Access to expertise, experience critical for orthopaedic oncology patients

“Because sarcomas of the bone and soft tissues are relatively rare, it is especially important that these patients have access to team-based expertise that can help determine and deliver the best course of treatment,” says UCSF orthopaedic surgeon Rosanna Wustrack, MD.

Wustrack’s arrival at UCSF Medical Center – after fellowship training in orthopaedic oncology at Memorial Sloan Kettering Cancer Center in New York – has helped lead to the expansion of clinics at UCSF Bakar Cancer Hospital, San Francisco General Hospital (SFGH), the San Francisco VA Medical Center, both UCSF Benioff Children’s Hospitals and our satellite clinic in Walnut Creek.
All patients deserve personalized care and access to the best treatments possible. This applies to patients with difficult-to-treat musculoskeletal conditions, as well as patients for whom best practices require a team using the latest knowledge and techniques. In this issue we highlight some programs that deploy unique expertise for specific patient populations.

Orthopaedic oncology, especially pediatric orthopaedic oncology, is an area where a multidimensional team can change the patient experience. The arrival of Rosanna Wustrack, MD, our new orthopaedic oncologist, has created significantly more access to expertise in the treatment of sarcomas of the bone and soft tissues for Bay Area patients from all walks of life. Her practice coincides with the opening of UCSF Benioff Children’s Hospital San Francisco at Mission Bay and the new affiliation with UCSF Benioff Children’s Hospital Oakland. Both events have made it possible for more Bay Area kids to see pediatric orthopaedic specialists for an array of conditions, including cancer and other childhood musculoskeletal problems. In addition, both of these facilities offer a pediatric sports medicine program that is now the most comprehensive child athlete program in Northern California.

Several adult programs also reflect our interdisciplinary approach to care, including the management of spinal deformity and complex shoulder pathology. We have pioneered successful new techniques for both nonoperative and operative care of spinal deformity, and our significant experience with reverse shoulder arthroplasty allows us to take care of patients who have struggled after a traditional total shoulder replacement.

All of these stories reflect collaborations with our community of patients, families and referring physicians. We hope you’ll continue to work with us to further these invaluable collaborations.

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James L. Young Professor and Chairman
Department of Orthopaedic Surgery
IORT, specifically, has other advantages, which include:

- Reducing or preventing complications associated with pre- and postoperative radiation
- Reducing the field for postoperative dosing
- Enabling extreme precision when tumors are close to vital organs, nerves or blood vessels

“And our collaborations with plastic surgeons enable us to cover defects with rotational or free flaps in surgeries that often require resection of not just the tumor, but also surrounding muscle and skin,” says Wustrack.

In addition, Wustrack and Chief of Orthopaedic Oncology Richard O’Donnell, MD, have extensive experience with compressive osseointegration, a technique that hopes to avoid long-term complications associated with traditional cemented endoprostheses. The Compress endoprosthesis, developed at UCSF, uses high forces at the prosthesis-bone interface to stimulate bone growth into a metal endoprosthesis.

Beyond Limb Salvage

When limb salvage is not possible, patients facing an amputation are routinely custom-fitted with immediate postoperative prostheses by expert UCSF prosthetists. Teams can treat more complicated cases at the new UCSF Bakar Cancer Hospital at Mission Bay. In addition to a number of ongoing clinical trials, the new hospital offers the latest diagnostic technology and state-of-the-art operating rooms, including tools such as IORT and:

- High-frequency ultrasound
- Radio-frequency ablation
- Minimally invasive treatments for benign metastatic tumors

“We are thrilled to be able to offer this level of service to a far greater number of patients throughout the Bay Area than ever before,” says Wustrack.

Dr. Wustrack can be contacted at 415-353-3800.
As research on children’s unique health care needs has expanded – and new techniques and technologies emerge – it’s imperative that the health care system respond, says Mohammad Diab, MD, chief of Pediatric Orthopaedics at UCSF Benioff Children’s Hospitals.

He believes three responses are especially important:

- Create a tight translational research loop, with scientists working closely with clinicians.
- Enhance the use of coordinated, team-based medicine among relevant specialties.
- Expand access to high-quality care for all patients.

“All three of those elements are facilitated by our partnership with UCSF Benioff Children’s Hospital Oakland and the opening of our state-of-the-art, independent and dedicated children’s hospital at Mission Bay,” says Diab.

The partnership and the opening of UCSF Benioff Children’s Hospital San Francisco at Mission Bay expand access to patients in the East and South Bays; the Mission Bay facility places pediatric orthopaedic teams in much closer proximity to UCSF’s translational scientists and the UCSF Orthopaedic Institute.

Sports Medicine Illustrates the Advantages

Among the many benefits of these developments is the creation of what is likely the largest pediatric sports medicine program in Northern California.

“We have created a one-stop shop for young athletes in the area – providing them with everything from surgery to rehabilitation to human performance testing,” says UCSF orthopaedic surgeon and pediatric sports medicine physician Nirav Pandya, MD.

With dedicated pediatric sports physicians in San Francisco, Oakland and Walnut Creek, the growing program builds on a long history of pioneering surgical and rehabilitation techniques for children and teens.

“Young people are unique physically, psychologically and developmentally, and if we treated them the same way we treat adults, we would have less than optimal outcomes,” says Pandya. “We only work with young people – about 14,000 each year – and we believe it’s critically important to have a program that is solely dedicated to young athletes.”

Array of Services Tailored to Young People’s Needs

To illustrate the advantages, Pandya offers the example of a 10- or 11-year-old athlete who tears her anterior cruciate ligament, or ACL.

“The difference begins with a precise diagnosis, based on advanced imaging and an experienced understanding of children’s growing and changing anatomy,” says Pandya.

Surgeons with vast experience in ACL surgeries would complete the necessary procedures. “Pediatric experience reduces the risks of disturbing growth patterns and developing problems later on, such as arthritis,” says Pandya.

Then there’s the rehabilitation process, where it’s important that clinicians listen and understand patients and their families before designing a rehabilitation plan. Such a plan typically includes a return-to-play program rooted in evaluations that might include motion analysis in a human performance lab – a more precise and evidence-based approach to helping children recover properly from their injuries.

“The strength of this program is not just the expertise, but the commitment to the use of advanced protocols in every one of our settings, with every one of our providers,” says Pandya. “That level of standardization is unique.”

Dr. Diab can be contacted at 415-353-2967.
Dr. Pandya can be contacted at 510-428-3238.
Over the last few years, increasing numbers of relatively young athletes are developing hip conditions that cause pain and restrict their ability to perform. The conditions typically affect individuals between 20 and 40 years old, but can appear in adolescents and older athletes as well.

“The most common of these problems is femoral acetabular impingement,” says orthopaedic surgeon Alan Zhang, MD. “We think about 15 percent of the general population has some form of FAI.”

In FAI, the bony anatomy of the hip joint is shaped abnormally, either from birth or because extra bone forms during maturation, perhaps due to overuse. The abnormal growth impinges on the hip, hindering movement or causing pain, typically in the groin or anterior region. The condition is often accompanied by a torn labrum from the chronic rubbing.

**Diagnosis and Treatment, Including Arthroscopic Surgery**

Because early diagnosis and treatment of FAI can avert some of the pain and discomfort – as well as some of the perceived risks, such as early arthritis – community physicians who encounter athletes with hip or groin pain and whose X-rays reveal an abnormally shaped femoral head should refer these patients to a specialty center like UCSF.

“We’ll combine a thorough physical exam with X-rays and advanced imaging to get a precise diagnosis,” says Zhang. Conservative treatment – physical therapy, and cortisone injections in the hip joint – comes first, but if it is not effective, surgery becomes an option.

“For many patients, we can offer arthroscopic procedures in which we can reattach the labral tear – we don’t always have to remove it – and shave and recontour the hip," says Zhang. “We’ll do the arthroscopic procedure most commonly for FAI and labral injuries, but also for loose bodies in the hip.”

**Using Quantitative MRI to Monitor Cartilage Deterioration**

Quantitative magnetic resonance imaging (qMRI) is another advanced technique available only at a few specialty centers.

“A qMRI lets us pick up damaged cartilage very early on, before substantial degeneration,” says Zhang. “While the use of a qMRI is not routine, at UCSF orthopaedic surgeons collaborate with our musculoskeletal radiology team to do qMRIs as part of a set of NIH-funded grants aimed at using this technology to help prevent arthritis.”

Patients who undergo surgery at UCSF and elect to enroll in the studies may receive qMRIs as part of pre- and postsurgical monitoring, while those who don’t have surgery may have periodic qMRIs so experts can determine if and when surgery or lifestyle modifications become necessary.

**Dr. Zhang can be contacted at 415-885-3832.**
The advantages of specialized care for adult spinal deformity

It is quite common for adults over age 60 to have some malalignment or deformity of the spine. The impact on these individuals’ lives – a growing and health-conscious group – is often measurable in pain, functional status, appearance and mental health.

Yet because these spinal deformities encompass a broad spectrum of pathologies, there is significant variability in treatment – locally, regionally and nationally. Reducing that variation demands an evidence-based, multidisciplinary approach, as well as a commitment to working collaboratively and learning from one another, says the clinical team at the UCSF Spine Center.

The center – a collaboration among orthopaedic surgeons, neurosurgeons, physiatrists and pain management specialists – pioneers new techniques for both nonoperative and operative care, while rigorously tracking patient outcomes.

An Integrated Approach

Adult spinal deformity typically develops between ages 50 and 80 due to progression of pediatric deformity with age, disk degeneration leading to new deformity, spinal arthritis or an original surgery that led to malalignment of the spine.

Using a team-based approach – from original diagnosis through nonoperative management and, if required, preoperative evaluation, surgery, postoperative care and rehabilitation – is the best way to ensure each patient gets the right approach for his or her specific case.

Key steps in the process include:

- **Specialized Imaging:** Any patient who on clinical examination has evidence of spinal imbalance – or who has had multiple surgeries but never improved – should be screened with 3-foot X-rays that capture the entire spine on one X-ray.

- **Multidisciplinary Evaluation:** Evaluation should include consideration of spinal alignment, pain patterns, neural involvement and patient condition. Appropriate use of nonoperative and operative care depends on clinical presentation, patient preference and information on clinical outcomes.

- **Multidisciplinary Screening:** Determining fitness for surgery should include input from medicine, psychology, anesthesia, surgery and pain management.

- **Short- and Long-Term Planning:** Clinical teams should create an operative plan and postoperative treatment plan, including long-term rehabilitation.

- **Expert Surgical Care:** Because a common complication after surgery is subsequent degeneration above or below the segments treated, UCSF surgeons have developed techniques that minimize the need for further revision surgery and have led to changes in how surgeons treat these complications around the country.

The team also rigorously assesses the long-term effect of various interventions on their patients’ overall health status: pain, function, mental health, self-image and overall quality of life. It believes the long-term impact of spinal interventions on health status is the essential measurement, the most important driver in an evidence-based approach to care.

The UCSF Spine Center can be contacted at 866-817-7463 (866-81-SPINE).

WHEN TO REFER

Refer patients to the UCSF Spine Center who have:

- Disorders of the spine accompanied by significant pain and functional impairment
- Spinal deformity or instability
- Nerve compression resulting in pain, weakness or reduced sensation
- Tumors affecting the spinal column
- Persistence of pain or functional limitations after previous nonoperative or operative care
Reverse shoulder arthroplasty offers new options for patients

After a senior triathlete broke his shoulder, the patient had a partial, ball-side shoulder replacement performed in his community. Unfortunately, the patient developed an infection that required removal of his shoulder replacement. This caused him to develop severe arthritis in his shoulder – debilitating pain and discomfort.

When he came to UCSF for an evaluation and revision surgery, experts determined he was a good candidate for reverse shoulder replacement. After the successful surgery, the patient eventually returned to participating – quite successfully – in competitive triathlons.

“Reverse shoulder replacement allows us to take care of patients who don’t do well with a traditional total shoulder replacement, typically those with large rotator cuff tears or those with failed shoulder replacements,” says orthopaedic surgeon Benjamin Ma, MD, chief of Sports Medicine at the UCSF Orthopaedic Institute. “For many of these patients, total shoulder replacements can actually worsen their pain and limit their range of motion.”

Drawing on Experience, Expertise

UCSF is one of the few centers in Northern California with significant experience in reverse shoulder arthroplasty. Whereas a total shoulder replacement attempts to replicate the normal anatomy of the shoulder with a prosthetic device, in a reverse shoulder procedure, surgeons switch the positioning of the socket and metal ball, fixing the ball to the socket and the plastic cup to the upper end of the humerus. This arrangement allows the deltoid muscle to do the work of damaged rotator cuff tendons.

As with many surgical procedures, patient selection is important. Candidates for the reverse procedure tend to be older, though younger people with severe trauma might also qualify. The UCSF team uses advanced imaging to determine the severity of the arthritis or rotator cuff tear and guide surgical treatment. Once the surgical team determines that a patient is an appropriate candidate, experience with the procedure and thorough follow-up care offer the best chance for success.

“We have a robust database to track our patient outcomes over time,” says Ma.

A study of patients two years out has shown outcomes for the reverse shoulder replacement at UCSF to be very similar to outcomes for total shoulder replacement, with low complication rates and high patient satisfaction scores. This is good news, since the sports medicine surgeons at UCSF do more than 100 shoulder replacements annually, with 90-day readmission rates at about half the national average.

“For a particular group of patients who had no real options in the past, this procedure can really change their lives,” says Ma.

Dr. Ma can be contacted at 415-353-9400.

WHEN TO REFER

Refer patients to the UCSF Orthopaedic Institute for evaluation if they have:

- A completely torn rotator cuff that cannot be repaired
- Rotator cuff tear arthropathy
- A previous shoulder replacement that was unsuccessful
- Severe shoulder pain and difficulty lifting their arm away
- Bone-on-bone arthritis of the shoulder
- Shoulder pain despite having tried other treatments, such as rest, medications, cortisone injections and physical therapy
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