



MSK CASE PRESENTATION SERIES

Focus on Sports Imaging

RODRIGO AGUIAR M.D
aguiar.rodrico@gmail.com





**18 YEAR-OLD
PROFESSIONAL
TENNIS PLAYER**

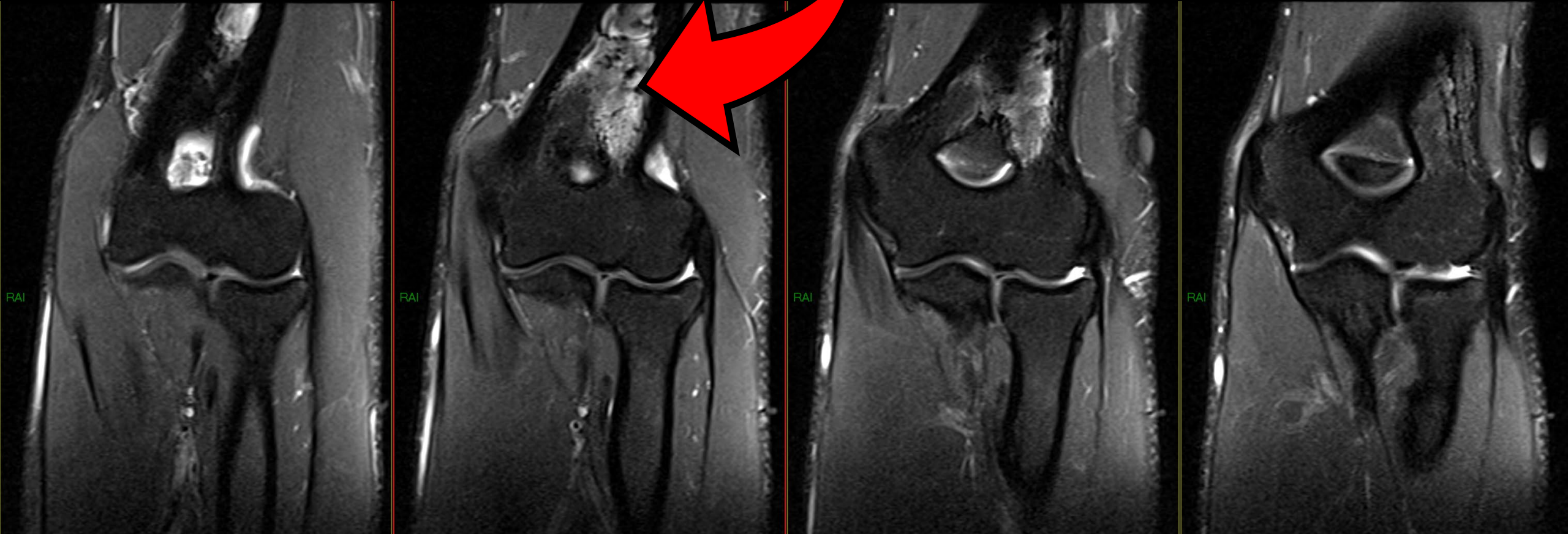
**PLAYING TENNIS
FOR 8 YEARS**

**TRAINING ROUTINE:
6 HOURS/DAY**

**RIGHT ELBOW AND DISTAL ARM
PAIN FOR 3 WEEKS**

...AS WE CAN SEE

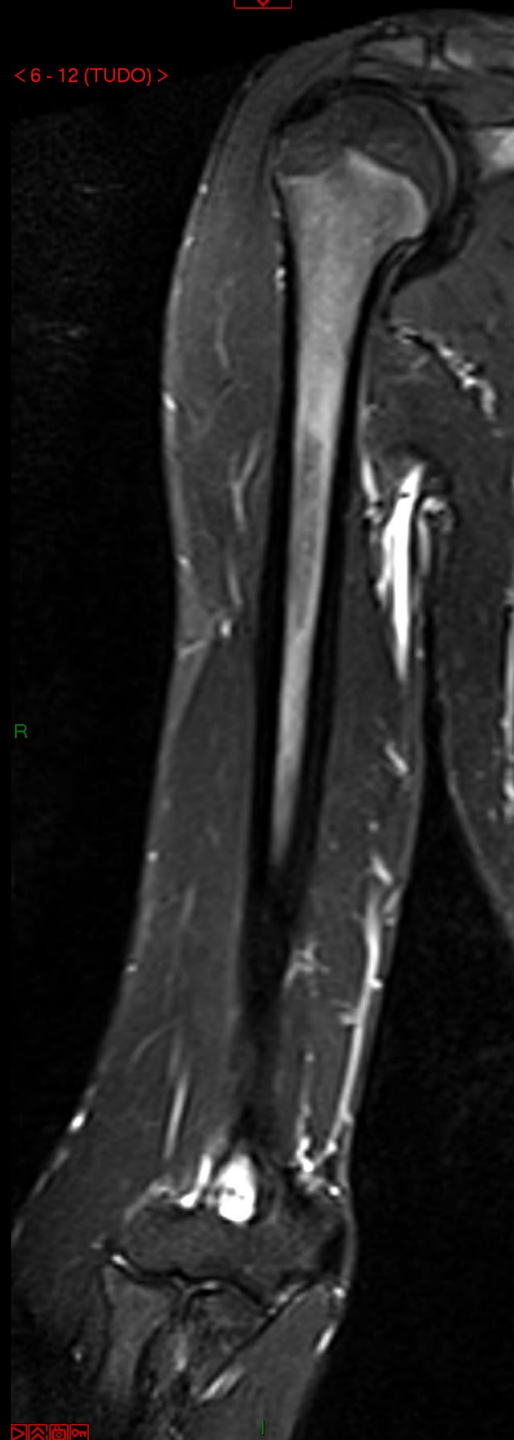
HIGH SIGNAL INTENSITY ON FLUID-SENSITIVE SEQUENCES



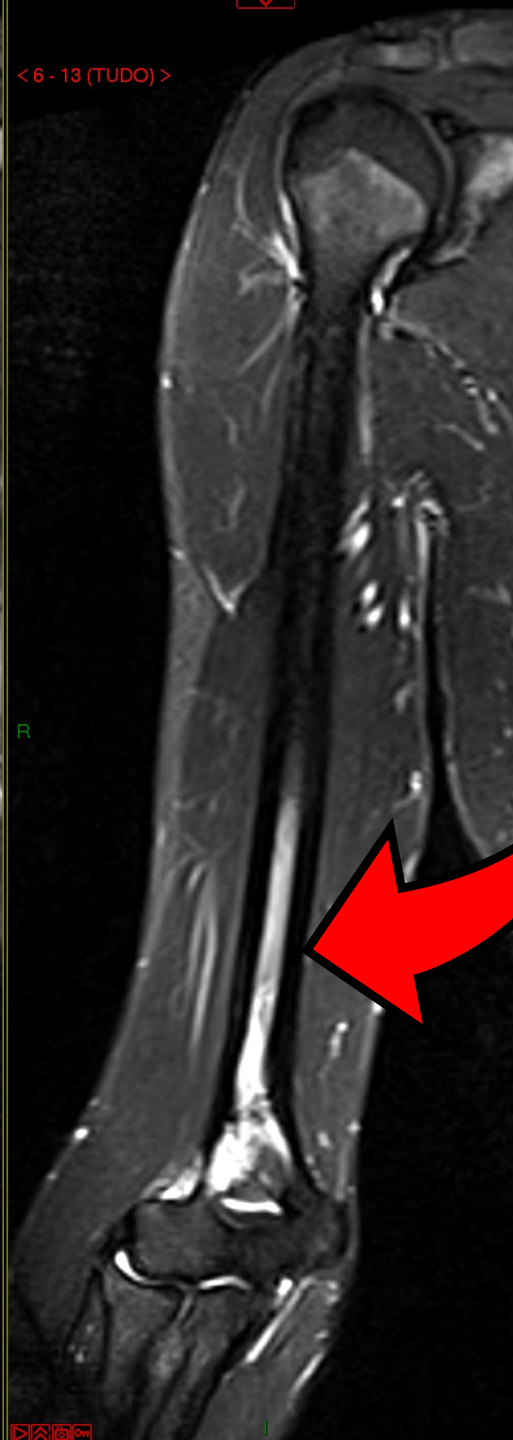
HIGH SIGNAL INTENSITY ON FLUID-SENSITIVE SEQUENCES



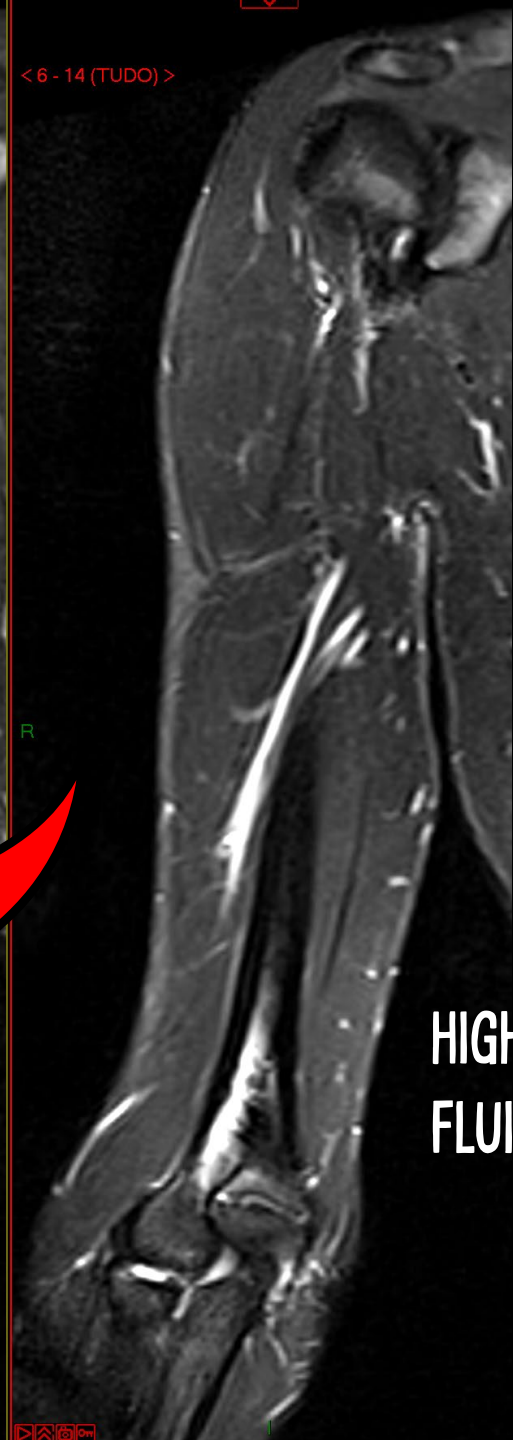
< 6 - 12 (TUDO) >



< 6 - 13 (TUDO) >



< 6 - 14 (TUDO) >



**HIGH SIGNAL INTENSITY ON
FLUID-SENSITIVE SEQUENCES**

8 - 16 (TUDO) >

< 8 - 17 (TUDO) >

< 8 - 18 (TUDO) >

PROFESSIONAL TENNIS

**NO SIGNS OF CORTICAL BREAK
NO SOFT TISSUE EXTENSION**

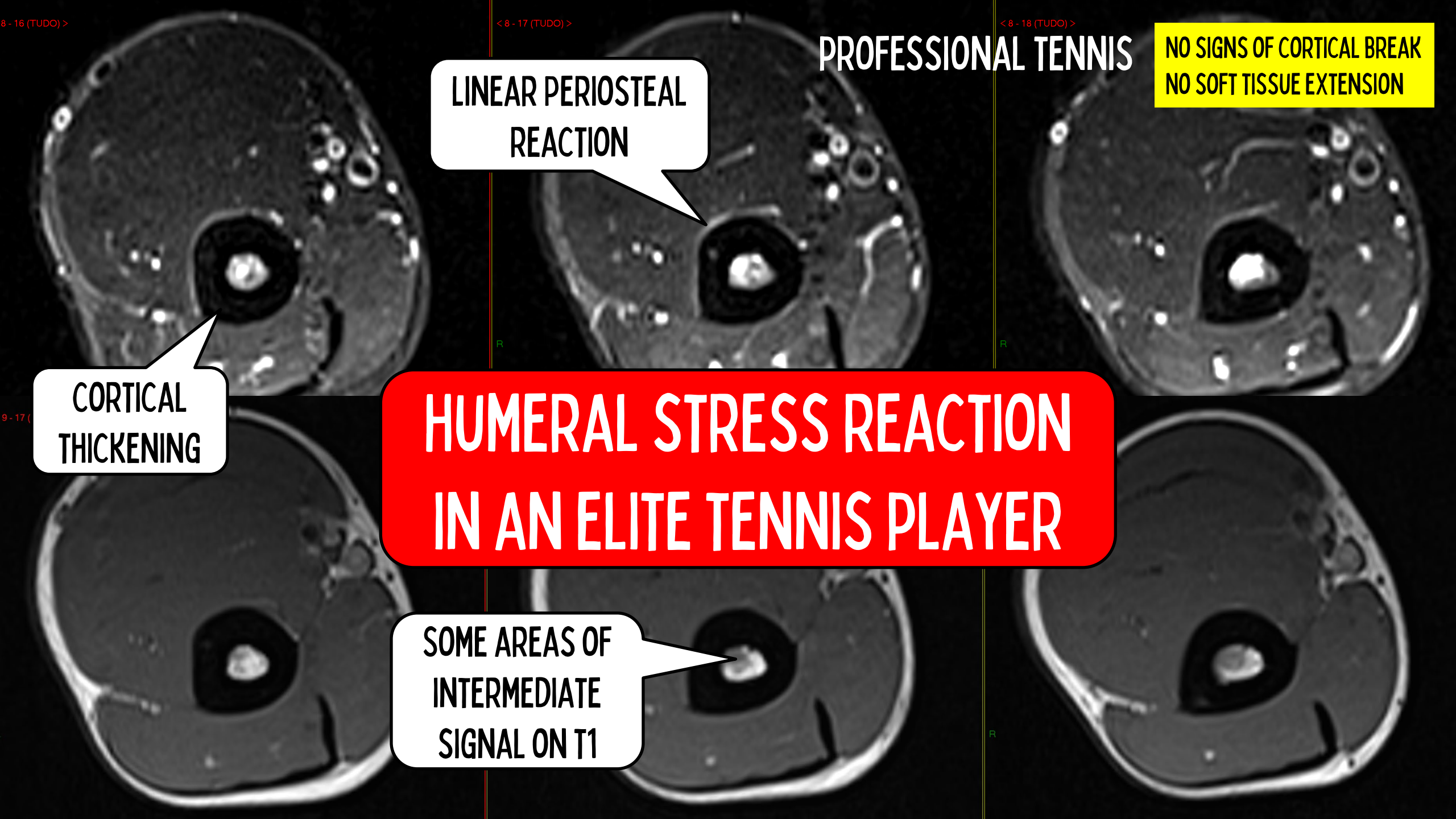
**LINEAR PERIOSTEAL
REACTION**

**CORTICAL
THICKENING**

HUMERAL STRESS REACTION IN AN ELITE TENNIS PLAYER

**SOME AREAS OF
INTERMEDIATE
SIGNAL ON T1**

9 - 17 (



Case Reports > Br J Sports Med. 2006 Aug;40(8):710-3; discussion 713.

doi: 10.1136/bjism.2005.021386.

When physiology becomes pathology: the role of magnetic resonance imaging in evaluating bone marrow oedema in the humerus in elite tennis players with an upper limb pain syndrome

G Hoy¹, T Wood, N Phillips, D Connell, D C Hughes

8 PCTS — AUSTRALIAN OPEN 2002: PAIN IN THE DOMINANT ARM (4M:4F)
BONE MARROW EDEMA AND PERIOSTITIS



SAME GROUP, NOW 12 PCTS — AUSTRALIAN OPEN 2002 & 2003 (8M:4F)
BONE MARROW EDEMA WAS RELATED WITH THE DURATION OF SYMPTOMS
MILD (0-24%), MODERATE (25-74%) AND SEVERE (75-100%)

> AJR Am J Roentgenol. 2006 Oct;187(4):901-4. doi: 10.2214/AJR.05.1058.

MRI of stress reaction of the distal humerus in elite tennis players

Justin C Lee¹, Frank A Malara, Timothy Wood, Greg Hoy, Asif Saifuddin, David A Connell

HUMERAL STRESS REACTION IN AN ELITE TENNIS PLAYER

Case Reports > Br J Sports Med. 2007 Nov;41(11):824-6. doi: 10.1136/bjism.2006.034942.

Stress reaction of the humerus in tennis players

Rogério Teixeira Silva¹, Luis Guilherme Hartmann, Cristiano Frota de Souza Laurino

5 PCTS — (4M:1F)

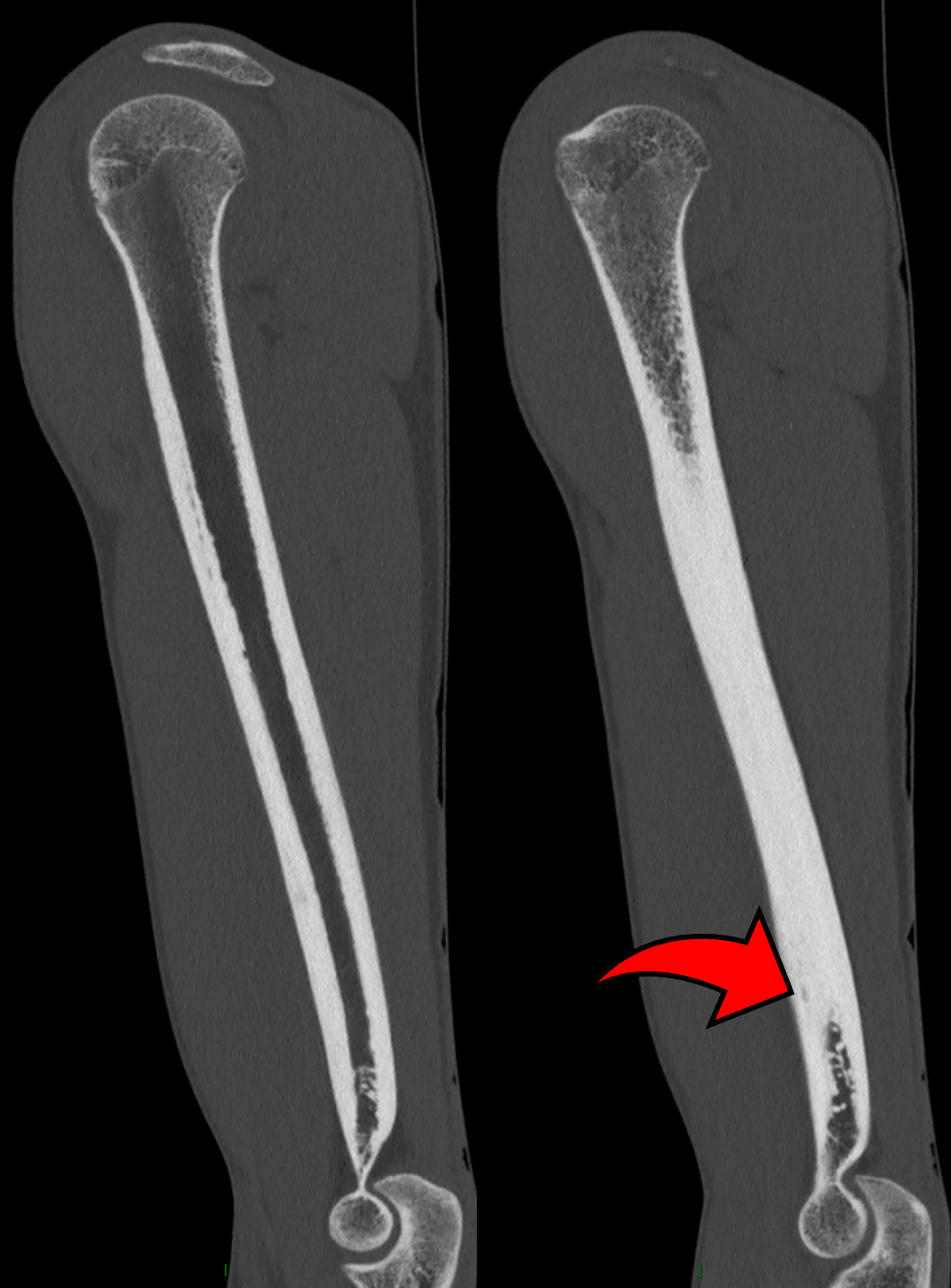
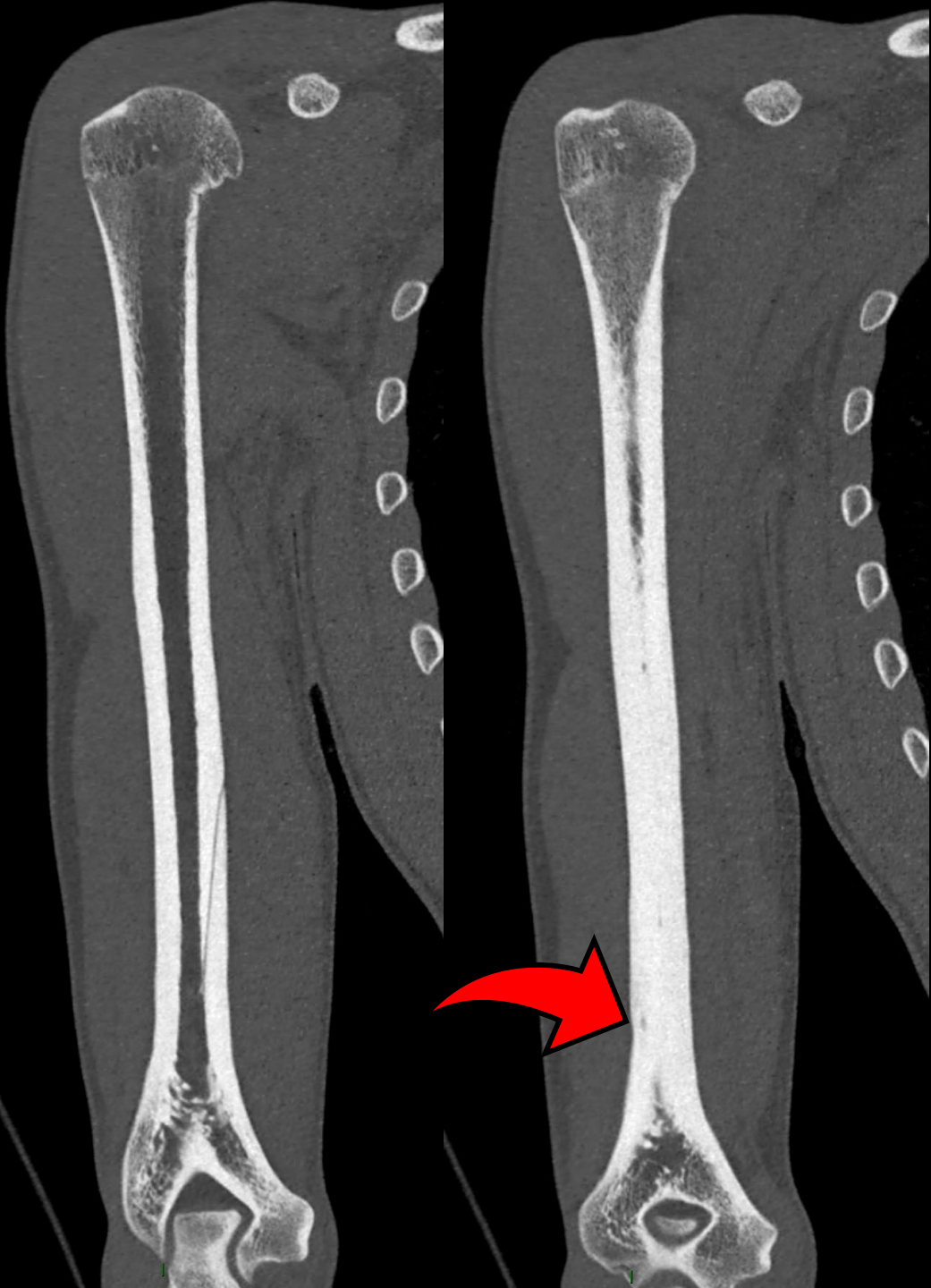
INCREASING PAIN WHEN SERVING
PALPABLE PAIN OVER THE DISTAL HUMERUS
POSITIVE "HUMERUS SQUEEZE TEST" (MEDLAT AND ANTPOST)

Review > Curr Sports Med Rep. 2020 Oct;19(10):414-421. doi: 10.1249/JSR.0000000000000760.

Common and Less Well-known Upper-limb Injuries in Elite Tennis Players

Nicholas Shannon¹, Brian Cable², Timothy Wood², John Kelly 4th²

CT





HUMERAL STRESS REACTION AND (INCOMPLETE) STRESS FRACTURE IN AN ELITE TENNIS PLAYER

AFTER 8 WEEKS OF RESTING
HE RETURNED GRADUALLY TO HIS TRAINING ROUTINE
NO MORE COMPLAINTS ON THE FOLLOW UP

BLAME THE SERVE!

THE MOST ENERGY-DEMANDING MOTION

KINETIC CHAIN MOTION MUST
BE PERFECT

IMPROPER KNEE FLEXION:
MECHANICAL LOADS TRANSMITTED TO THE
SHOULDER AND ELBOW INCREASES BY 17-23%

IT COMPRISES 45% TO 60% OF ALL STROKES
IN A TENNIS MATCH



[Review](#) > [Hand Clin.](#) 2017 Feb;33(1):175-186. doi: 10.1016/j.hcl.2016.08.009.

Upper Extremity Injuries in Tennis Players: Diagnosis, Treatment, and Management

Kevin C Chung ¹, Meghan E Lark ²

THROWING SPORTS: SAME MECHANISM
BUT IT CAN BE MORE VIOLENT !!!



[Review](#) > [Orthop Clin North Am.](#) 2014 Oct;45(4):565-9. doi: 10.1016/j.ocl.2014.06.011.

Epub 2014 Aug 3.

Thrower's fracture of the humerus

[Andrew Miller](#)¹, [Christopher C Dodson](#)², [Asif M Ilyas](#)²



> [J Trauma](#). 1971 Jul;11(7):602-5.

A mechanism of spiral fracture of the humerus: a report of 129 cases following the throwing of hand grenades

[S L Chao](#), [M Miller](#), [S W Teng](#)

UNUSUAL CONDITION

AND WE USED IT TO UNDERSTAND
ITS MECHANISM OF LESION

UNDERESTIMATED

WE CAN EXTRAPOLATE FOR
OTHER THROWING SPORTS

**HUMERAL STRESS REACTION/FRACTURE
IN A TENNIS PLAYER**



MSK CASE PRESENTATION SERIES

Focus on Sports Imaging

THANK YOU

aguiar.rodriigo@gmail.com

