomas. Regions of interest were defined based on areas of MRI contrast enhancement (CE) and FDOPA uptake to include both concordant (MRI-CE and high-FDOPA) and disconcordant (MRI-non-CE and high-FDOPA, MRI-CE and low FDOPA) regions. Ratios of maximum tumor SUV (SUVmax) normalized to mean SUV (SUVmean) of normal brain tissue (T/N) were determined using the SUVmax from each biopsy coordinate and the SUVmean from contralateral normal brain tissue.

Results: The FDOPA-PET images guided biopsy site selection in four patients. One patient with contrast enhancement in an eloquent region near a region of prior radiotherapy did not undergo biopsy after FDOPA-PET failed to show increased uptake. Average tumor SUVmax was 2.135 (range 2.92-1.27), and the T/N average T/N ratio was 1.6 (range 1.92-1.18). Biopsies within the region of highest uptake were performed in 3 patients and were consistent with Grade III or Grade IV, despite lack of contrast enhancement 1 patient. In one patient, SUVmax was in an eloquent region of thalamus and was deemed an unsafe location for biopsy. Biopsy from an adjacent region revealed infiltrating glioma, non-diagnostic for grade. Regions of increased FDOPA uptake extended beyond those identified with MRI in two patients.

Conclusion: FDOPA-PET imaging appears to have utility in guiding biopsy region selection and may assist with identifying regions of higher-grade disease in pediatric patients with astrocytomas.

EP-1412
Respiration-induced organ motion in children during image-guided radiation therapy
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Purpose or Objective: Respiration-induced organ motion is one of the main contributors to intrafractional motion, limiting the maximum achievable accuracy in radiation therapy (RT). Knowledge on respiration-induced organ motion in children during RT is extremely scarce and urgently needed for better definitions of abdominal and thoracic safety margins. It also allows to assess whether developments and introduction of child-friendly breathing exercises and/or coaching during the treatment course could have an added value to control and minimize respiration-induced organ motion. Therefore, the aim of this study is to investigate how respiration influences the diaphragmatic motion, as indicative of organ motion in the abdomen and thorax, during image guided RT (IGRT) in children and to find possible relationships with age and height. In addition, we investigated trends in the respiration-induced diaphragmatic motion during the treatment course.

Material and Methods: This retrospective study consisted of 15 patients with a mean age of 10.6 years (range 2.2-16.9 years) and a mean height of 140 cm (range 90-167 cm), treated at our institute between 2006 and 2015, for whom for setup correction routinely acquired evaluable images of the thorax were available. This amounted to a total of 15 reference CT (refCT) scans and 86 Cone Beam CT (CBCT) scans. CBCTs were reconstructed for the inhale and exhale respiratory phases and registered to the refCT using Elekta XVI software. First, the vertebrae were aligned. Subsequently, the diaphragm was manually aligned in cranio-caudal (CC) direction only. The result yields the mean peak-to-peak (PP) motion (i.e., magnitude of motion) of the diaphragm in the CC direction, derived from registration outcomes of the inhale and exhale CBCTs to the refCT.