Eleven patients had prior surgical resection. Eleven patients (41%) had single, 12 (44%) had 2-3, and 4 (15%) had 4 or more intracranial metastases. Median lesion volume was 0.43 mL (range, 0.004-64.3 mL) and prescription dose 19 Gy (range, 14-24 Gy), covering the 50% isodose surface. With a median follow-up of 11 months, median OS was 12 months (95% confidence interval [CI] 6-48 months) and median PFS 7 months (95% CI 2-11 months) for all patients. Five patients with ASPS had a statistically significant longer median OS of 54 months (P = 0.01) and PFS of 18 months (P = 0.005). Forty-two lesions were assessed for response, with 17% complete responses, 12% partial responses, and 14% with progressive disease. The remainder were either too small to measure (21%) or stable (36%). Of the 5 patients with progression of treated lesions, time to progression was 3, 7, 18, 31, and 67 months. Twelve patients had at least 1 salvage therapy including surgical resection, repeat SRS, or whole-brain RT. No patients developed leptomeningeal disease.

**Conclusion:** To our knowledge, this is the largest reported cohort of patients treated with SRS for metastatic intracranial sarcoma. Our OS compares favorably with the limited published literature, and SRS appears to be a safe and efficacious treatment for these patients with or without other treatment modalities. Even in patients that ultimately progress, durable control can be seen. Of interest, patients with ASPS have extended survival and freedom from recurrence in comparison with other histologies, suggesting that aggressive treatment in these cases is warranted.


### 3741

**Adult Rhabdomyosarcoma: A Retrospective Analysis of 40 Patients Treated at a Single Institution**

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**Purpose/Objective(s):** Rhabdomyosarcoma (RMS) is a soft tissue malignancy thought to originate from immature striated skeletal muscle cells. Nonetheless, RMS can arise in sites where skeletal muscle is not normally found. RMS is rare in adults, accounting for 2%-5% of adult soft tissue sarcomas, and most often arises in the head and neck region. Experience with treatment of adults with RMS is limited, but data suggest that adults have inferior outcomes compared with children. The purpose of this retrospective study is to review the clinical outcomes of adult patients diagnosed with primary RMS.

**Materials/Methods:** The clinicopathologic features, treatment methods, and disease outcomes were reviewed retrospectively for 40 adults (patients ages 18 years or older) with RMS treated between 2003 and 2015 at a single institution. Overall survival (OS) and recurrence-free survival (RFS) were estimated using the Kaplan-Meier method.

**Results:** Mean age was 45 years (range: 19-81). Median follow-up time was 6 months (range: 0.1-140 months), and 23 patients (57.5%) were female. Patients presented with localized (24, 60.0%), regional (4, 10.0%), distant (11, 27.5%), and undetermined (1, 2.5%) extents of disease. Tumor sites included head and neck (15, 37.5%), upper extremity/shoulder (2, 5.0%), lower extremity (6, 15.0%), thorax (1, 2.5%), trunk (2, 5.0%), spine/sacrum/bony pelvis (bone; 1, 2.5%), abdomen/pelvis/peritoneum/gastrointestinal tract (soft tissue; 7, 17.5%), retroperitoneum (2, 5.0%), gynecologic (3, 7.5%), and ill-defined/not specified (1, 2.5%). RMS histology groups were alveolar (13, 32.5%), pleomorphic (9, 22.5%), embryonal (7, 17.5%), and not otherwise specified (11, 27.5%). Patients were treated according to the following treatment categories: no surgery and no radiation (RT; 3, 7.5%), surgical treatment, no RT (7, 17.5%), no surgery, RT alone (17, 42.5%), preoperative RT -> surgery (6, 15.0%), preoperative RT -> surgery -> postoperative RT (6, 15.0%). The majority of patients received chemotherapy on presentation (33, 82.5%); vincristine, adriamycin, cyclophosphamide alternating with ifosfamide, and etoposide (VAC/IE) was the most common regimen. Five-year OS and RFS were 34.4% (95% CI: 18.1-51.3) and 31.8% (95% CI: 14.8-50.4), respectively (Table 1).

**Conclusion:** Adult RMS is an aggressive tumor with a significant incidence of metastatic recurrence; however, there are long-term survivors. Further study is necessary to determine whether adult patients who adhere to guidelines for treatment of pediatric RMS have superior outcomes.

<table>
<thead>
<tr>
<th>6 months</th>
<th>Overall Survival (95% CI)</th>
<th>Recurrence Free Survival (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>89.7% (74.8-96.0)</td>
<td>81.7% (65.3-90.8)</td>
<td></td>
</tr>
<tr>
<td>1 year</td>
<td>72.3% (54.6-84.1)</td>
<td>58.6% (40.8-72.7)</td>
</tr>
<tr>
<td>2 years</td>
<td>38.7% (21.9-55.2)</td>
<td>47.7% (29.9-63.5)</td>
</tr>
<tr>
<td>5 years</td>
<td>34.4% (18.1-51.3)</td>
<td>31.8% (14.8-50.4)</td>
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</tbody>
</table>

**Author Disclosure:** A. Raldow; None. A. Jacobson; None. S. Goldberg; None. H. Wang; None. E. Choy; None. G. Cote; None. F.J. Hornick; None. T.F. DeLaney; None. Y.L.E. Chen; None.

### 3742

**Role of Postoperative Radiation Therapy in the Treatment of Dermatofibrosarcoma Protuberonas: Long-Term Follow-up of 103 Patients in a Single Center**

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**Purpose/Objective(s):** To evaluate the role of postoperative radiation therapy (RT) in the treatment of dermatofibrosarcoma protuberonas (DFSP) and to identify prognostic factors influencing progression-free survival (PFS).

**Materials/Methods:** We retrospectively analyzed 103 consecutively treated DFSP patients from 2007 to 2015 in our institution. Kaplan-Meier analysis was used to examine prognostic factors for the PFS. Statistical analysis was performed with a commercially available statistical software package.

**Results:** The median follow-up was 40 months (range, 5-167). Twenty-nine of 103 patients underwent postoperative RT. No recurrence was observed in patients who underwent postoperative RT. For patients with local excision, the 5-year PFS of postoperative RT and primary setting were better than no RT (0.0% vs 8.1%, P = 0.01) and recurrent setting (0.0% vs 13.6%, P = 0.038). For patients with wide excision, 5-year PFS was better in primary than recurrent setting (0.0% vs 6.5%, P = 0.014). Postoperative RT failed to improve 5-year PFS for patients with wide excision (0.0% vs 3.0%, P = 0.662). Patients with fibrosarcomatous DFSP (FS-DFSP) were found to have poor outcomes, regardless of the surgical procedure (wide vs local excision, P = 0.548).

**Conclusion:** Postoperative RT seemed to improve the PFS of DFSP patients with local excision. The primary setting and surgical procedure might also affect PFS for local excision, while only the primary setting group had better PFS for wide excision. FS-DFSP was more likely to progress than other types.

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### 3743

**Outcome and Prognostic Factors of Stereotactic Radiosurgery (SRS) for Melanoma Brain Metastases (MBM) in Era of Effective Systemic Therapy**

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Purpose/Objective(s): The number of effective systemic drug options for metastatic melanoma has expanded rapidly in recent years. Immunotherapies with anti-CTLA4 or anti-PD1 inhibitors and targeted therapy with BRAF and MEK inhibitors have improved the response rates and overall survival (OS) compared with chemotherapy. With such radical changes, contemporary data on the outcome, safety, and prognostication of patients who received SRS in management of MBM is needed.

Materials/Methods: Retrospective review of 125 consecutive patients who received SRS to 419 MBM from August 2010 to 2015. Ninety-four patients also received systemic treatment within 6 weeks of SRS. Endpoints included brain control (BC), defined as absence of any active intracranial disease on clinical and radiological evaluation at last follow-up/death and OS. Univariate and multivariate analysis was performed on clinic-pathological prognostic features associated with OS and BC.

Results: The median age of the cohort was 58.7 years, and 70% were males. The median follow-up was 7.8 months. Fourteen percent did not have extracranial disease at the time of the diagnosis of MBM, and 42% had a single, 34% had 2-3, 20% had 4-10, and 4% had >10 MBM. Forty-five percent had B-RAF mutant disease. Whole-brain radiation therapy was used in addition to SRS in 42%, and 75% had systemic therapy (30% anti-CTLA4 inhibitor, 25% anti-PD1 inhibitor, 54% targeted therapy, 17% chemotherapy). Median OS and BC were 11.8 months and 10.0 months, respectively. OS and BC rates were 49.5% and 44.2%, respectively, at 1 year and 30.1% and 19.2%, respectively, at 2 years. In 2 patients with histologically confirmed radionecrosis after SRS, 1 had combination anti-CTLA4 and anti-PD1 therapy while the other had no systemic treatment. B-RAF mutation status, ECOG performance status (PS), graded prognostic assessment (GPA) score, disease-specific GPA score, and number and volume of MBM were associated with improved OS and BC on univariate analysis. On multivariate analysis, ECOG PS, number of MBM, B-RAF mutant status, and the use of immunotherapy were associated with improved OS and the same variables except for the use of immunotherapy were also significant for BC.

Conclusion: In the era of effective systemic treatment in melanoma, SRS remains a safe and important brain-directed therapy for MBM with good OS and BC observed in appropriately selected patients. Further studies are required to identify the timing for SRS and sequencing with systemic therapy in this rapidly evolving area.


3745

Treatment Outcomes of Patients With Primary Chordomas Treated With Preoperative Radiation ( Alone) Followed by Surgery

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Purpose/Objective(s): To assess outcome after treatment for primary chordoma status after preoperative radiation therapy (RT) followed by surgery.

Materials/Methods: This retrospective analysis includes 13 patients (10 male, 3 female). Ten patients had sacrococcygeal primary chordomas, and 3 patients had lumbar primary chordomas. All underwent treatment with preoperative RT alone followed by surgery. The most common reason why this cohort did not receive postoperative RT was wound complications. Mean dose and median dose of RT were 40.6 Gy and 50.0 Gy, respectively (range: 19.8-57.4 Gy). Tumor maximum dimension ranged from 2.1 to 31.0 cm. Kaplan-Meier procedure and Cox proportional hazards regression were used to analyze survival outcomes.

Results: With a median follow-up of 25.4 months after surgery, 6 patients developed local recurrence and 7 patients had no local recurrence. For the patients who had local failure, 3-year overall survival was 75% (95% CI: 12.8-9) and distant control was 50% (95%CI: 5.8-84.5). For the patients who were locally controlled, 3-year overall survival was 62.5% (95% CI: 14.2-89.3) and at the last time of observation, they were without distant failure. Average tumor size for patients with local failure was 15.4 cm while that for patients with local control was 6.2 cm (P=0.04).

Conclusion: RT doses of less than 40 Gy have historically led to poor outcomes for primary chordomas, with recurrence rates as high as 70%-100%. In this cohort of patients who received a mean dose of 40.6 Gy (range: 19.8-57.4), 7 of 13 patients (54%) had no local recurrence with a median follow-up of 25.4 months after surgery. Smaller initial tumor size

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