John Theurer Cancer Center orthopedic oncologist shares new limb sparing surgical techniques

EurekAlert

Hackensack, NJ (Feb 18, 2011) James C. Wittig, M.D., chief of the division of skin and sarcoma cancer at the John Theurer Cancer Center at Hackensack University Medical Center will present eleven different educational videos on innovative approaches to orthopedic oncology at the upcoming American Academy of Orthopaedic Surgeons Conference. Dr. Wittig is known for inventing some of the most-used best practices in limb-sparing surgery. In 2009, he and his colleagues began filming their surgeries so that other surgeons across the globe could use their radically innovative techniques.

"We have spent years developing some of the best practices in limb-sparing surgery, and sharing this knowledge is going to benefit patients worldwide," said Dr. Wittig. "Conference attendees represent some of the finest minds in orthopedics today, so to be chosen to lead such a great number of presentations is an honor and speaks to the importance of limb sparing surgery and its significance to the field."

The videos range in content from radical resection and reconstruction of a distal femur tumor to a radical sacrectomy and reconstruction for a high-grade primary sarcoma of the sacrum. All of the educational videos describe various orthopedic oncology procedures pertaining to radical limb sparing surgery and reconstruction for bone and soft tissue tumors in different locations, representing state-of-the-art approaches to these surgeries.

"The physicians and staff of the John Theurer Cancer Center are focused on delivering extraordinary care," said Andrew Pecora M.D., F.A.C.P., C.P.E., chief innovations officer and professor and vice president of cancer services, John Theurer Cancer Center. "The multimedia presentations by Dr. Wittig and his team exemplify this approach from both a patient care and an educational perspective"

The conference is held in San Diego, California from February 15-19 featuring international experts in orthopedics as well as a keynote address from one of the greatest football coaches of all-time Lou Holtz. Limb sparing surgery and innovative approaches to orthopedic oncology have increasingly assumed a more prominent role within both cancer and orthopedic care. The work by Dr. Wittig and colleagues points to increasing options for patients with tumors in difficult locations of the body and how new approaches are improving patient care.

Titles and short descriptions of the video presentations Dr. Witting and colleagues will present are listed below:

1. **Osteosarcoma of Distal Femur: Radical Resection & Reconstruction with Distal Femur Tumor Prosthesis**
   Authors: James C. Wittig, Camilo E. Villalobos, Brett Hayden, Andrew Silverman, Benjamin Lerner, Martin M Malawer

   This video describes limb-sparing resection of an Osteosarcoma involving the distal femur and knee joint. A modular segmental distal femur tumor prosthesis is utilized to reconstruct the knee joint. Emphasis is placed on meticulous neurovascular dissection and multiple muscle transfers to optimize function and minimize complications. The procedure described is a safe, reliable technique for limb sparing surgery for sarcomas of the distal femur.

2. **Limb-Sparing Total Scapula & Proximal Humerus (Tikhoff-Linberg) Resection and Reconstruction**
   Authors: James C. Wittig, Camilo E. Villalobos, Brett Hayden, Andrew Silverman, Benjamin Lerner, Martin M Malawer

   This video depicts a 60 year old male patient who was presented with a fungating squamous cell carcinoma involving the shoulder girdle. The radiologic studies demonstrated an extensive loss of soft tissue overlying the scapula, proximal humerus and distal clavicle. The patient underwent a limb sparing radical resection of the left scapula as well the proximal humerus including the deltoid, rotator cuff muscles, portions of the trapezius and the clavicle. A modular proximal humerus tumor prosthesis was used for reconstruction. It was stabilized to the clavicle and second rib with heavy Dacron tapes. Multiple muscle rotation flaps were used for coverage and to stabilize the prosthesis

3. **Intraarticular Proximal Humerus Resection and Prosthetic Reconstruction for a Pathologic Fracture**
   Author: James C. Wittig, Andrew Silverman. Camilo E.Villalobos, Brett Hayden, Benjamin Lerner

   This is a patient with a pathologic fracture of his right humerus due to metastatic renal cell carcinoma. Dr. Wittig and his team performed an intraarticular resection of the right proximal humerus. A modular proximal humerus tumor prosthesis was utilized for reconstruction. Static and dynamic methods were utilized for stabilizing the prosthesis. Reconstruction of the glenohumeral ligaments with gore-tex aortic graft was performed to provide multidirectional stability. Multiple muscle transfers and rotational flaps were performed for dynamic stabilization as well as to power the shoulder girdle and cover the entire prosthesis with soft tissue. The goal of the reconstruction is to stabilize the shoulder girdle for optimal hand and elbow function without compromising rotation. Our patients have been pain-free and have shown good elbow and hand function.

4. **Primary MFH of Proximal Tibia: Limb-Sparing Resection with Prosthetic and Soft Tissue Reconstruction**
   Author: James C. Wittig, Camilo E. Villalobos, Brett Hayden, Andrew Silverman, Benjamin Lerner, Martin M Malawer

   A limb-sparing resection of the proximal tibia is performed for a patient with a primary Malignant Fibrous Histiocytoma (MFH) of bone. A modular segmental proximal tibia endoprosthesis is used to reconstruct the bony defect and knee joint. Emphasis is placed on neurovascular dissection and reconstruction of the extensor mechanism with a medial gastrocnemius muscle flap.

5. **Radical Resection of the Distal Humerus and Reconstruction with a Distal Humerus Tumor Prosthesis**
   Authors: James C. Wittig, Andrew Silverman, Brett Hayden, Camilo E. Villalobos, Benjamin Lerner

   The distal humerus is a relatively rare site for developing a tumor. Limb sparing resection and reconstruction is challenging due to the close proximity of several critical neurovascular structures as well as the paucity of surrounding soft tissues. The video describes an anterior approach for resecting tumors involving the distal humerus and reconstruction with an endoprosthetic replacement. Limb-sparing resection for tumors involving the distal humerus through an anterior approach and reconstruction with a modular distal humerus tumor prosthesis and multiple muscle transfers is a safe and reliable method for treating tumors in this location.

6. **Chondrosarcoma of the Proximal Femur: Limb-Sparing Resection and Prosthetic Reconstruction**
   Authors: James C. Wittig, Andrew Silverman, Camilo E. Villalobos, Brett Hayden, Benjamin Lerner

   A limb-sparing resection of a Proximal Femur is performed for an 81 year old male patient with a Chondrosarcoma of the right proximal femur. Modular segmental proximal femur tumor prosthesis is utilized to reconstruct the proximal femur. Emphasis is placed on preservation of neurovascular structures and employment of major muscle rotations to optimize post-operative hip function and minimize infection. Proximal femur resection with endoprosthetic reconstruction is a complex surgical procedure. Preservation of the acetabulum and joint capsule, capsulorraphy, and reconstruction of the abductor mechanism are major determinants of joint stability. This reconstruction can also be used for a variety of nononcologic indications, as for major total hip revision surgeries and persistent infection.

7. **Intermuscular Liposarcoma of the Posterior Thigh: Radical**

Resection and Sciatic Nerve Preservation
Authors: James C. Wittig, Brett Hayden, Andrew Silverman, Benjamin Lerner, Camilo E. Villalobos

This video demonstrates radical resection of an intermuscular myxoid liposarcoma of the posterior thigh in a 39 year old patient. The surgical procedure included radical resection of the intermuscular tumor as well as the use of multiple muscle rotation flaps for soft tissue closure. Strong emphasis in this video is placed on sciatic nerve dissection, mobilization, and preservation prior to tumor removal. This reconstruction technique is a safe and reliable method for treatment of soft tissue tumors in this location.

8. **Radical Sacrectomy and Reconstruction for a High Grade Primary Sarcoma of the Sacrum**
Authors: James C. Wittig, Benjamin Lerner, Andrew Silverman, Brett Hayden, Camilo E. Villalobos, Sheeraz Qureshi

This video details a radical subtotal sacrectomy and reconstruction for a high grade primary sarcoma. Sarcomas of the sacrum are extremely rare. Resection of sacral tumors is complex and risky, often requiring resection of multiple sacral nerve roots. These surgeries are associated with multiple complications. The patient, a 43 year old woman, presented with a sarcoma arising from the right side of her sacrum. The tumor had a large soft tissue component. Resection and reconstruction was undertaken through three separate approaches. This video details the steps of this complex surgical procedure.

9. **Spinopelvic Fusion and Gluteus Maximus Muscle Rotation Following Radical Sacral Tumor Removal**
Authors: James C. Wittig, Benjamin Lerner, Andrew Silverman, Brett Hayden, Camilo E. Villalobos, Sheeraz Qureshi

This video details a radical subtotal sacrectomy and reconstruction for a high grade primary sarcoma. Sarcomas of the sacrum are extremely rare. Resection of sacral tumors is risky, often requiring resection of multiple sacral nerve roots. These surgeries are associated with multiple complications. The patient, a 43 year old woman, presented with a sarcoma arising from the right side of her sacrum. The tumor had a large soft tissue component. Resection and reconstruction was undertaken through three separate approaches. The spine was fused to the iliac wings and the entire defect was covered with bilateral glutes maximus rotational flaps.

10. **Revision Arthroplasty with a Total Femur Replacement for Multiply Failed Total Hip and Total Knee Replacement**
Author: Calin Moucha, Richard Greendyk, Benjamin Lerner, Andrew Silverman, Brett Hayden, Camilo E. Villalobos and James C. Wittig

The number of revision total knee replacement (TKR) surgeries done worldwide is increasing at a rapid pace. On rare occasions the failed TKR needs to be revised during the same surgery as an ipsilateral failed total hip replacement. In these instances the femoral bone stock is usually highly deficient and a total femoral replacement may be required. This video demonstrates a surgical technique that utilizes a total femoral replacement prosthesis for revision arthroplasty. After an extensive negative infection work-up a decision was made to undergo the procedure described. The video highlights the extensile exposure, resection of the femur, removal of a stemmed, well-fixed tibial component, and reconstruction using a total femoral prosthesis.

11. **Massive Reconstruction of Femur with a Total Femur Replacement for Failed Arthroplasties**
    Author: Calin Moucha, Richard Greendyk, Benjamin Lerner, Andrew, Brett Hayden, Camilo E. Villalobos and James C. Wittig

    The number of patients who require revision surgery for a failed total hip arthroplasty is increasing at a rapid rate. While multiple reconstructive options are available in the majority of cases, on rare occasions the femoral bone stock is so deficient that standard revision implants cannot be securely fixed in the remaining bone. This video demonstrates a surgical technique that utilizes a total femoral replacement prosthesis for revision arthroplasty of a highly deficient femur. The type of implant and surgical technique used in this case should be included in the revision surgeons armamentarium for treating patients with these increasingly more common, difficult cases.

SOURCE [1]

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