POCKETRADIOLOGIST

Musculoskeleta

Top 100 Diagnoses

Stoller

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PocketRadiologist™

Musculoskeletal 100 Top Diagnoses

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A medical reference publishing company

First Edition

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First Printing: November 2001 Second Printing: April 2002

Composition by Amirsys Inc, Salt Lake City, Utah

Printed in China

ISBN: 0-7216-9701-1

袖珍放射专家——肌肉骨骼的 100 个主要诊断 [美]斯托勒 著 Amirsys Inc 出版

上海兴界的长出版公司 重印发行

2004年4月第1版 上海市尚文路185号B楼 邮政编码200010 各地新华书店经销(限中华人民共和国内发行) 图字: 09-2004-034号 ISBN 7-5062-6531-1/R·61 定价: 140.00元

Preface

The **PocketRadiologist**TM series is an innovative, quick reference designed to deliver succinct, up-to-date information to practicing professionals "at the point of service." As close as your pocket, each title in the series is written by world-renowned authors, specialists in their area. These experts have designated the "top 100" diagnoses in every major body area, bulleted the most essential facts, and offered high-resolution imaging to illustrate each topic. Selected references are included for further review. Full color anatomic-pathologic computer graphics model many of the actual diseases.

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PocketRadiologist[™] titles are available in both print and hand-held PDA formats. Our first modules feature Brain, Head and Neck, and Orthopedic (Musculoskeletal) Imaging. Additional titles include Spine and Cord, Chest, Breast, Vascular, Cardiac, Pediatrics, Emergency, and Genital Urinary, and Gastro Intestinal. Enjoy!

Anne G Osborn MD Editor-in-Chief, Amirsys Inc

PocketRadiologist™

Musculoskeletal Top 100 Diagnoses

The diagnoses in this book are divided into 9 sections in the following order:

Shoulder
Elbow
Wrist and Hand
Hip
Knee
Ankle and Foot
Bone Marrow
Bone Tumors
Soft Tissue Tumors

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PocketRadiologist™ **Musculoskeletal 100 Top Diagnoses**

SHOULDER

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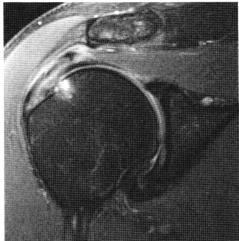
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Rotator Cuff Tendinopathy



A coronal T2-weighted fast spin echo image with fat saturation demonstrates a heterogeneous mildly thickened supraspinatus tendon consistent with tendinosis with mild reactive subacromial bursitis present.

Key Facts

- Overuse degeneration and tearing of the rotator cuff
- May occur secondary to impingement or acute trauma
- · Most common reason for MRI referral of the shoulder
- May be painful even without tendon tear

Imaging Findings

MR Findings

- Increased signal intensity on all pulse sequences
- Tendon usually thickened
- Tendon often inhomogeneous
- Partial tear seen as fluid entering tendon but only part of the way through
- Through-and-through (full thickness) tear demonstrated as fluid extending through gap in tendon with variable retraction
- Full thickness tear may be associated with fatty atrophy of the muscles in chronic cases
- Tears best seen on coronal and sagittal images

Differential Diagnosis

Calcific Tendinitis

- Tendon may be thickened and is often decreased in signal intensity Intratendinous Cvst
- Thickened tendon but cyst is visible on T2-weighted images
- Associated with partial tear of rotator cuff

Pathology

General

- Etiology-Pathogenesis
 - Overuse degeneration and tearing of the rotator cuff

Rotator Cuff Tendinopathy



A 2nd patient suffering from clinical impingement demonstrates tendinosis.

- Most commonly secondary to impingement syndrome (curved acromion plus overuse)
- Can occur in collagen vascular diseases along with tendinosis of other tendons
- May occur acutely but usually in the setting of preexisting tendinosis

Gross Pathologic or Surgical Features

- Usually thickened, indurated tendon
- Break in integrity of tendon in partially torn and torn tendons
- Partial tear may be bursal surface, articular surface or interstitial Microscopic Features
- Collagen degeneration without significant influx of inflammatory cells: "Tendinosis" is preferred term over tendinitis
- Break in integrity of tendon in partially torn (bursal, articular or interstitial) and through-and-through torn tendons
- Fatty infiltration of muscle tissue in chronically torn tendons

Clinical Issues

Presentation

- Insidious onset of pain in adult patient with impingement syndrome
- Pain in the setting of athletics in the case of internal impingement: Younger patient
- Peak age 40 and above for impingement
- Posttraumatic continued pain

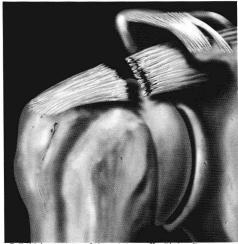
Treatment & Prognosis

- Physical therapy
- Subacromial decompression for impingement

Selected References

- Gartsman GM: Arthroscopic management of rotator cuff disease. J Am Acad Orthop Surg. 6(4): 259-66, 1998
- Fritz RC et al: MR imaging of the rotator cuff. Magn Reson Imaging Clin N Am. 5(4): 735-54, 1997
- 3. Neer CD et al: Cuff-tear arthropathy. J Bone Joint Surg. 65(9): 1232-44, 1983

Rotator Cuff Full Thickness Tear



Full thickness tear of the rotator cuff with tendinous gap.

Key Facts

- Overuse degeneration and complete tearing of the rotator cuff
- May occur secondary to impingement or acute trauma
- Seen as interruption of the decreased signal intensity tendon usually involving the distal tendon anteriorly or sometimes involving the relatively avascular "critical zone"

Imaging Findings

General Features

 A tear or gap in the tendon which can become filled with joint or bursal fluid or granulation tissue

MR Findings

- Fluid signal intensity filling a gap in the tendon which is best seen with fat saturated fast spin echo T2-weighted images
- · Variable retraction and degeneration of the tendon edges seen
- Full thickness tear may be associated with fatty atrophy of the muscles in chronic cases
- Tears best seen on coronal and sagittal images
- Associated with fluid (increased signal intensity on fat saturated fast spin echo T2-weighted images) with the subacromial bursa
- Associated with fluid within the subcoracoid bursa especially with anterior supraspinatus tears and rotator interval tears

Other Modality Findings

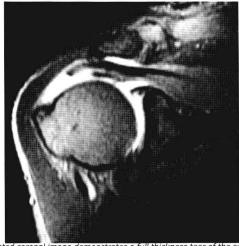
 Plain film arthrograms and MR arthrograms demonstrate fluid extravasating from the joint into the subacromial bursa after contrast injection

Differential Diagnosis

Intratendinous Cyst

Thickened tendon but cyst is visible on T2-weighted images

Rotator Cuff Full Thickness Tear



A T2-weighted coronal image demonstrates a full thickness tear of the supraspinatus tendon with retraction.

Partial Tear of Rotator Cuff

· Fluid within but not through-and-through the tendon

Pathology

General

- Etiology-Pathogenesis
 - o Overuse degeneration and complete tearing of the rotator cuff
 - Most commonly secondary to Impingement Syndrome (curved acromion plus overuse)
 - Can occur in collagen vascular diseases along with tears of other tendons
 - May occur acutely but usually in the setting of preexisting tendinosis

Gross Pathologic or Surgical Features

- Usually thickened, indurated tendon edges
- Break in integrity of tendon

Microscopic Features

- Break in integrity of tendon
- Preexisting collagen degeneration without significant influx of inflammatory cells: "Tendinosis" is preferred term over tendinitis
- Fatty infiltration of muscle tissue in chronically torn tendons

Clinical Issues

Presentation

- Peak age 40 and above especially for impingement
- Insidious onset of pain in adult patient with impingement syndrome
- Pain in the setting of athletics in the case of internal impingement younger patient
- Posttraumatic continued pain

Rotator Cuff Full Thickness Tear

Treatment & Prognosis

- Depends on level of activity and cause of tear
- Impingement: Usually subacromial decompression (acromioplasty) and tendon repair unless massive cuff tear or those associated with atrophy
- Massive cuff tears and those associated with atrophy treated with debridement

Selected References

- Handelberg FW: Treatment options in full thickness rotator cuff tears. Acta Orthop Belg. 67(2): 110-5, 2001
- 2. Murrell GA et al: Diagnosis of rotator cuff tears. Lancet. 357(9258): 769-70, 2001
- Stoller DW et al: The Shoulder, in Magnetic Resonance Imaging in Orthopaedics and Sports Medicine. J.B. Lippincott: Philadelphia. 597-742, 1997