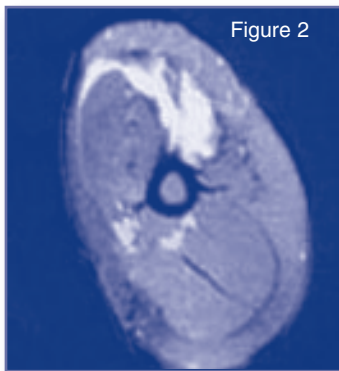
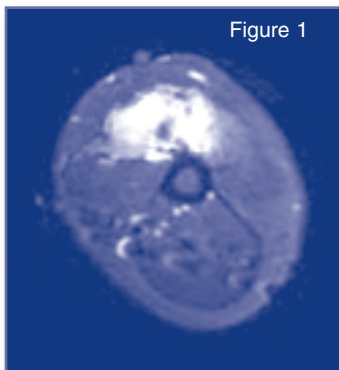


## Nonsurgical Treatment of Desmoid Tumors



Two views of a desmoid tumor in the left lateral deltoid before (Figure 1) and after (Figure 2) treatment with vinblastine/methotrexate.

*“To date, vinblastine/methotrexate therapy is the best option for the eradication of desmoid tumors because the combination offers high efficacy while avoiding the morbidity and complications associated with negative margin surgery and radiation.”*

Richard D. Lackman, MD, FACS  
Chair, Department of  
Orthopaedic Surgery

Desmoid tumors are classified as benign fibromatous neoplasms, but are extremely aggressive, locally invasive, destructive and often very painful. Eradication can be achieved by radical surgery with high dose (>50 Gy) external radiation, but this combination often results in disfigurement and considerable morbidity. Given the disparity between a nonlethal condition and a treatment typically acceptable only in the context of cancer, most patients choose to have conservative surgery. Because microscopic residua at the tumor margin is highly regenerative, however, desmoid tumors recur in up to half of patients who choose not to have negative-margin surgery.

To eliminate recurrence and preclude the effects of surgery and radiation, the Penn Department of Orthopaedic Surgery employs low-dose combination vinblastine/methotrexate chemotherapy to treat desmoids tumors. Developed in the late 1980s by current department chair Richard Lackman, MD, this highly efficacious non-surgical treatment offers significant advantages over surgery/radiation for the treatment of progressive, recurrent and inoperable desmoid tumors. At 10 years, 70 percent of patients with desmoids demonstrate no tumor progression following low-dose vinblastine/methotrexate therapy.\* Toxicity with the combination is low, and side effects are generally transient.

### Case Study

Mr. H, a 37-year-old male, was referred to the Penn Department of Orthopaedic Surgery for evaluation of a suspicious mass in his right shoulder. An avid sportsman, Mr. H discovered the mass during a golf game, and treated it with over-the-counter ointments for several weeks before visiting his physician. At Penn, his physical examination revealed restricted motion and a painful mass. A core needle biopsy of the mass was performed, and demonstrated the colloid tissue and spindle cells typical of desmoid tumors. A subsequent MRI (Figure 1) found a large (5 cc) fibrotic tumor within the lateral deltoid muscle with numerous adhesions and extensions into the pectoralis major.

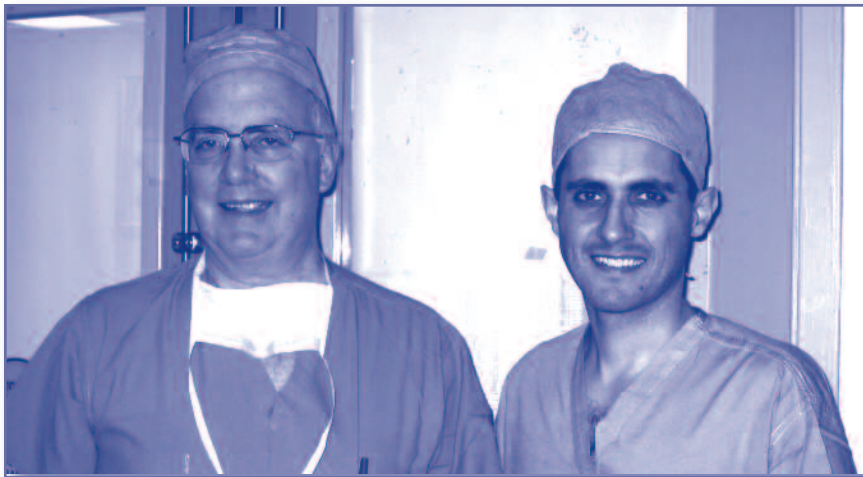
Mr. H was offered two options for treatment: total excision of the tumor with removal of the anterior deltoid muscle followed by irradiation, or combination vinblastine/methotrexate chemotherapy. To avoid the potential disfigurement and debility resulting from surgery, Mr. H chose to begin weekly intravenous injections of methotrexate 30 mg/m<sup>2</sup> and vinblastine 6 mg/m<sup>2</sup>. Within four weeks, the mass had diminished by approximately 50 percent; an MRI at eight weeks noted substantial continued shrinkage (Figure 2). Nausea, the sole side effect of the treatment, was transient and minor. Mr. H continued his regimen for six months. An MRI at his five year follow-up noted no recurrence of the tumor. Mr. H has since resumed his normal activities, including golf.

\*Source: Source: Azzarelli A, et al. *Cancer*. 2001;92:1259-1264.

## Our Team of Faculty

The department of Orthopaedic Surgery at Penn is a national leader in the surgical treatment of the musculoskeletal system. The spectrum of care provided by the department's surgeons embraces hand, elbow, joint and spine surgery, and trauma and reconstructive surgery. In addition, the department offers advanced therapies for destructive lesions and diseases affecting the skeletal system, and is at the forefront of pioneering clinical research to develop new orthopaedic treatments and therapies. The department also administers an orthopaedic training program that attracts residents and fellows from the nation's leading medical schools.

## Performing Desmoid Tumor Surgery at Penn



### ORTHOPAEDIC SURGERY

#### **Richard D. Lackman, MD, FACS**

*Paul B. Magnuson Professor and Chair, Department of Orthopaedic Surgery*

Richard Lackman, MD, specializes in invasive and noninvasive treatment of benign and malignant tumors of the bone and soft tissue, joint reconstructive surgery and limb salvage surgery. In the late 1980s, Dr. Lackman developed the combination vinblastine/methotrexate regimen with his then collaborator, Dr. Arthur Weiss. This regimen has since become the leading nonsurgical treatment for desmoid tumors.

#### **Christian Ogilvie, MD**

*Assistant Professor of Orthopaedic Surgery*

Christian Ogilvie, MD, has co-authored numerous journal articles focusing upon orthopaedic surgery and oncology. His interests include approaches to the management of musculoskeletal neoplasms, osteoid osteoma and bone metastases.

### HEMATOLOGY-ONCOLOGY

#### **Arthur Staddon, MD**

*Director, Joan Karnell Cancer Center*

*Director, Sarcoma Program*

Arthur Staddon, MD, is a clinician, researcher, professor and author. In addition to these pursuits, Dr. Staddon contributes his expertise to the management of desmoid tumors and other orthopaedic soft tissue neoplasms at Penn.

## Access

Patient appointments are available at:

### **Penn Orthopaedic Institute Pennsylvania Hospital**

Garfield Duncan Building, Suite 2C  
301 South 8th Street  
Philadelphia, PA 19106

### **Pennsylvania Oncology Hematology Associates, Inc.**

230 West Washington Square  
Philadelphia, PA 19106

To refer a patient and/or consult  
with a doctor:

Call 800.789.PENN (7366)  
or visit [pennhealth.com/referral](http://pennhealth.com/referral)

Of interest on [pennhealth.com](http://pennhealth.com):

Clinical Briefing: Orthopaedic  
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Clinical Briefing: Surgical Recovery  
of Function and Mobility in  
Post-CVA Patients



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