

MUSCULOSKELETAL TUMOR SOCIETY



2020 VIRTUAL ANNUAL MEETING

FINAL PROGRAM

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THANK YOU

2020 MUSCULOSKELETAL TUMOR SOCIETY ANNUAL MEETING PROGRAM COMMITTEE

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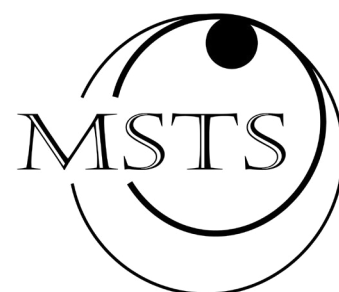
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FRIDAY, OCTOBER 9, 2020

NOTE: ALL TIMES ARE CT

Time	Presentation/Topic	Presenter
12:00 pm – 12:03 pm	Welcome – Introductions	Joel Mayerson, MD, MSTS President
12:03 pm – 12:05 pm	Meeting Overview	Thomas J. Scharschmidt, MD and Kurt Weiss, MD, Program Co-Chairs
12:05 pm – 12:11 pm	Presentation #1 Soft Tissue Sarcoma Subtypes Associated with Metastasis to Bone at Diagnosis: Another Application for the RACE (Rhabdomyosarcoma, Angiosarcoma, Clear Cell Sarcoma, Epithelioid Sarcoma) Mnemonic	Christopher Collier, MD
12:11 pm – 12:14 pm	Moderated Discussion /Questions	Thomas J. Scharschmidt, MD and Kurt Weiss, MD, Program Co-Chairs
12:14 pm – 12:20 pm	Presentation #2 Recruitment Patterns in a Large International Randomized Controlled Trial of Perioperative Care in Cancer Patients	Aaron Gazendam, MD
12:20 pm – 12:23 pm	Moderated Discussion/Questions	Thomas J. Scharschmidt, MD and Kurt Weiss, MD, Program Co-Chairs
12:23 pm – 12:29 pm	Presentation #3 Short Term Infectious Complications with Transdermal “Osseointegrated” Implants	Colin Harrington, MD
12:29 pm – 12:32 pm	Moderated Discussion/Questions	Thomas J. Scharschmidt, MD and Kurt Weiss, MD, Program Co-Chairs
12:32 pm – 12:52 pm	Product Theater #1 – Onkos Surgical Supporting Soft Tissue Apposition and Attachment in Proximal Femoral Replacement Surgery	Joel Mayerson, MD
12:52 pm – 12:58 pm	Presentation #4 Update on the Combined MSTS-ACR Bone Tumor Radiology Reporting and Data Systems (RADS)	Eric R. Henderson, MD
12:58 pm – 1:01 pm	Moderated Discussion/Questions	Thomas J. Scharschmidt, MD and Kurt Weiss, MD, Program Co-Chairs
1:01 pm – 1:07 pm	Presentation #5 The Musculoskeletal Tumor Registry: Lessons, Barriers, and Future Goals	Benjamin J. Miller, MD, MS
1:07 pm – 1:10 pm	Moderated Discussion/Questions	Thomas J. Scharschmidt, MD and Kurt Weiss, MD, Program Co-Chairs
1:10 pm – 1:30 pm	Product Theater #2 – Daiichi Sankyo, Inc. Innovative Treatment in Diffuse Pigmented Villonodular Synovitis (PVNS)/Tenosynovial Giant Cell Tumor (TGCT)	R. Lor Randall, MD, FACS
1:30 pm – 1:36 pm	Presentation #6 The Interaction of Skp2 with P27 Enhances in the Progression and Tumor-Initiating Properties of Osteosarcoma	Jichuan Wang, MD
1:36 pm – 1:39 pm	Moderated Discussion/Questions	Thomas J. Scharschmidt, MD and Kurt Weiss, MD, Program Co-Chairs
1:39 pm – 1:50 pm	Review of Submissions and Wrap Up	Thomas J. Scharschmidt, MD and Kurt Weiss, MD, Program Co-Chairs
1:50 pm – 3:00 pm	MSTS Member Business Meeting	Joel Mayerson, MD, MSTS President <i>See separate agenda – No CME credit for Business Meeting attendance</i>

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Friday, October 9, 2020

12:05 pm – 12:11 pm CT

Soft Tissue Sarcoma Subtypes Associated with Metastasis to Bone at Diagnosis: Another Application for the RACE (Rhabdomyosarcoma, Angiosarcoma, Clear cell sarcoma, Epithelioid sarcoma) Mnemonic

Christopher D. Collier, MD¹; Rex C. Haydon, MD¹; Patrick J. Getty, MD²; Tessa Balach, MD¹

¹University of Chicago Pritzker School of Medicine/University of Chicago Medicine, Chicago, IL

²Case Western Reserve University School of Medicine/University Hospitals Cleveland Medical Center, Cleveland, OH

Background: Staging of soft tissue sarcoma (STS) classically includes a CT scan of the lungs and bone scintigraphy to evaluate the first and second most common sites of metastasis, respectively. However, some have questioned the yield of routine bone scintigraphy in STS and current National Comprehensive Cancer Network (NCCN) guidelines do not recommend skeletal staging at diagnosis.

Questions/purposes: This study therefore asked: (1) what is the incidence of bone metastasis at diagnosis for STS? (2) what factors are associated with bone metastasis at diagnosis? and (3) what is the overall survival for patients with metastasis to bone at diagnosis?

Methods: The National Cancer Database, a nationwide registry that includes 70% of all new cancers in the United States with 90% follow-up, was reviewed to identify 29711 patients diagnosed with primary STS from 2010-2015. Patients were excluded were those without documented status of metastatic disease at diagnosis for bone (2%; n = 700) and lung (<1%, n = 52) and those with a visceral primary site (1%, n = 272). All included patients also had documented status of metastatic disease overall at diagnosis and vital status at last contact. A total of 28687 patients were included for analysis (undifferentiated pleomorphic sarcoma [UPS], n = 10319; liposarcoma, n = 5996; myxofibrosarcoma, n = 3188; synovial sarcoma, n = 2297; angiosarcoma, n = 2121; rhabdomyosarcoma, n = 1968; malignant peripheral nerve sheath tumor [MPNST], n = 1863; epithelioid sarcoma, n = 660; clear cell sarcoma, n = 275), with median follow-up of 27 months. Multiple logistic regression analysis was performed after backwards selection to assess factors associated with bone metastasis at diagnosis. Unadjusted Kaplan-Meier survival analysis was conducted, stratified by lung and bone metastases at diagnosis. Groups were then compared using the log-rank test and pairwise log-rank test for multiple comparisons.

Results: Demographic and clinicopathologic characteristics varied by histology and were consistent with prior reports of national samples (data not shown). 6.2% of all STS patients presented with regional lymph node metastasis at diagnosis (UPS, 4.8%; liposarcoma, 2.4%; myxofibrosarcoma, 1.1%; synovial sarcoma, 5.5%; angiosarcoma, 9.9%; rhabdomyosarcoma, 28.8%; MPNST, 4.1%; epithelioid sarcoma, 17.6%; clear cell sarcoma, 20.0%). 4.1% of all STS patients presented with bone metastasis at diagnosis (UPS, 3.3%; liposarcoma, 1.9%; myxofibrosarcoma, 0.5%; synovial sarcoma, 3.3%; angiosarcoma, 8.3%; rhabdomyosarcoma, 15.3%; MPNST, 4.2%; epithelioid sarcoma, 6.5%; clear cell sarcoma, 5.5%).

Factors associated with metastasis to bone at diagnosis (Figure 1) were age 0 to 30 years (odds ratio [OR]: 0.79 for age greater than 30 year compared to age 0 to 30 years, p = 0.02), race other than white or black (OR: 1.35 compared to white race, p = 0.03), pelvis location (OR: 2.07 compared to lower extremity, p < 0.01), trunk location (OR: 1.71 compared to lower extremity, p < 0.01), other location (OR: 2.45 compared to lower extremity, p < 0.01), myxofibrosarcoma (OR: 0.30 compared to UPS, p < 0.01), rhabdomyosarcoma (OR: 2.77 compared to UPS, p < 0.01), angiosarcoma (OR: 2.22 compared to UPS, p < 0.01), clear cell sarcoma (OR: 1.68 compared to UPS, near significant at p = 0.08), epithelioid sarcoma (OR: 1.59 compared to UPS, p = 0.01), regional lymph node metastasis (OR: 2.55 compared to none, p < 0.01), and lung metastasis at diagnosis (OR: 8.59 compared to none, p < 0.01).

The presence of both bone and lung metastasis at diagnosis was associated with poor survival over time, compared to other presentations of metastatic disease (Figure 2, p < 0.01 for all histologies combined compared to all other groups).

Conclusions: This study highlights the importance of skeletal staging in STS using a large cohort of patients from a recent, nationwide sample. Bone metastasis at diagnosis in this population was present in 4.1% of patients, compared to 7.7% of patients with lung metastasis at diagnosis. The majority of patients with bone metastases (54%) did not have lung metastasis. Failure to

recognize extrapulmonary metastatic disease, which is associated with poor survival outcomes, misinforms prognosis and may alter treatment. Skeletal staging should therefore be considered for newly diagnosed STS patients with certain histologies. The RACE (Rhabdomyosarcoma, Angiosarcoma, Clear cell sarcoma, Epithelioid sarcoma) mnemonic is frequently taught to convey the STS histologies most at risk for regional lymph node metastasis. Based on these findings, the RACE mnemonic also applies to STS histologies most at risk for metastasis to bone at diagnosis and serves as a simple reminder to evaluate for bone metastases in these patients.

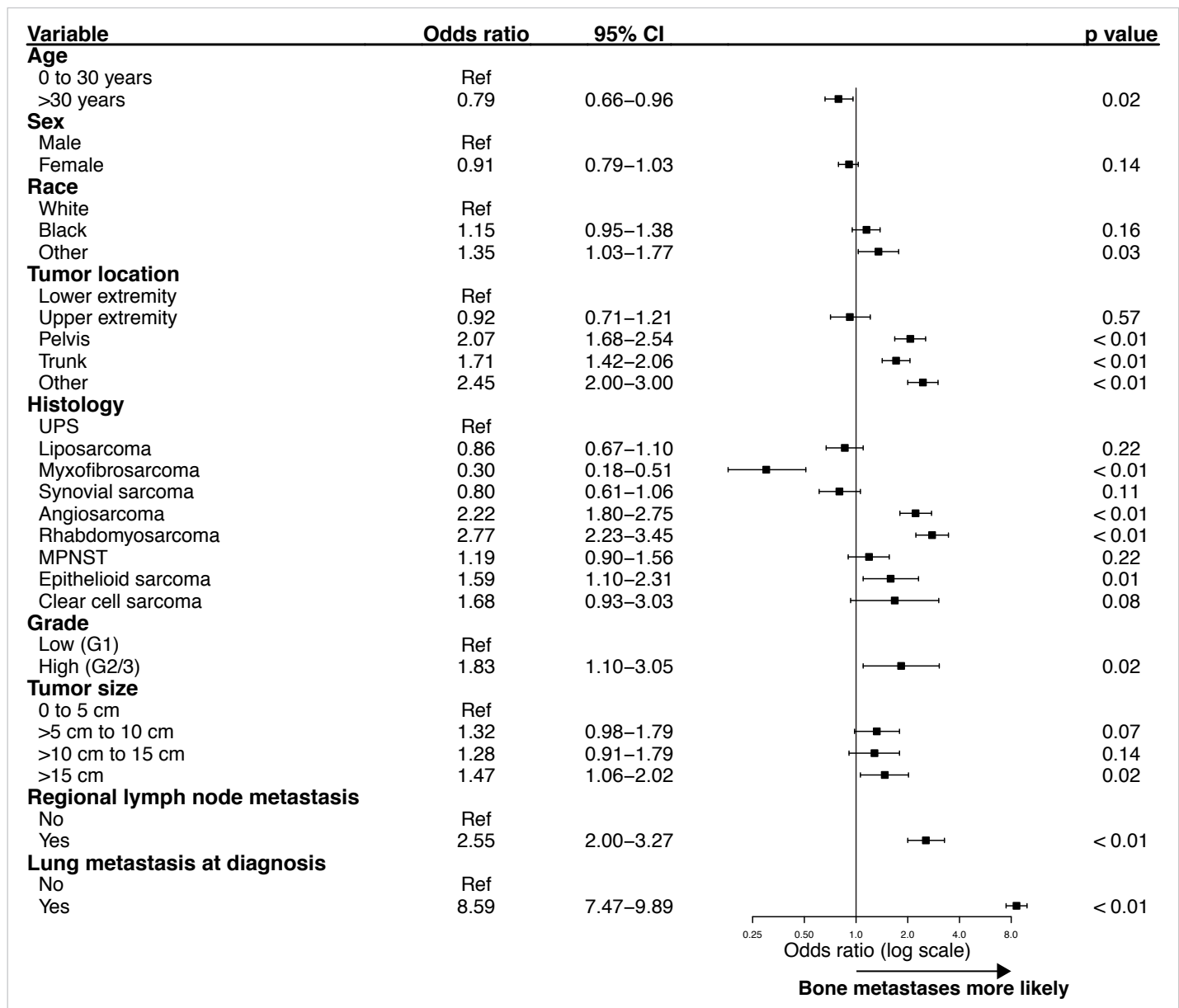


Figure 1. Multiple logistic regression analysis of factors associated with metastasis to bone at diagnosis for soft tissue sarcomas. Unstandardized odds ratios are displayed on a logarithmic scale with 95% confidence intervals. CI indicates confidence interval; UPS, undifferentiated pleomorphic sarcoma; MPNST, malignant peripheral nerve sheath tumor.

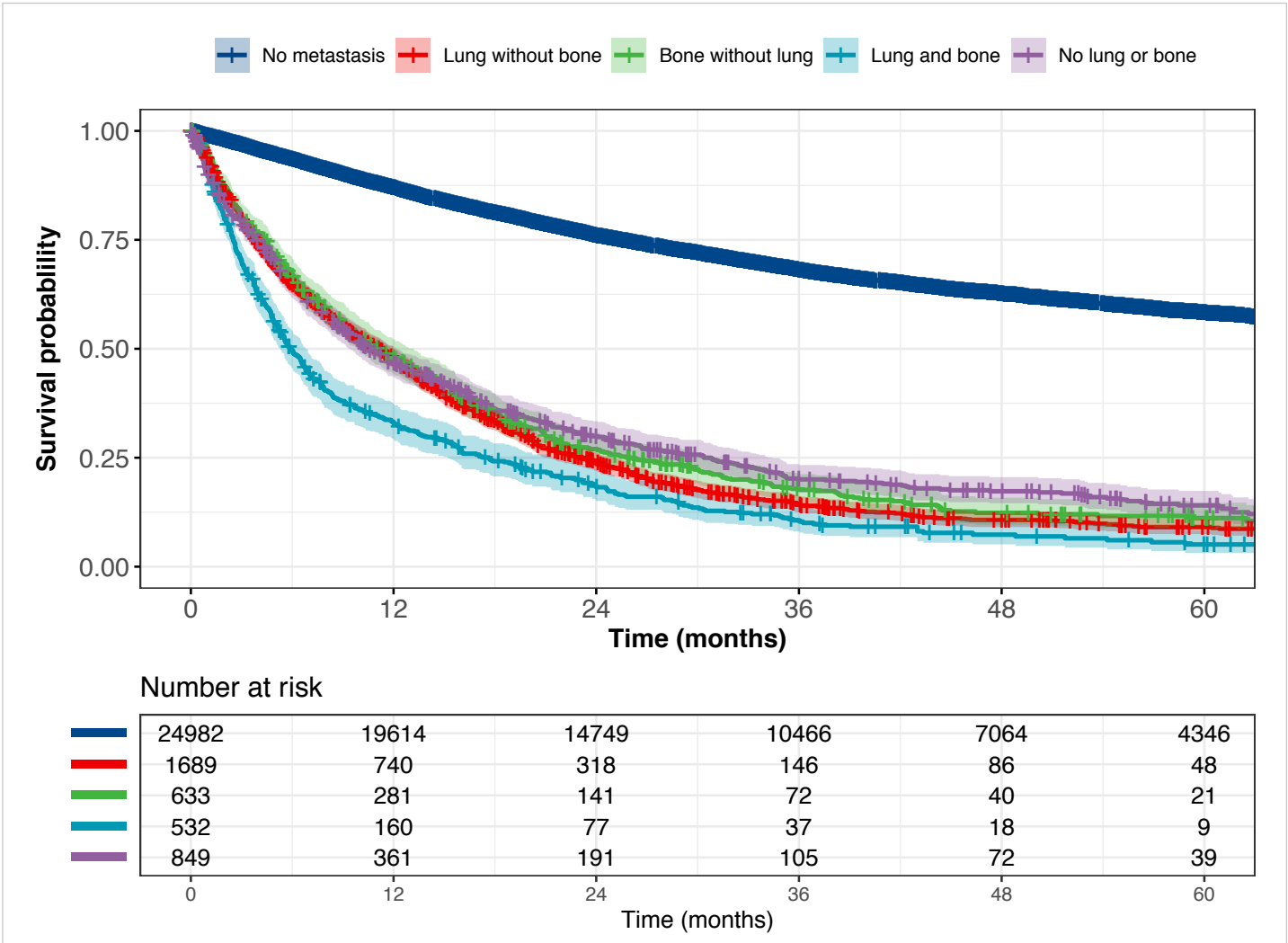


Figure 2. Unadjusted overall survival analysis stratified by the presence or absence of lung and bone metastases at diagnosis. Kaplan-Meier survival curve is shown, with the number at risk for each group, for all histologies combined.

Friday, October 9, 2020

12:14 pm – 12:20 pm CT

Recruitment Patterns in a Large International Randomized Controlled Trial of Perioperative Care in Cancer Patients

*Aaron Gazendam; Anthony Bozzo; Patricia Schneider; Victoria Giglio; David Wilson; Michelle Ghert
Division of Orthopaedic Surgery, Department of Surgery, McMaster University, Hamilton, Ontario, Canada*

Introduction: The Prophylactic Antibiotic Regimens in Tumor Surgery (PARITY) randomized controlled trial (RCT) was the first study to prospectively enroll and randomize orthopaedic oncology patients in multiple centers internationally. The objective of this study was to describe recruitment patterns, examine the differences in enrollment across different PARITY sites, and to identify variables associated with differing levels of recruitment.

Methods: Data from this study was obtained from the PARITY trial Methods Center and records of correspondence between the Methods Center and recruiting sites. We performed descriptive statistics to report the recruitment patterns over time. We compared recruitment, time to set up, and time to enroll the first patient between North American and international sites, private and public health care models, and the presence or absence of research personnel. Two-tailed non-paired t-tests were performed to test average monthly recruitment rates between groups.

Results: A total of 602 patients from 36 North American and 12 international sites were recruited from 2013 to 2019. Average monthly enrollment increased each year of the study. North American sites were able to start up significantly faster than international sites (19.5 vs. 27.0 months $p=0.04$). However, international sites had a significantly higher recruitment rate once active (0.2 participants/month vs. 0.59 participants/month, $p=0.023$). Sites with research personnel were able to reach 'enrolment ready' status significantly faster than sites without research personnel (19.3 vs. 30.3 months, $p=0.032$), but there was no difference in recruitment once active (0.28 participants/month vs. 0.2 participants/month). Publicly funded sites were to recruit significantly more patients compared to private institutions (0.4/month vs. 0.17/month, $p=0.03$).

Conclusions: As a collaborative group, the PARITY investigators increased the pace of recruitment throughout the trial, likely by increasing the number of active sites. The longer time to start-up at international sites may be due to the complex governing regulations of pharmaceutical trials. Nevertheless, international sites should be considered essential as they recruited significantly more patients per month once active. The absence of research support personnel may lead to delays in time to start up. The results of the current study will provide guidance for choosing which sites to recruit for participation in future collaborative clinical trials in orthopaedic oncology and other surgical specialties.

Friday, October 9, 2020

12:23 pm – 12:29 pm CT

Short Term Infectious Complications with Transdermal “Osseointegrated” ImplantsCJ Harrington¹; A. Sheridan²; BK Potter¹; JM Souza³, JAForsberg^{1,4}¹Orthopaedics, Walter Reed Department of Surgery, Bethesda, MD²Uniformed Services University of the Health Sciences, Bethesda, MD³Plastic Surgery, Walter Reed Department of Surgery, Bethesda, MD⁴Department of Orthopaedic Surgery, Johns Hopkins University, Baltimore MD

Background: Transdermal “osseointegrated,” implants can improve the quality of life and functional capacity of carefully selected transfemoral amputation patients who are unable to tolerate a socket-based prosthesis secondary to pain, discomfort, and soft tissue issues. However, concern with ascending infections and soft tissue complications around the aperture have limited the utilization of this novel technique.

Questions/Purposes:

- (1) What are the frequency and locations of soft tissue infections using the Osseointegrated Prosthesis for the Rehabilitation of Amputees (OPRA) implant system?
- (2) What are the classifications and changes seen with soft tissue infections and changes at the aperture site using a modification of the Holgers scoring system?

Patients and Methods: This prospective study investigated the frequency, location, and timeline to infection following osseointegration surgery in the first 30 transfemoral amputation patients treated with the OPRA implant system under a prospective multicenter clinical trial. Soft tissue infections were classified using a modification of the Holgers scoring system, consisting of the presence or absence of skin color changes, soft tissue redundancy, hypergranulation, and fistula. The same scoring system was also applied at routine follow-up appointments for each patient for comparison purposes.

Results: The median follow-up time is 18.4 months (interquartile range 7.3 – 21.7) following completion of osseointegration surgery. A superficial infection developed around 15 (36%) of the 42 implants at a median of 98 days (interquartile range 48-229) following surgery. The aperture was the most common location infected, accounting for 19 (73%) of all infections. Surrounding soft tissue (15%) and the incision line (12%) represented the rest of infection locations. There were no deep or implant related infections, and all implants have been retained in all patients.

Following surgery, ischemic, purple color change gradually decreased and has been observed in 25% of operative extremities at 12-month follow-up. Conversely, soft tissue redundancy and hypergranulation increased in the post-operative period, occurring in 65% and 70% of patients, respectively. Fistula is a rare complication and evident in one operative extremity. Erythematous color change was observed at the aperture site in 11 of 18 (61%) infections.

Conclusions: Superficial infections are a common complication following creation of the aperture for a transdermal implant in osseointegration surgery and are frequently accompanied by erythema and other soft tissue changes. However, the risk of deep, implant related infections and osteomyelitis is relatively low and should not preclude the use of transdermal implants in appropriately selected patients.

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Friday, October 9, 2020

12:52 pm – 12:58 pm CT

Update on the Combined MSTS-ACR Bone Tumor Radiology Reporting And Data Systems (RADS)*Eric R. Henderson, MD; Felasfa Wodajo, MD; Benjamin J. Miller, MD, MS; G. Douglas Letson, MD; Jamie Caracciolo, MD MBA*

Background: In the winter of 2018, the Musculoskeletal Tumor Society (MSTS) began a partnership with the American College of Radiology (ACR) to co-endorse an Information Statement that provided consensus- and evidence-based guidance for specialist referral for newly identified bone lesions. This partnership then expanded to pursue co-endorsed reporting guidelines for radiologists, termed Reporting and Data Systems (RADS) by ACR, interpreting bone lesions identified on conventional imaging modalities. ACR currently has formal RADS for breast, colon, coronary, head, liver, lung, head and neck, ovarian, prostate, and thyroid imaging. The current Bone RADS—designed for interpretation of bone lesions identified on plain radiographs—is the first skeletal imaging RADS.

Questions/Purposes: All RADS are designed to “provide standardized imaging findings terminology, report organization, assessment structure, and classification for reporting and data collection in patient imaging.” The goal of the Bone RADS is to enhance the value of interpretive reports and facilitate appropriate initial management and triage of patients with bone lesions.

Methods: The MSTS Evidence-Based Medicine (EBM) Committee submitted an application to ACR in May of 2018 to co-initiate a Skeletal Oncology Reporting and Data System. ACR leadership approved the formation of a new committee (Bone RADS) to pursue a RADS for bone lesion reporting and over the winter of 2018-19 a committee was assembled with eleven members from ten institutions (nine ACR, two MSTS). MSTS EBM provided a draft RADS proposal that was reviewed by ACR and facilitated initial discussion. The Bone RADS has undergone two rounds of formal revision.

Results: At present, the Bone-RADS Scoring System under development aims to predict likelihood of malignancy for newly identified bone lesions. The system relies on several predictive radiographic features of a bone lesion including margination, periosteal reaction, endosteal erosion, pathological fracture, and evidence of soft tissue mass as well as personal history of primary malignancy elsewhere to estimate risk. Each feature is assigned a point value; values are summed to provide a point total which corresponds with a Bone-RADS Score of 0 (incompletely characterized), I (overwhelmingly benign), II (probably benign), III (potentially malignant), or IV (highly suspicious for malignancy). Based on Bone-RADS Score, recommendations for patient management are provided.

Conclusions: The Bone RADS initiative has the potential to become an important tool for clinical care and bone tumor research. Bone RADS will facilitate objective and evidence-based review of bone lesions on radiographs and aims to enhance reporting accuracy and narrow differential diagnostic considerations. Furthermore, the addition of a feature-based scoring system may assist radiologists by reducing the substantial medicolegal burden of designating a lesion as likely benign through the identification of discrete objective findings. Additional co-produced connective tissue oncology RADS initiatives are planned, with likely attention to axial imaging and soft-tissue tumors.

Friday, October 9, 2020

1:01 pm – 1:07 pm CT

The Musculoskeletal Tumor Registry: Lessons, Barriers, and Future Goals

Benjamin J. Miller¹; Eric Henderson²; Adam Levin³; George Calvert⁴; Joel Mayerson⁵; Nathan Mesko⁶; Lukas Nystrom⁶; Robert Steffner⁷

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⁷Stanford

Background: In the summer of 2018, the Musculoskeletal Tumor Society and American Academy of Orthopaedic Surgeons (AAOS) began a collaboration to create the Musculoskeletal Tumor Registry (MsTR), a national database of extremity sarcoma.

Questions/Purposes: A 6-center pilot trial began to create data collection forms ("smartforms") integrated into the Electronic Health Record (EHR), determine successful strategies for implementation, and identify potential barriers to participation.

Patients and Methods: The 6 pilot sites (Iowa, Dartmouth, Johns Hopkins, Ohio State, Cleveland Clinic, Stanford) were chosen because they are major tertiary care hospitals with a large sarcoma service, are led by dedicated orthopaedic oncologists, all use Epic as their EHR, and all were current participants in the American Joint Replacement Registry. The latter two aspects were important to streamline institutional approval and smartform creation. The pilot trial participants joined monthly calls with the information technology and registry administration of the AAOS.

Results: The pilot trial concluded in March of 2020, and the MsTR was approved to officially join the AAOS family of registries. Five of the 6 pilot sites were able to obtain full institutional approval and identify eligible sarcoma patients for inclusion in the registry. The primary concerns included issues regarding patient confidentiality, data ownership, and informed consent. The pilot trial participants agreed on a final data element list that included the necessary detail to inform a quality and patient safety registry. The patient, tumor, and treatment factors included will allow for future query of clinical research questions.

Conclusions: The pilot trial allowed for anticipation of areas of concern as more institutions are recruited for participation. The Epic smartforms will be used as a template as additional hospitals and EHRs are contracted. The short-term goals of the MsTR are to increase institutional participation and awareness, and ensure data accuracy and completeness. Longer-term goals include exploring functional and oncologic outcomes after surgical management of extremity sarcoma, and incorporating metastatic disease of bone and spinal sarcoma into the registry.

Friday, October 9, 2020

1:30 pm – 1:36 pm CT

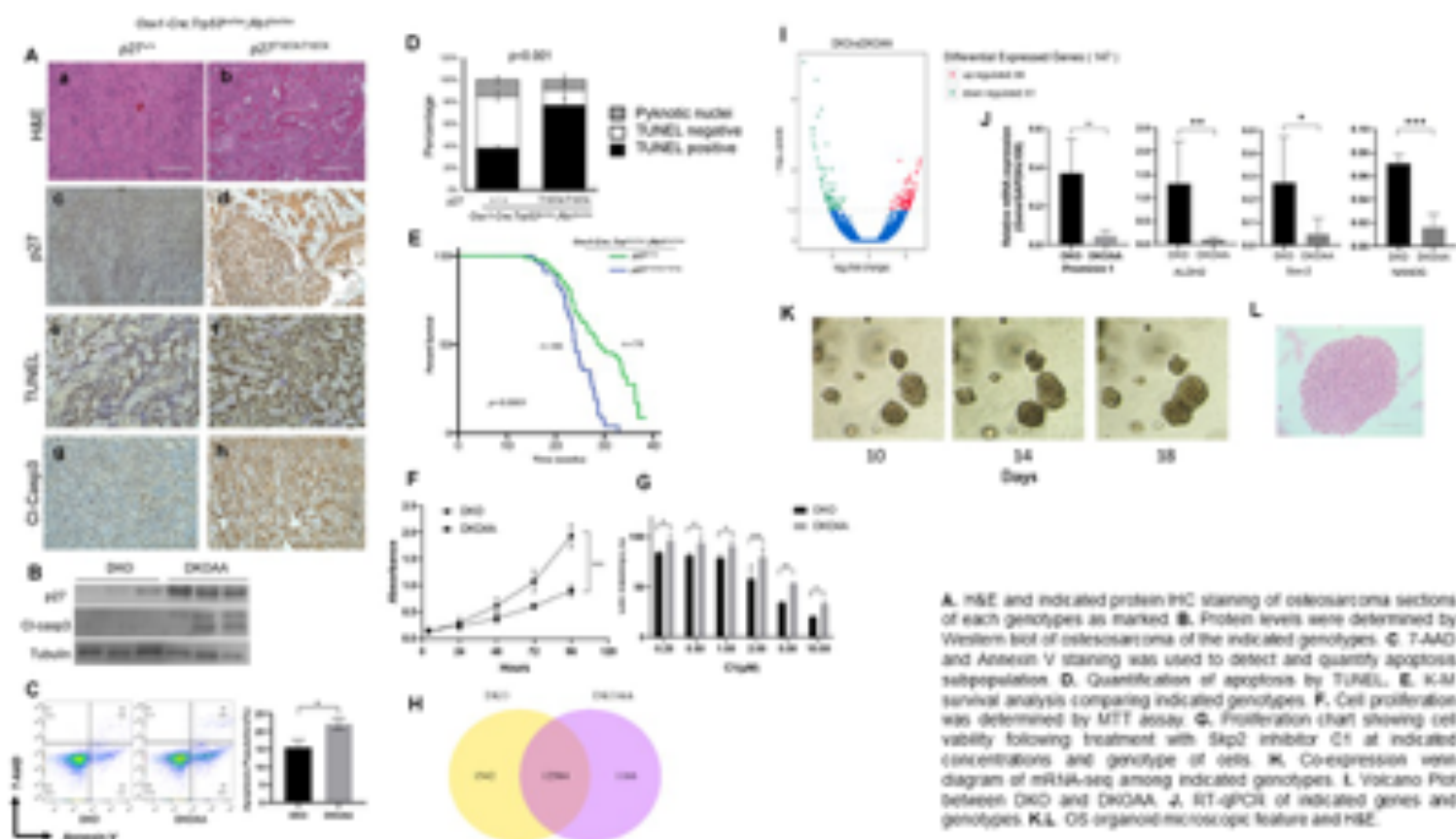
The Interaction of Skp2 with P27 Enhances in the Progression and Tumor-initiating Properties of OsteosarcomaJichuan Wang¹; Osama Aldahamsheh¹; Simon Yaguare¹; Hasibagan Borjihan¹; Janet Tingling¹; Hongling Zhao²; Rui Yang¹; David S. Geller¹; Bang Hoang¹¹Orthopedic Surgery, Montefiore Medical Center, Bronx, NY, United States.²Department of Developmental and Molecular Biology, Albert Einstein College of Medicine, Bronx, NY

Background: Osteosarcoma (OS) has been characterized with high-level of genome heterogeneity. Our previous studies have found that *skp2* is widely overexpressed in osteosarcoma, acts as a proto-oncogene and a potential therapeutic target. p27Kip1 (p27) is an inhibitor of cyclin-dependent kinases and also a downstream substrate of *skp2*. However, the interaction between *skp2* and p27 in OS tumorigenesis is mostly unknown. The genetically engineered mouse model (GEMM) serves as the best model currently available to research the genotype-phenotype correlation.

Methods: We generated a genetically engineered mouse model (GEMM) with double knockout of *Rb1* and *p53* within cells of the osteoblastic lineage using the Osterix1-Cre (*Osx1-Cre;Rb1^{lox/lox};Trp53^{lox/lox}*, DKO). To block the interaction between *Skp2* and p27, we cross DKO mice into the p27T187A (p27:187site Thr to Ala) knock-in mutation background to create *Osx1-Cre;Rb1^{lox/lox};Trp53^{lox/lox};p27^{T187A/T187A}* (DKOAA) animals. Mice of both genotypes were monitored for overall survival and tumor growth. Early passage osteosarcoma cells were harvested from mice tumors and used for further in vitro analysis. Western Blot and IHC were used for protein level determination. Annexin V staining and TUNEL assay were used for apoptosis analysis. RNA-seq and RT-qPCR were performed to compare transcriptional differences in both genotypes. A small-molecule *Skp2/Cks1* pocket inhibitor (C1) was applied to DKO cell treatment. Further, mouse osteosarcoma organoids were established for validation and drug screening.

Results: All genotypes were born at the expected ratios, and mutant animals are viable, fertile, and developmentally normal. p27T187A knock-in (KI) shows an accumulation of p27 (Figure A,B) and promotes apoptosis in DKO tumors (Figure A,B,C,D). In addition, p27T187A KI significantly delayed the progression of DKO osteosarcoma tumorigenesis to lethality (Figure E). RNA-seq revealed a significant downregulation of cancer stemness markers in p27^{T187A} compared to DKO tumors (Figure H,I,J). Finally, *Skp2/Cks1* pocket inhibitor inhibits DKO instead of DKOAA OS cells, and osteosarcoma organoids were successfully established for drug tests (Figure F,G,K,L).

Conclusion: Blocking p27 degradation by *Skp2* significantly delayed osteosarcoma tumorigenesis and prolonged survival, promoted apoptosis, and reduced tumor-initiating properties in an *pRb/p53* double deficient model. This study has extended our previous findings of the oncogenic role of *Skp2* in OS. Further pharmacological approaches of *Skp2* inhibitors may be desirable in osteosarcoma with *p53* and *Rb1* inactivation.



Friday, October 9, 2020

12:32 pm – 12:52 pm CT

Product Theater #1 – Onkos Surgical

Supporting Soft Tissue Apposition and Attachment in Proximal Femoral Replacement Surgery

Joel Mayerson, MD



Friday, October 9, 2020

1:10 pm – 1:30 pm CT

Product Theater #2 – Daiichi Sankyo, Inc.

Innovative Treatment in Diffuse Pigmented Villonodular Synovitis (PVNS)/Tenosynovial Giant Cell Tumor (TGCT)

R. Lor Randall, MD, FACS



E-POSTERS

E-Posters can be viewed on the Annual Meeting page of the MSTS website.

E-POSTER #	E- POSTER TITLE	SUBMITTED BY	CATEGORY
1	Patterns of Extrapulmonary Versus Pulmonary Metastases in Soft-Tissue Sarcoma	Cara A Cipriano, MD, FAAOS	Surveillance / Registry
2	Detection of Soft Tissue Sarcoma Local Recurrence – Surveillance Imaging Versus Physical Examination	Cara A Cipriano, MD, FAAOS	Surveillance / Registry
3	Despite Advances in Tumor Management Modalities, Surgery Prevails as Best Predictor of Survival for Osteosarcoma: An Analysis of Primary Osseous Tumor Characteristics, Management, and Outcomes from the National Cancer Database (NCDB)	Taylor Ottesen	Surveillance / Registry
4	Outcomes of Cryosurgery Utilizing an Argon Cryoprobe	John Krumme, MD	Surgical Treatment - Local Adjuvant Treatment
5	In Vitro Analysis of the Cytotoxic Effects of Common Irrigation Solutions on Chondrosarcoma and Giant Cell Tumor Cells	Jonathan J. Vaux, DO	Surgical Treatment - Local Adjuvant Treatment
6	What is the Likelihood of Non-Pulmonary Metastases Occurring in the Absence of Lung Metastasis in Bone and Soft Tissue Sarcoma? A Nested Case Control from Ongoing Prospective Cohort Study	Dr Obada Hasan, MD	Surgical Treatment - Imaging
7	Intravenous Tranexamic Acid Decreases Transfusion Requirements and Does Not Increase Incidence of Thromboembolic Events in Sarcoma Surgery	Herrick Siegel, MD, FAAOS	Surgical Treatment - Endoprosthetic Reconstruction
8	The Incidence, Risk Factors and Microbial Profile of Infected Endoprosthetic Reconstructions	Rishi Trikha, MD	Surgical Treatment - Endoprosthetic Reconstruction
9	A Comparative Analysis of The Outcomes and Survivorship of Proximal Femoral Replacement Versus Internal Fixation Techniques in The Treatment of Metastatic Disease of the Proximal Femur	Charles Allen Gusho	Surgical Treatment - Endoprosthetic Reconstruction
10	The Effect of Extensor Mechanism Repair on Functional Outcome Following Proximal Tibia Replacement	Rishi Trikha, MD	Surgical Treatment - Endoprosthetic Reconstruction
11	30-Year Follow-Up Results of 170 Cemented Endoprosthetic Reconstructions for Tumors of the Upper Extremity	Danielle Greig, MD	Surgical Treatment - Endoprosthetic Reconstruction
12	Acetabular Development After Non-Invasive Expandable Endoprosthetic Reconstruction with Hip Hemiarthroplasty	John Alexander, MD	Surgical Treatment - Endoprosthetic Reconstruction
13	Exercise Caution when Switching Bone Cement: How a Hospital-Instituted Change in Bone Cement Impacted Rates of Endoprosthetic Implant Failure	Danielle Greig, MD	Surgical Treatment - Endoprosthetic Reconstruction
14	Stem Tip Location Represents a Potentially Modifiable Risk Factor for Aseptic Loosening Following Cemented Distal Femoral Replacement	Danielle Greig, MD	Surgical Treatment - Endoprosthetic Reconstruction
15	Survival and Failure Modes of Pediatric Distal Femoral Expandable Endoprostheses: A Multi-Institutional Study	Kara Tanaka	Surgical Treatment - Endoprosthetic Reconstruction

E-POSTER #	E- POSTER TITLE	SUBMITTED BY	CATEGORY
16	Proximal Femoral Replacement in the Treatment of Oncologic Disorders of the Proximal Femur: The Experience of a Single Institution	Charles Allen Gussho	Surgical Treatment - Endoprosthetic Reconstruction
17	Intraoperative Indocyanine Green Fluorescence Angiography Decreases Postoperative Wound Complications in Soft Tissue Sarcoma Surgery	Benjamin Wilke, MD	Surgical Treatment - Complications
18	Is Local Recurrence in Extremity Sarcoma Just a Local Recurrence, or Does It Impact the Overall and Cancer Specific Survival; Nested Case Control Study from a Sarcoma Referral Center	Dr Obada Hasan, MD	Surgical Treatment - Complications
19	Intraoperative Indocyanine Green Fluorescence Angiography Is Sensitive for Predicting Postoperative Wound Complications in Soft Tissue Sarcoma Surgery	Benjamin Wilke, MD	Surgical Treatment - Complications
20	Does The Use of Intraoperative Angiography Reduce the Incidence of Postoperative Wound Complications in Complex Ortho-Plastic Reconstructions?	Joseph Benevenia, MD, FAAOS	Surgical Treatment - Complications
21	Thromboelastography-Derived Coagulation Profile of the Musculoskeletal Oncology Patient: Early Findings of a 20-Patient Pilot Study	Carol D Morris, MD, MS, FAAOS	Surgical Treatment - Complications
22	Mitigating Bone Cement Implantation Syndrome in Oncologic Patients Undergoing Cemented Hip and Knee Arthroplasty Through Neuraxial or Regional Anesthesia	Adam S. Levin, MD, FAAOS	Surgical Treatment - Complications
23	Free Microvascular Flap Reconstruction Following External Hemipelvectomy	Olivia Thomas	Surgical Treatment - Amputation
24	Despite Education Orthopaedic Surgeons Still Perform Unplanned Resections	Ana Cecilia Belzarena, MD	Soft Tissue Sarcoma - Extremity
25	The Effect of Metformin Use on Survival in Soft Tissue Sarcoma Patients: A Surveillance Epidemiology and End Results - Medicare Database Study	Ian Hutchinson, MD	Soft Tissue Sarcoma - Extremity
26	Histologic Markers Predictive of Wound Healing Complications in Soft Tissue Sarcoma Treated with Preoperative Radiation	Jacob D. Gylten	Soft Tissue Sarcoma - Extremity
27	Local Recurrence of Soft Tissue Sarcoma Revisited: Is There a Role for "Selective" Radiation?	Benjamin J Miller, MD, MS, FAAOS	Soft Tissue Sarcoma - Extremity
28	Lymph Node Metastasis in High Risk Extremity Soft Tissue Sarcoma and Prognostic Factors Influencing Survival	Charles Allen Gussho	Soft Tissue Sarcoma - Extremity
29	Extraskelatal Myxoid Chondrosarcoma: A High Incidence of Metastatic Disease to Lymph Nodes	Matthew Thomas Houdek, MD	Soft Tissue Sarcoma - Extremity
30	Oncological Outcomes in Patients with Appendicular Myxofibrosarcomas: A Retrospective Study	Juan A. Pretell, MD	Soft Tissue Sarcoma - Extremity
31	A Retrospective Cohort Study on The Impact of Anesthesia in Sarcoma Resection Surgery	Bijan Abar	Research - Clinical/ Translational
32	Niclosamide Stearate Prodrug Therapeutic (NSPT) Enhances Mitochondrial Proton Leak and Induces Potent Cytotoxicity in Osteosarcomas	Mark Michael Cullen	Research - Basic Science/Molecular
33	Versican and Extracellular Matrix Remodeling Promote Circulating Osteosarcoma Cell Extravasation and Metastatic Seeding	Mark Michael Cullen	Research - Basic Science/Molecular

E-POSTER #	E- POSTER TITLE	SUBMITTED BY	CATEGORY
34	Accelerating Bone Healing Using a Novel Sclerostin Inhibitor	Howard G Rosenthal, MD, FACS, FAAOS	Research - Basic Science/Molecular
35	Opioid Use in Orthopaedic Oncology Patients	Christina Gutowski, MD, MPH	Pain Management
36	Proximal Femoral Elongation Using Distraction Osteogenesis: It Is Possible to Perform in Patients with a Previous Massive Bone Allograft of The Distal Femur?	German L Farfalli, MD	Novel Surgical Techniques
37	The Impact of Radiation Therapy on Survival in Myxoid Liposarcoma	David Kerr	Multi-modality Therapy - Soft tissue
38	Four-Decade Epidemiological Trends of Synovial Sarcoma: An Analysis of The Surveillance, Epidemiology, and End Results Program	Marc El Beaino, MD, MSC	Multi-modality Therapy - Soft tissue
39	Promis Scores of Patients Undergoing Neoadjuvant and Adjuvant Radiation Therapy for Surgically Excised Soft Tissue Sarcoma	Tyler Moon, MD	Multi-modality Therapy - Soft tissue
40	Quantitative Imaging Biomarkers of Radiation-Induced Bone Loss in Radiotherapy Patients	Carol D Morris, MD, MS, FAAOS	Multi-modality Therapy - Soft tissue
41	Intramedullary Brachytherapy for the Treatment of Long Bone Metastatic Disease	Alexandra K. Callan, MD	Multi-modality Therapy - Metastatic Bone Disease
42	Multi-Agent Chemotherapy for Surgically-Treated Soft Tissue Sarcomas of Bone Is Not Associated with Improved Survival Compared to Surgery Alone: A Propensity-Matched, National Cancer Database Cohort Study	Ms Kristin Yu	Multi-modality Therapy - Bone
43	Mesenchymal Chondrosarcoma; Single Center Study of Oncologic Outcomes and the Effect of Adjuvant Treatment	Chung Chan, MBBS	Multi-modality Therapy - Bone
44	Telemedicine in Orthopaedic Oncology During the Covid-19 Pandemic: An Assessment of Patient Satisfaction	Joshua M. Lawrenz, MD	Miscellaneous
45	Osteosarcoma Health Literacy: A Quantitative Assessment of Online Patient Education Material	Trevor Robert Gulbrandsen, MD	Miscellaneous
46	Comparison of Publication Rates for Musculoskeletal Oncology Abstracts Presented at National Meetings	Christopher Collier, MD	Miscellaneous
47	Updated Analysis of the Oncology Section of the OITE from 2007 To 2019	Tyler Hoskins	Miscellaneous
48	Insurance Status Independently Predicts Mortality After Treatment of Sarcomas	Eugene Jang, MD, MS	Miscellaneous
49	Racial Disparities by Histology for Sarcomas of Soft-Tissue and Bone	David Kerr	Miscellaneous
50	Has The Volume and Variability of Procedures Reported By Fellows in ACGME-Accredited Musculoskeletal Oncology Fellowship Programs Changed Over Time?	Ryan Todd Voskuil, MD	Miscellaneous
51	Distance from Treating Hospital as a Predictor of Outcomes After Treatment of Sarcomas	Eugene Jang, MD, MS*	Miscellaneous
52	Resident & Fellow Involvement in Orthopedic Oncology Procedures	Eugene Jang, MD, MS*	Miscellaneous
53	Female Presenting Trends in Oncology Orthopedics - An Analysis of the Past 5 Years	Ana Cecilia Belzarena, MD	Miscellaneous

E-POSTER #	E- POSTER TITLE	SUBMITTED BY	CATEGORY
54	The Efficacy of Adjunctive Topical Tranexamic Acid for Blood Salvage in Patient Undergoing Palliative Decompressive Spinal Metastasis Surgery a Randomized Double Blinded Controlled Trial	Ronnakrit Maethungkul, MD	Metastatic Bone Disease - Spine
55	What Is The Value of Undergoing Surgery for Spinal Metastases At Dedicated Cancer Centers?	Azeem Tariq Malik, MBBS	Metastatic Bone Disease - Spine
56	Improved Functional Status in Patients Undergoing Cement and Rebar Reconstruction with Total Hip Arthroplasty for Uncontained Metastatic Tumors of the Acetabulum	Ashish Mittal, MD	Metastatic Bone Disease - Pelvis-Sacrum
57	Non-Surgical Outcomes for Periacetabular Metastasis	Cory Gene Couch, MD	Metastatic Bone Disease - Pelvis-Sacrum
58	The Pathologic Fracture Morbidity Index: A Novel Externally Validated Tool for Predicting 30-Day Postoperative Mortality	Michael Raad	Metastatic Bone Disease - Extremity
59	African-American Patients Are at a Higher Risk of Post Operative Complications and Longer Time to Operative Fixation for Pathologic Fractures of the Long Bones: A Propensity Score Matched Analysis	Michael Raad	Metastatic Bone Disease - Extremity
60	The Preoperative Machine Learning Algorithm for Extremity Metastatic Disease Can Predict 90-Day and 1-Year Survival: An External Validation Study of 206 Patients	Trevor Robert Gulbrandsen, MD	Metastatic Bone Disease - Extremity
61	Early Failures Utilizing the Photodynamic Bone Stabilization System in Pathologic and Impending Fractures	John Krumme, MD	Metastatic Bone Disease - Extremity
62	Predicting Pathologic Bone Lesions Using Scout Computed Tomography (CT) Imaging	Michael James Colello, MD	Metastatic Bone Disease - Extremity
63	Is Surgical Resection of the Primary Site Associated with an Improved Overall Survival for Patients with Primary Malignant Bone Tumors Who Have Metastatic Disease at Presentation?	Azeem Tariq Malik, MBBS	Metastatic Bone Disease - Extremity
64	Bisphosphonates Versu Denosumab for Prevention of Pathological Fracture in Advanced Cancers with Bone Metastasis: A Meta-Analysis of Randomized Controlled Trials	Humaid Al Farii, MD	Metastatic Bone Disease - Extremity
65	No Survival Benefit for Patients with Metastatic Disease of Bone Treated in High-Volume Centers	Benjamin J Miller, MD, MS, FAAOS	Metastatic Bone Disease - Extremity
66	Does Surgical Technique Influence the Development of Lung Metastasis in Patients with Pathologic Long Bone Fractures?	Joseph Kendal, MD, MSC	Metastatic Bone Disease - Extremity
67	Perioperative Complications After Prophylactic Fixation of Impending Pathologic Femur Fractures Using Reamer-Irrigator-Aspirator System	Carl Quinion, MD	Metastatic Bone Disease - Extremity
68	Sarcopenia as Evaluated By Psoas Cross-Sectional Area Is a Predictor of Complication Following Treatment of Lower Extremity Metastatic Disease	Joseph Benevenia, MD, FAAOS	Metastatic Bone Disease - Extremity
69	Prophylactic Fixation Versus Stabilization After Completed Fracture for Metastatic Disease: Patient Reported Outcomes Over Short Term Follow- Up	Meredith Bartelstein, MD	Metastatic Bone Disease - Extremity
70	Limb Lengthening After Internal Hemipelvectomy	Alan Slipak, MD	Functional Evaluation / Quality of Life
71	Patient-Specific Cutting Guides and 3D-Printed Technology for Intercalary Long Bone Resection and Allograft Reconstruction: Our Experience in the Resection of Extremity Sarcoma of Bone	Charles Allen Gusko	Custom Reconstruction / 3D Printing/ Innovation and Technology

E-POSTER #	E- POSTER TITLE	SUBMITTED BY	CATEGORY
72	Patient-Specific Cutting Guides and 3D-Printed Technology for Pelvic and Sacral Tumor Resection and Complex Allograft Reconstruction: Our Experience in the Resection of Pelvic and Spinal Sarcoma of Bone	Charles Allen Gusho	Custom Reconstruction / 3D Printing/ Innovation and Technology
73	Limb Salvage Surgery for Pelvic Bone Sarcomas: Which Factors Could Influence the Oncological and Clinical Outcomes?	Luis Aponte-Tinao, MD	Bone Sarcoma - Pelvis-Sacrum
74	Factors Influencing Ambulatory Function Following Internal Hemipelvectomy	Yuhui Zhu	Bone Sarcoma - Pelvis-Sacrum
75	Internal Hemipelvectomy with Pseudoarthrosis Reconstruction	Ian English, MD	Bone Sarcoma - Pelvis-Sacrum
76	Poor Survival in Bone Sarcoma Patients with Metastasis to Bone at Diagnosis Highlights the Importance of Skeletal Staging	Christopher Collier, MD	Bone Sarcoma - Extremity
77	The Prognostic Importance of Pathologic Fracture in Limb Salvage Surgery for Osteosarcoma: A Single-Institution Review of 304 Patients	Danielle Greig, MD	Bone Sarcoma - Extremity
78	The Prognostic Importance of Pathologic Fracture in Limb Salvage Surgery for Chondrosarcoma	Danielle Greig, MD	Bone Sarcoma - Extremity
79	Lymphovascular Invasion and Histopathologic Profile Portends Worse Prognosis in Chondrosarcoma	Alexander Leandros Lazarides, MD	Bone Sarcoma - Extremity
80	The Distinguishing Characteristics of Suspicious Pulmonary Nodules in Patients with Osteosarcoma	Motaz AlAqeel, MD	Bone Sarcoma - Extremity
81	Characteristics and Long-Term Outcome of Surgically Managed High-Grade Extremity Chondrosarcoma	Trevor Robert Gulbrandsen, MD	Bone Sarcoma - Extremity
82	Limb Salvage Surgery with Liquid Nitrogen-Pretreated Bone Tumor Autograft - Successful Outcomes at Low Cost	Ana Cecilia Belzarena, MD	Bone Sarcoma - Extremity
83	The Natural History of Benign Childhood Bone Tumors of the Extremities in a Longitudinal Radiographic Study	Christopher Collier, MD	Benign Bone Tumors - Extremity
84	Neo-Adjuvant Denosumab and Disease Recurrence in Giant Cell Tumour of Bone: Has the Magic Bullet Lost Its Magic?	Dr Fiachra Power	Benign Bone Tumors - Extremity
85	Complications After Surgical Treatment of Benign Bone Tumors	Matthew Henriques, MD	Benign Bone Tumors - Extremity
86	Sting Activation as an Immunotherapeutic Strategy for Soft Tissue Sarcoma	Michael Monument, MD	Research - Clinical/ Translational

MSTS 2020 VIRTUAL ANNUAL MEETING - BUSINESS MEETING AGENDA

MSTS Business Meeting
Friday, October 9, 2020
Virtual – Via GotoMeeting

1:50 pm – 3:00 pm CT

<u>Time</u>	<u>Topic</u>	<u>Lead</u>	<u>Action</u>
1:50 pm	I. Welcome and Call to Order	Dr. Mayerson	Action
1:51 pm	II. Consent Agenda October 2, 2019 Meeting Minutes	Dr. Mayerson	Action
1:53 pm	III. Presidential Report A. Supporter Recognition B. Volunteer Recognition C. Welcome New Members D. Management Services E. Year in Review	Dr. Mayerson	Information
2:03 pm	IV. Remembering Dr. John T. Makley	Dr. Benevenia	Information
2:08 pm	V. Research Update	Dr. Weiss	Information
2:12 pm	VI. Education Report	Dr. Lewis	Information
2:16 pm	VII. Evidence Based Medicine Report	Dr. Wodajo	Information
2:20 pm	VIII. Practice Management Report	Dr. Levin	Information
2:24 pm	IX. Fellowship Update	Dr. Rajani	Information
2:29 pm	X. Treasurer's Report	Dr. Ghert	Action
2:34 pm	XI. CORR Update	Dr. Temple	Information
2:36 pm	XII. Election of Candidates	Dr. Randall	Action
2:38 pm	XIII. 2020 – 2021 Officer Introductions	Dr. Mayerson	Information
2:42 pm	XIV. Presidential Address	Dr. Morris	Information
2:52 pm	XV. Open Microphone	Dr. Mott	Discussion
3:00 pm	XVI. Adjourn	Dr. Mayerson	Action

Informational Items:

- MSTS Executive Committee Roster
- Antitrust Policy

DISCLOSURES

Bijan Abar, BS	(n) Nothing; Submitted on: 07/07/2020
Annalise Abbott, MD	(n) Nothing; Submitted on: 07/07/2020
Albert J Aboulafia, MD, FAAOS	Submitted on: 06/29/2020 American Journal of Orthopedics: Editorial or governing board Amgen Co: Stock or stock Options Clinical Orthopaedics and Related Research: Editorial or governing board Epizyme: Paid consultant Journal of Bone and Joint Surgery - American: Editorial or governing board Journal of the American Academy of Orthopaedic Surgeons: Editorial or governing board Orthopedics: Editorial or governing board
Brock William Adams, MD, FAAOS	(n) Nothing; Submitted on: 06/28/2020
Anika Agarwal	(n) Nothing; Submitted on: 07/14/2020
Rashmi Agarwal, MD	(n) Nothing; Submitted on: 07/07/2020
Alexandra Hunter Aitchison, BS	(n) Nothing; Submitted on: 06/29/2020
Humaid Al Farii, MD	(n) Nothing; Submitted on: 01/23/2020
Motsem Al Maaieh, MD	Submitted on: 07/07/2020 Medtronic: Paid consultant Silony Medical: Paid presenter or speaker
Motaz AlAqeel, MD	(n) Nothing; Submitted on: 06/21/2020
Jose Ignacio Albergo, MD	(n) Nothing; Submitted on: 07/07/2020
David Alcolombre, MD	(n) Nothing; Submitted on: 06/30/2020
Osama Mohammad Salem Aldahamsheh Jr, MBBS	(n) Nothing; Submitted on: 07/02/2020
John H Alexander, MD	(n) Nothing; Submitted on: 06/25/2020
Tyler A Allen, PhD	(n) Nothing; Submitted on: 06/30/2020
Akshay Aluri BS	(n) Nothing; Submitted on: 07/07/2020
Kamil Amer, MD	(n) Nothing; Submitted on: 07/14/2020
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QIANG AN, MBBS, MPH	(n) Nothing; Submitted on: 07/08/2020
Oke A Anakwenze, MD, MBA, FAAOS	Submitted on: 06/13/2020 DJ Orthopaedics: Paid consultant Tornier: Paid consultant
Veronica Andaya BA	(n) Nothing; Submitted on: 07/06/2020
Luis Alberto Aponte-Tinao, MD	Submitted on: 10/15/2019 Clinical Orthopaedics and Related Research: Editorial or governing board
Michael Tan Arnold, BS	(n) Nothing; Submitted on: 06/01/2020
Michael Artin BA	(n) Nothing; Submitted on: 07/04/2020
Louise Atadja, BA	Submitted on: 06/17/2020 Norvartis: Employee
Raffi Stephen Avedian, MD, FAAOS (Program Committee)	Submitted on: 06/18/2020 Daiichi Sankyo: Paid consultant; Journal of Bone and Joint Surgery - American: Editorial or governing board; Musculoskeletal Tumor Society: Board or committee member

Miguel Angel Ayerza, MD	Submitted on: 07/07/2020 Asociacion Argentina de Ortopedia y Traumatologia: Board or committee member Clinical Orthopaedics and Related Research: Editorial or governing board
Jae Baek, BS	(n) Nothing; Submitted on: 06/12/2020
Tessa Balach, MD, FAAOS	Submitted on: 06/22/2020 AAOS: Board or committee member Accreditation Council for Graduate Medical Education (ACGME): Board or committee member American Orthopaedic Association: Board or committee member Musculoskeletal Oncology Research Initiative: Board or committee member Musculoskeletal Tumor Society: Board or committee member Techniques in Orthopaedics: Editorial or governing board
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Suzanne Bartholf Dewitt, DVM	(n) Nothing; Submitted on: 06/29/2020
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Zackery Beauchamp BS	(n) Nothing; Submitted on: 07/07/2020
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Joseph Benevenia, MD, FAAOS	Submitted on: 07/13/2020 AAOS, Musculoskeletal Transplant Foundation, Musculoskeletal Tumor Society: Board or committee member AAOS/OKU Tumors 2, 3, Musculoskeletal Tumor Society: Editorial or governing board Creosso: Research support Creosso LLC: Stock or stock Options Implant Cast: Unpaid consultant Implantcast: Other financial or material support Merete: Other financial or material support; Paid consultant Merete Medical: IP royalties; Research support Musculoskeletal Transplant Foundation: Paid presenter or speaker; Research support NJOS: Unpaid consultant Onkos: Other financial or material support; Paid consultant Rutgers University/Creosso LLC: IP royalties
Nicholas M Bernthal, MD, FAAOS	Submitted on: 06/19/2020 Biomet: Paid consultant Bone Support: Paid consultant Daiichi Sankyo: Paid consultant Musculoskeletal Tumor Society: Board or committee member Onkos: Paid consultant Orthopaedic Research and Education Foundation: Board or committee member
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Alan T Blank, MD, MS	Submitted on: 09/05/2020 ad hoc reviewer for CORR, JOP, JSO, Lancet Oncology; Editorial or governing board exparel/pacira: Stock or stock Options Musculoskeletal Tumor Society: Board or committee member Onkos Surgical: Paid consultant Rare Tumors: Editorial or governing board Rush Orthopedic Journal: Editorial or governing board Swim Across America Cancer Research Grant: Research support
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Venkat Boddapati, MD	(n) Nothing; Submitted on: 06/05/2020
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Santiago Bosio, MD	(n) Nothing; Submitted on: 07/08/2020
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Anthony Bozzo, MD	(n) Nothing; Submitted on: 07/16/2020
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Brian E Brigman, MD, PhD, FAAOS	Submitted on: 06/10/2020 Daiichi Sankyo: Paid consultant Daiichi-Sankyo: Paid presenter or speaker Journal of Surgical Oncology: Editorial or governing board Lumicell Diagnostics: Research support Musculoskeletal Transplant Foundation: Paid consultant; Paid presenter or speaker; Research support Musculoskeletal Tumor Society: Board or committee member Plexxicon: Paid consultant PLOS-one: Editorial or governing board
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Frank Chiarappa, MD	(n) Nothing; Submitted on: 07/12/2020
Alexander Christ, MD	(n) Nothing; Submitted on: 08/11/2020

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Matthew Ryan Claxton, BS	(n) Nothing; Submitted on: 06/04/2020
Bishir Clayton, MD	(n) Nothing; Submitted on: 05/27/2020
Michael James Colello, MD	(n) Nothing; Submitted on: 06/09/2020
Lisa Coleman	(n) Nothing; Submitted on: 07/07/2020
Christopher Collier, MD	(n) Nothing; Submitted on: 06/13/2020
Matthew Wesley Colman, MD, FAAOS <small>(Program Committee)</small>	Submitted on: 07/01/2020 Alphatec Spine: IP royalties; Paid consultant AO Spine North America: Board or committee member; Research support Cervical Spine Research Society: Board or committee member CSRS: Research support DePuy, A Johnson & Johnson Company: Paid presenter or speaker K2M: Paid presenter or speaker Musculoskeletal Tumor Society: Board or committee member North American Spine Society: Board or committee member Orthofix, Inc.: Paid presenter or speaker Spinal Elements: Paid consultant
Katherine Connors, MD	(n) Nothing; Submitted on: 07/15/2020
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David Corcoran	(n) Nothing; Submitted on: 07/07/2020
José Costa MD, FACP	(n) Nothing; Submitted on: 07/06/2020
Cory Gene Couch, MD	(n) Nothing; Submitted on: 06/01/2020
Brandon Crowley, BS	(n) Nothing; Submitted on: 07/14/2020
Mark Michael Cullen, BS	(n) Nothing; Submitted on: 06/16/2020
Neffisah D'odoo	(n) Nothing; Submitted on: 07/06/2020
Heike Elisabeth Daldrop-Link, MD, PhD	Submitted on: 07/07/2020 Academic Radiology: Editorial or governing board Cambridge University Press: Publishing royalties, financial or material support Journal of Nuclear Medicine: Editorial or governing board Nanotheranostics: Editorial or governing board Society for Pediatric Radiology: Board or committee member World Molecular Imaging Society: Board or committee member
Nicolas Devos, PhD	(n) Nothing; Submitted on: 07/06/2020
Alex Christopher Dibartola, MD, MPH	(n) Nothing; Submitted on: 06/11/2020
Matthew R DiCaprio, MD, FAAOS	Submitted on: 04/04/2020 AAOS: Board or committee member Musculoskeletal Tumor Society: Board or committee member
Yee-Cheen Doung, MD, FAAOS <small>(Program Committee)</small>	Submitted on: 07/06/2020 Musculoskeletal Tumor Society: Board or committee member

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Marc El Beaino, MD, MSc	(n) Nothing; Submitted on: 04/02/2020
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Dennis Ian English, MD	(n) Nothing; Submitted on: 07/07/2020
Pedro Dejesus Escobedo	(n) Nothing; Submitted on: 07/01/2020
Will Eward, DVM, MD	(n) Nothing; Submitted on: 08/04/2020
Nicola Fabbri, MD	Submitted on: 07/07/2020 European Journal of Surgical Oncology: Editorial or governing board Illuminoss Medical Inc., Rhode Island, US: Paid presenter or speaker Illuminoss Medical, Inc. 993 Waterman Avenue East Providence, Rhode Island 02914 USA: Paid consultant Musculoskeletal Tumor Society: Board or committee member National Comprehensive Cancer Network: Board or committee member Onkos Surgical, 77 E Halsey Rd, Parsippany, NJ 07054: Paid consultant; Paid presenter or speaker Springer: Publishing royalties, financial or material support
Andrew Fang, MD, FAAOS	(n) Nothing; Submitted on: 06/30/2020
German Luis Farfalli, MD	(n) Nothing; Submitted on: 10/15/2019
Peter Ferguson, MD	Submitted on: 07/07/2020 Sarcoma: Editorial or governing board Stryker: Paid consultant
Harrison Robert Ferlauto, BS	(n) Nothing; Submitted on: 06/28/2020
Russell Fernandes	(n) Nothing; Submitted on: 07/07/2020
Michael Peter Fice, MD	(n) Nothing; Submitted on: 07/07/2020
Yale Fillingham, MD	Submitted on: 08/17/2020 AAOS: Board or committee member American Association of Hip and Knee Surgeons: Board or committee member Johnson & Johnson: Paid consultant Medacta: IP royalties; Paid consultant Muvr Labs, Inc.: Stock or stock Options Parvizi Surgical Innovations: Stock or stock Options Saunders/Mosby-Elsevier: Publishing royalties, financial or material support
Etienne Flamant, BS	Submitted on: 07/06/2020 GE Healthcare: Stock or stock Options Merck: Stock or stock Options Pfizer: Stock or stock Options Roche: Stock or stock Options
Amanda Nicole Fletcher, MD	(n) Nothing; Submitted on: 08/11/2020
James Flint, MD, FAAOS	Submitted on: 06/28/2020 AAOS: Board or committee member
Jonathan A Forsberg, MD, PhD, FAAOS	Submitted on: 07/02/2020 Prognostix AB: Stock or stock Options Solsidan Group, LLC: Employee; Paid consultant Zimmer: Unpaid consultant
Antonio Jorge Forte, MD, PhD	(n) Nothing; Submitted on: 06/30/2020
Benjamin Fregly	Submitted on: 07/07/2020 Stryker: IP royalties

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Kathryn Gallaway, BA	(n) Nothing; Submitted on: 06/29/2020
Jess Gannon	(n) Nothing; Submitted on: 07/06/2020
Burke Gao, MD	(n) Nothing; Submitted on: 06/02/2020
Matthew Gasparro BS	(n) Nothing; Submitted on: 07/02/2020
John Gaughan, PhD	(n) Nothing; Submitted on: 06/18/2020
Aaron Gazendam, MD	(n) Nothing; Submitted on: 06/24/2020
David Samuel Geller, MD, FAAOS	Submitted on: 06/30/2020 AAOS: Board or committee member Daiichi Sankyo: Paid consultant Musculoskeletal Tumor Society: Board or committee member
Kirollos M Gendi, MD, MPH	(n) Nothing; Submitted on: 07/06/2020
Caroline Anne Gerhardt, BS	(n) Nothing; Submitted on: 06/16/2020
Patrick John Getty, MD, FAAOS	Submitted on: 06/23/2020 American Board of Orthopaedic Surgery, Inc.: Board or committee member Musculoskeletal Transplant Foundation: Other financial or material support
Michelle A Ghert, MD, FRCSC	Submitted on: 01/14/2020 Musculoskeletal Tumor Society: Board or committee member Wright Medical Technology, Inc.: Paid consultant; Paid presenter or speaker
C Parker Gibbs Jr, MD, FAAOS	Submitted on: 08/04/2020 Exactech, Inc: IP royalties; Paid consultant Journal of Bone and Joint Surgery - American: Editorial or governing board
Victoria Giglio, MSc	(n) Nothing; Submitted on: 06/17/2020
Steven Gitelis, MD, FAAOS	Submitted on: 07/01/2020 Onkos: Paid consultant; Stock or stock Options USMI: Stock or stock Options
Krista Goulding, MD	(n) Nothing; Submitted on: 06/30/2020
David Goyette, BS	(n) Nothing; Submitted on: 10/08/2019
Jonathan N Grauer, MD, FAAOS	Submitted on: 05/17/2020 Lumbar Spine Research Society: Board or committee member North American Spine Society: Board or committee member North American Spine Society Journal: Editorial or governing board SpineLine: Editorial or governing board
Joshua A Greenspoon, MD	(n) Nothing; Submitted on: 07/02/2020
Danielle Greig, MD	(n) Nothing; Submitted on: 06/12/2020
Olivier Quinten Groot, BS	(n) Nothing; Submitted on: 06/24/2020
Michael Patrick Guertin, BS	(n) Nothing; Submitted on: 07/04/2020
Trevor Gulbrandsen, MD	(n) Nothing; Submitted on: 06/27/2020
Ella Frances Gunady	(n) Nothing; Submitted on: 07/06/2020
Kenneth Robert Gundle, MD, FAAOS	Submitted on: 04/06/2020 Clinical Orthopaedics and Related Research: Editorial or governing board Presage Biosciences: Research support
Richard William Gurich Jr, MD	(n) Nothing; Submitted on: 05/19/2020

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Christina J Gutowski, MD	Submitted on: 06/16/2020 Adler Ortho: IP royalties; Paid consultant
Jacob Gylten	(n) Nothing; Submitted on: 07/06/2020
Andrew Haims, MD	Submitted on: 07/07/2020 Pfizer: Employee
Jennifer Lynne Halpern, MD, FAAOS	(n) Nothing; Submitted on: 07/06/2020
Bradley Hammoor, BS, MS	(n) Nothing; Submitted on: 09/01/2020
Colin Harrington, MD	(n) Nothing; Submitted on: 07/15/2020
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James B Hayden, MD, FAAOS (Program Committee)	Submitted on: 02/13/2020 Biomet: IP royalties Musculoskeletal Tumor Society: Board or committee member
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John H Healey, MD, FAAOS, FACS	Submitted on: 06/14/2020 AAOS: Board or committee member Association of Bone and Joint Surgeons: Board or committee member Clinical Orthopaedics and Related Research: Editorial or governing board; Publishing royalties, financial or material support Daiichi-Sankyo: Paid consultant Illuminoss: Unpaid consultant Lumicell: Other financial or material support Musculoskeletal Transplant Foundation: Board or committee member Musculoskeletal Tumor Society: Board or committee member Orthopaedic Research and Education Foundation: Board or committee member Orthopaedic Research Society: Board or committee member Stryker: Paid consultant
Bryan Heard MD PhD	Submitted on: 07/07/2020 Stryker: Employee; Stock or stock Options
Eric R Henderson, MD, FAAOS	Submitted on: 06/24/2020 Abbott: Stock or stock Options Musculoskeletal Tumor Society: Board or committee member Stryker: Paid consultant
Evita Henderson-Jackson	(n) Nothing; Submitted on: 06/23/2020
Stephanie Hendren, MS	(n) Nothing; Submitted on: 05/26/2020
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Michael Johnson	Submitted on: 04/15/2020 Accuray: IP royalties
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Aditya Vishwas Karhade, MD, MBA	(n) Nothing; Submitted on: 05/07/2020
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Mick P Kelly, MD	Submitted on: 07/02/2020 AAOS: Board or committee member
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Joseph Keith Kendal, MD	(n) Nothing; Submitted on: 07/04/2020
Deborah Kenney, OTR/L	(n) Nothing; Submitted on: 07/07/2020
David Kerr, MD	(n) Nothing; Submitted on: 06/29/2020
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So Young Kim, PhD	(n) Nothing; Submitted on: 07/06/2020

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Tae Won Benjamin Kim, MD, FAAOS	Submitted on: 06/15/2020 Daiichi Sankyo: Paid presenter or speaker Onc Live: Paid presenter or speaker
Christopher Klifto, MD	Submitted on: 06/30/2020 Additive Orthopedics: Paid consultant GE Healthcare: Stock or stock Options Integra: Paid consultant; Paid presenter or speaker Johnson & Johnson: Stock or stock Options Merck: Stock or stock Options Pfizer: Stock or stock Options
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Christos Kosmas, MD	Submitted on: 06/24/2020 Bioclinica: Paid consultant
John William Krumme, MD	(n) Nothing; Submitted on: 06/16/2020
Jessica A Lavery, MS	(n) Nothing; Submitted on: 10/07/2019
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Alexander Leandros Lazarides, MD	(n) Nothing; Submitted on: 06/07/2020
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G Douglas Letson, MD, FAAOS	Submitted on: 07/07/2020 Stryker: Paid consultant
Adam S Levin, MD, FAAOS	Submitted on: 04/02/2020 AAOS: Board or committee member Integra Lifesciences: Stock or stock Options Journal of Bone and Joint Surgery - American: Editorial or governing board Musculoskeletal Tumor Society: Board or committee member Pfizer: Stock or stock Options SeaSpine Holding: Stock or stock Options
Valerae O Lewis, MD, FAAOS	Submitted on: 06/15/2020 AAOS: Board or committee member Biomet: Other financial or material support Musculoskeletal Tumor Society: Board or committee member Orthopedics Today: Editorial or governing board Sarcoma: Editorial or governing board
Tai Lai Li, BS	(n) Nothing; Submitted on: 05/28/2020
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Dieter Lindskog, MD, FAAOS	Submitted on: 07/10/2020 AAOS: Board or committee member

Raymond W Liu, MD, FAAOS	Submitted on: 08/25/2020 AAOS: Board or committee member American Academy of Pediatrics, Orthopaedic Subsection: Board or committee member Journal of Pediatric Orthopedics: Editorial or governing board Limb Lengthening and Reconstruction Society (LLRS): Board or committee member Orthopediatrics Corporation: Royalties paid to my institution, part of which are placed into a research fund that i control: Other financial or material support Pediatric Orthopaedic Society of North America: Board or committee member
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Jorge Manrique, MD	Submitted on: 06/15/2020 Colombian Journal of Orthopedics and Traumatology: Editorial or governing board International Consensus Meeting on Periprosthetic Joint Infection: Editorial or governing board Parvizi Surgical Innovations: Stock or stock Options
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Mitchell K. Messner, MD	(n) Nothing; Submitted on: 06/30/2020
Deborah Meyer ^(staff)	(n) Nothing; Submitted on: 09/04/2020
Nathaniel Meyer MD	(n) Nothing; Submitted on: 07/07/2020
Nirnaya Miljacic	(n) Nothing; Submitted on: 07/03/2020
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Lee Morse, MD	(n) Nothing; Submitted on: 09/13/2020
Michael P Mott, MD, FAAOS	Submitted on: 02/20/2020 Irrisept: Paid consultant Musculoskeletal Transplant Foundation: Paid consultant Musculoskeletal Tumor Society: Board or committee member

John Mullinax, MD	Submitted on: 06/19/2020 Commission on Cancer, American College of Surgeons: Board or committee member Florida Chapter, American College of Surgeons: Board or committee member Iovance Biotherapeutics: Research support Society of Surgical Oncology: Board or committee member
Alana Munger, MD	(n) Nothing; Submitted on: 07/06/2020
Peter M Murray, MD, FAAOS	Submitted on: 06/28/2020 Accreditation Council for Graduate Medical Education: Board or committee member Accreditation Council on Graduate Medical Education: Board or committee member American Board of Orthopaedic Surgery, Inc.: Board or committee member Journal of Hand Surgery - American: Editorial or governing board Journal of Orthopaedics and Traumatology, Hand: Editorial or governing board
Alexis Musick, BS	(n) Nothing; Submitted on: 07/04/2020
Puviindran Nadesan	(n) Nothing; Submitted on: 07/07/2020
Momin Nasir, BS	(n) Nothing; Submitted on: 07/15/2020
Elham Nasri MD	(n) Nothing; Submitted on: 07/06/2020
David Needham, PhD	Submitted on: 07/03/2020 Celsion Corporation New Jersey: Stock or stock Options
Grant Nelson, MD	(n) Nothing; Submitted on: 06/24/2020
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Richard W Nicholas Jr, MD, FAAOS	Submitted on: 07/06/2020 Musculoskeletal Transplant Foundation: Other financial or material support
Thomas A Novack, MD	(n) Nothing; Submitted on: 04/01/2020
Lukas M Nystrom, MD, FAAOS, FAORTHA	Submitted on: 06/20/2020 Musculoskeletal Oncology Research Initiative: Board or committee member Musculoskeletal Tumor Society: Board or committee member Onkos Surgical, Inc.: Paid consultant
Richard John O'Donnell, MD, FAAOS	Submitted on: 07/07/2020 Orthopaedic Surgical Osseointegration Society: Board or committee member
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Koichi Ogura, MD	(n) Nothing; Submitted on: 05/22/2020
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Roselle C. Okubo MBA, MSN, RN-BC, OCN	Submitted on: 07/07/2020 Bausch Health (BAC): Stock or stock Options
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Francis Robert Patterson, MD, FAAOS	Submitted on: 07/16/2020 Biomet: Research support Merete: Unpaid consultant Synthes: Research support

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Jane Persons	(n) Nothing; Submitted on: 06/28/2020
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Scott Edward Porter, MD, MBA, FAAOS	Submitted on: 06/22/2020 American Board of Orthopaedic Surgery, Inc.: Board or committee member
Joel M Post, DO	Submitted on: 01/16/2020 AAOS: Board or committee member
Benjamin Kyle Potter, MD, FAAOS	Submitted on: 05/22/2020 Biomet: Unpaid consultant Clinical Orthopaedics and Related Research: Editorial or governing board Journal of Orthopaedic Trauma: Editorial or governing board Journal of Surgical Orthopaedic Advances: Editorial or governing board Society of Military Orthopaedic Surgeons: Board or committee member
Fiachra Richard Power, MBChB, MRCS	(n) Nothing; Submitted on: 07/07/2020
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Luis Pulido, MD	(n) Nothing; Submitted on: 06/22/2020
Varun Puvanesarajah, MD	(n) Nothing; Submitted on: 06/09/2020
Humzah A Quereshey BA	(n) Nothing; Submitted on: 06/22/2020
Carl Quinion, MD	(n) Nothing; Submitted on: 06/22/2020
Micheal Raad, MD	(n) Nothing; Submitted on: 07/07/2020
Sandesh Rao, MD	(n) Nothing; Submitted on: 06/03/2020
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Timothy Rapp, MD (Program Committee)	Submitted on: 06/18/2020 AAOS: Board or committee member; American Board of Orthopaedic Surgery, Inc.: Board or committee member; Clinical Orthopaedics and Related Research-Bulletin of the NYU Hospital for Joint Diseases American Journal of Orthopaedics: Editorial or governing board; Research or Institutional Support- Department of Orthopaedic Surgery Hospital for Joint Diseases at NYU Langone Medical Center: AO Spine Arthrex Arthritis Foundation- NY Chapter Arthritis National Research Foundation Asterand Biomet- Depuy Encore Exactech/ DJO Ferring Pharmaceuticals Geisinger Integra Johnson & Johnson KCI Medtronic NIH OMEGA OREF Orthopaedic Trauma Association Osteosynthesis and Trauma Care Foundation- Paradigm Spine Progenics Sbi Smith and Nephew Stryker Surgix Synthes: Research support
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Howard G Rosenthal, MD, FAAOS	Submitted on: 10/07/2019 Artoss: Paid presenter or speaker Clinical Orthopaedics and Related Research: Editorial or governing board Hylapharm: Stock or stock Options Musculoskeletal Tumor Society: Board or committee member Osteogenix: Stock or stock Options Silverlon: Paid presenter or speaker
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Maksim Royzen, PhD	Submitted on: 07/07/2020 Shasqi, Inc.: Stock or stock Options Tambo, Inc.: Stock or stock Options
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Geoffrey Siegel, MD, FAAOS	Submitted on: 07/06/2020 Annals of Medical Case Reports- Oncology: Editorial or governing board
Herrick Siegel, MD, FAAOS	Submitted on: 04/03/2020 Aesculap/B.Braun: Paid consultant; Paid presenter or speaker American Registry of Pathology: Publishing royalties, financial or material support Biomet: IP royalties; Paid consultant; Paid presenter or speaker Corin: Paid consultant Corin U.S.A.: Paid presenter or speaker Exactech, Inc: Paid consultant; Paid presenter or speaker Journal of Foot and Ankle Surgery: Editorial or governing board Musculoskeletal Tumor Society: Board or committee member Onkos Surgical: Paid consultant Orthopedics Today: Editorial or governing board Signature Orthopaedics: Unpaid consultant Smith & Nephew: Paid consultant; Paid presenter or speaker

Rafael Jose Sierra, MD, FAAOS	Submitted on: 04/03/2020 American Association of Hip and Knee Surgeons: Board or committee member Anchor study group: Board or committee member Biomet: Paid consultant; Paid presenter or speaker Cytori: Research support DePuy, A Johnson & Johnson Company: Research support Journal of Arthroplasty: Editorial or governing board Knee Society: Board or committee member Link Orthopaedics: IP royalties; Paid consultant Midamerica orthopedic society: Board or committee member Muller Foundation: Board or committee member Orthalign: IP royalties Orthoalign: Paid consultant; Stock or stock Options Springer: Publishing royalties, financial or material support Stryker, Biomet: Research support Think: Paid consultant Zimmer: IP royalties; Research support
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Nikhi Singh BS	(n) Nothing; Submitted on: 07/07/2020
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Jason Souza, MD	(n) Nothing; Submitted on: 06/28/2020
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Matthew B Spraker, MD, PhD	Submitted on: 06/29/2020 Varian Medical Systems Inc: Research support
Umasuthan Srikumaran, MD, MBA, FAAOS	Submitted on: 04/02/2020 AAOS: Board or committee member Arthrex, Inc: Other financial or material support Conventus: Paid consultant; Paid presenter or speaker DePuy, A Johnson & Johnson Company: Other financial or material support Fx Shoulder: Paid consultant; Paid presenter or speaker Orthofix, Inc.: Paid consultant Quantum OPS: Stock or stock Options ROM3: Stock or stock Options Smith & Nephew: Other financial or material support Stryker: Other financial or material support Thieme: Publishing royalties, financial or material support Tigon Medical: Stock or stock Options Wright Medical Technology, Inc.: Other financial or material support
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Alexandra Stavrakis, MD	(n) Nothing; Submitted on: 06/01/2020
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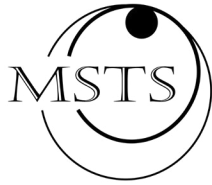
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Ryan Todd Voskuil, MD	(n) Nothing; Submitted on: 06/22/2020
Kevin Wall, MD	(n) Nothing; Submitted on: 07/08/2020
Matthew Tristan Wallace, MD, FAAOS	(n) Nothing; Submitted on: 04/17/2020
Jichuan Wang, MD	(n) Nothing; Submitted on: 09/15/2020
Kathryn Ware	(n) Nothing; Submitted on: 07/27/2020
Alexander Weber, MD	(n) Nothing; Submitted on: 07/14/2020
Kurt Richard Weiss, MD, FAAOS (Program Committee)	Submitted on: 09/02/2020 Connective Tissue Oncology Society: Board or committee member; Journal of the American Academy of Orthopaedic Surgeons: Editorial or governing board

Ryan Wendt, BS	(n) Nothing; Submitted on: 07/07/2020
Doris Wenger, MD	(n) Nothing; Submitted on: 06/07/2020
Deandre S White MPH	(n) Nothing; Submitted on: 07/06/2020
John R Wickman, MD, MBA	(n) Nothing; Submitted on: 06/18/2020
Benjamin Wilke, MD	Submitted on: 06/03/2020 Summit Medical: Research support
David AJ Wilson, MSc, MD	Submitted on: 06/17/2020 Canadian Orthopedic Research Society: Board or committee member
James C Wittig, MD, FAAOS	(n) Nothing; Submitted on: 08/17/2020
Felasfa M Wodajo, MD, FAAOS	Submitted on: 07/12/2020 Onkos Surgical: Paid consultant Saunders/Mosby-Elsevier: Publishing royalties, financial or material support
Kui Wu	(n) Nothing; Submitted on: 07/07/2020
Jay Wunder, MD	(n) Nothing; Submitted on: 06/28/2020
Rosanna Lisa Wustrack, MD, FAAOS	(n) Nothing; Submitted on: 06/30/2020
Simon Ignacio Yaguare Sr, MD	(n) Nothing; Submitted on: 07/02/2020
Rui Yang, MD	(n) Nothing; Submitted on: 09/03/2020
Michael J Yaszemski, MD, PhD, FAAOS	Submitted on: 07/01/2020 BioBridge Global: Paid consultant Interurban Orthopaedic Society: Board or committee member Journal of Biomedical Materials Research-J. Wiley, Inc.: Editorial or governing board K2M, Inc.: Paid consultant Lippincott: Publishing royalties, financial or material support Medtronic: Paid consultant Wouters: Publishing royalties, financial or material support
Raphael Yechieli, MD	(n) Nothing; Submitted on: 06/17/2020
Nathan A. Yee	Submitted on: 07/07/2020 Shasqi, Inc.: Employee; Stock or stock Options Tambo, Inc.: Stock or stock Options
Kristin Yu, BA	(n) Nothing; Submitted on: 07/05/2020
Alp Yurter, MD	(n) Nothing; Submitted on: 07/03/2020
Michael Zakharian	Submitted on: 07/07/2020 Shasqi, Inc.: Employee
Ali Zarezadeh, MD	(n) Nothing; Submitted on: 07/07/2020
Hongling Zhao	(n) Nothing; Submitted on: 07/02/2020
Yuhui Zhu, BS	(n) Nothing; Submitted on: 07/07/2020
Melissa Nicole Zimel, MD, FAAOS	(n) Nothing; Submitted on: 09/21/2020

THANK YOU

(as of 9-30-2020)

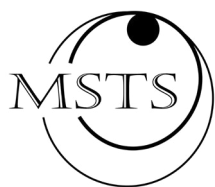


The Musculoskeletal Tumor Society and the Orthopaedic Research and Education Foundation with to thank the following for their generous donations in 2019 and 2020:

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*Donations processed from September 1, 2019 to September 30, 2020



UPCOMING EDUCATIONAL EVENTS

MSTS Virtual Coding Course

Thursday, October 15, 2020
5:30 pm to 8:30 pm Central Time



This course, presented by KarenZupko Associates (KZA), will cover coding practices for the Evaluation and Management Coding Guidelines for January 2021 and new CPT codes specific to oncology including an in-depth review of E/M criteria changes that will apply in 2021 and comparisons of 2020 and 2021 E/M coding systems using musculoskeletal tumor examples.

KZA will provide a coding workbook for each registered attendee for use during the course.

To ensure receipt of this material, the registration deadline for the coding course is Friday, October 9th!

The registration fee to join the Coding Course, which includes the coding workbook, is \$150.00.

[Click here to register to attend](#) the MSTS 2020 Virtual Coding Course.

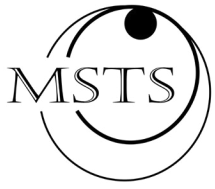
MSTS Barriers to Care Caused by COVID-19 Webinar

Wednesday, October 21, 2020
7:30 pm to 8:30 pm. Central Time

This webinar is the first in a series of six webinars to be presented by the MSTS Education Committee. The webinar will address COVID mandates for the care of cancer patients as well as the unique barriers to care caused by COVID-19.

MSTS extends special thanks to Stryker, the exclusive sponsor of the MSTS webinar series.

Registration is complimentary for MSTS members. [Click here to register.](#)



2021 GRANT OPPORTUNITIES

2021 MSTS/Sarcoma Strong Foundation Research Grant

With the continued strong commitment from Dr. Matthew DiCaprio, the Sarcoma Strong Foundation will once again support MSTS to provide a \$50,000 one-year grant for the most impactful research related to sarcoma.

The submission deadline for applications is January 15, 2021. For additional information, [please click here](#) to view the RFA.

2021 MSTS Mentored Research and Scholar Development Award

MSTS is enthusiastic about nurturing a culture of discovery and fostering mentorship Candidate, Associate and young members of our society. MSTS is pleased to once again offer a Mentored Research and Scholar Development Program Award. The purpose of the award is to foster mentorship, enhance collaborative research and facilitate career advancement for young MSTS Candidate/Associate/Full Members.

Eligible applicants would include

- Candidate, Associate and full Active members of MSTS within six (6) years of first faculty
- Orthopaedic Surgeons with successful completion of Orthopaedic Oncology Fellowship Training
- Those who have specific plans to submit external grants within two (2) years of the initial award date

The submission deadline for applications is January 15, 2021. For additional information, [please click here](#).

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DISCLAIMER

The material presented at this MSTS Annual Meeting has been made available by the MSTS for educational purposes only. This material is not intended to represent the only, nor necessarily the best, methods or procedures appropriate for the medical situations discussed, but rather is intended to present an approach, view, statement or opinion of the faculty, which may be helpful to others who face similar situations.

The Musculoskeletal Tumor Society disclaims any and all liability for injury or other damages resulting to any individual attending a course and for all claims, which may arise out of the use of the techniques, demonstrated there in by such individuals, whether these claims shall be asserted by a physician or any other person.

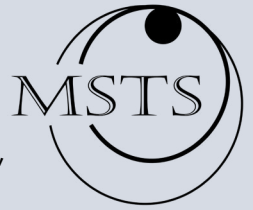
DISCLOSURE

Each faculty member in this MSTS Annual Meeting has been asked to disclose if he or she has received something of value from a commercial company or institution, which relates directly or indirectly to the subject of their presentation.

The AAOS and the MSTS do not view the existence of these disclosed interests or commitments as necessarily implying bias or decreasing the value of the author's participation in the course.

VISION

The Musculoskeletal Tumor Society will be a recognized authority on all aspects of orthopaedic oncology, an influential participant in policy-making for orthopaedic oncology services, and responsive to the needs of orthopaedic oncologists and their patients.



MISSION

The Musculoskeletal Tumor Society will advance the science of orthopaedic oncology and promote high standards of patient care through excellence in education and research.

OBJECTIVES

MEMBERSHIP

Serve and engage current and prospective orthopaedic oncologists

EDUCATION

Serve as the premier provider of education in musculoskeletal oncology

RESEARCH

Encourage and support meaningful, relevant, and timely research for the advancement of knowledge in musculoskeletal oncology

ORGANIZATIONAL EXCELLENCE

Become and maintain a healthy and viable Society





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What could less tumor mean for your TGCT (PVNS/GCT-TS) patients?

Learn more at our upcoming virtual theater on
October 9, 1:10-1:30 PM CST

Innovative treatment in diffuse pigmented villonodular synovitis (PVNS)/tenosynovial giant cell tumor (TGCT)

Presented by:

R. Lor Randall, MD, FACS

Professor and Chair

UC Davis Department of Orthopedic Surgery

The David Linn Endowed Chair in Orthopedic Surgery

UC Davis Comprehensive Cancer Center

TGCT, tenosynovial giant cell tumor; PVNS, pigmented villonodular synovitis;
GCT-TS, giant cell tumor of the tendon sheath.