ANTEROLATERAL IMPINGEMENT OF THE ANKLE: ULTRASONOGRAPHY EVALUATION AND ULTRASOUND-GUIDED THERAPY

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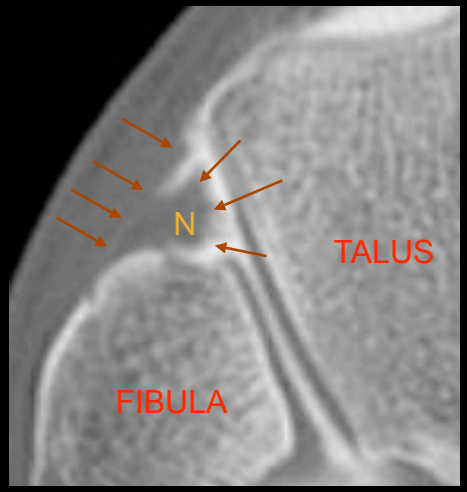
INTRODUCTION

Anterolateral pain following inversion injuries.

Causes: filling of the anterolateral recess
pathologic hypertrophic cicatrization of the ATFL +++
(osseous)
-/+ instability -/+ chondral lésions

Histology: synovitis / fibrous bands / meniscoïd lesion

Radiological assessment: MR, MR-Arthrography or CT-Arthrography



Objectives:
To describe the use of Ultrasonography in diagnosis
To know the efficacy of ultrasound-guided steroid injection in management of patients.

Haller J, Bernt R, Seeger T, Weissenback A, Tuchler H, Resnick D.MR-imaging of anterior tibiotalar impingement syndrome: agreement, sensitivity and specificity of MR-imaging and indirect MR-arthrography. Eur J Radiol. 2006 Jun;58(3):450-60

Hauger O, Moinard M, Lasalarie JC, Chauveaux D, Diard F.Anterolateral compartment of the ankle in the lateral impingement syndrome: appearance on CT arthrography.AJR Am J Roentgenol. 1999 Sep;173(3):685-90

MATERIALS AND METHODS

Subjects and methods

Prospective study since May 2006

27 patients referred by single ankle surgeon (SJ) for suspicion of anterolateral impingement

Differential diagnosis of anterolateral ankle pain were previously excluded: ATFL disruption, fibular tendinopathies, occult fractures, Chopart injuries, sub-talar disease

Mean age: 32 years-old (range 17-57 - M:13/F:14)

Ultrasonography of the anterolateral recess.

Items: thick ATFL / Hypertrophic Synovial fibrous bands / Nodule / Fluid / Hyperemia at doppler

US-guided therapy: METHOD

Standard aseptic technique

US-guidance of the needle toward the abnormal area of the capsule

Infiltration with 1,5 ml cortivazol (Altim® 3,75mg; Roussel-Diamant) and 2 ml 1% lidocaïne (Xylocaïne ®; AstraZeneca) was performed.

No side-effect

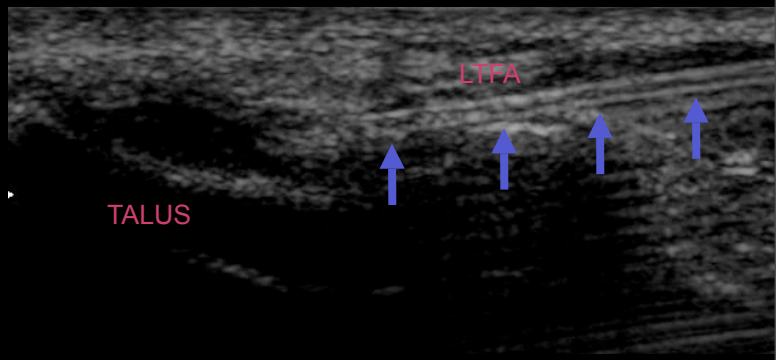
Follow up by surgeon visit at 4 weeks

positive test: no more pain at Week 4 (patient advised to come back if pain occurs)

short-term positive test: pain relief only for few hours or days

negative test: none effect.

Median follow-up: 7,1 months



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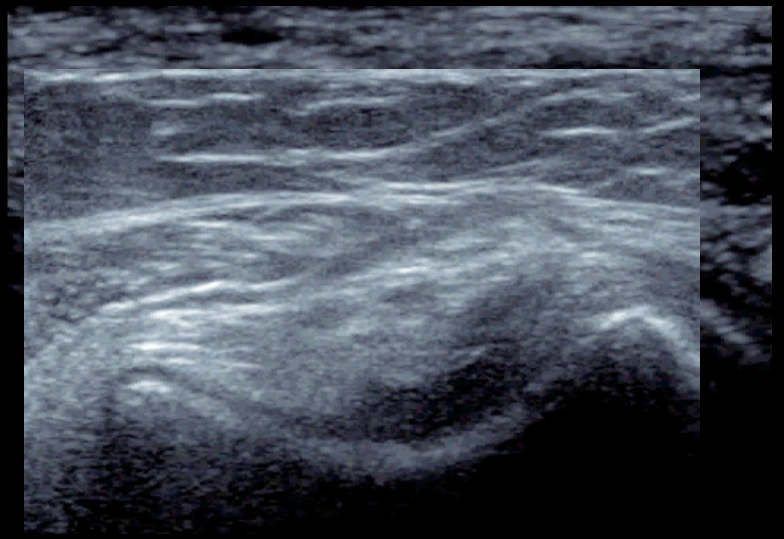
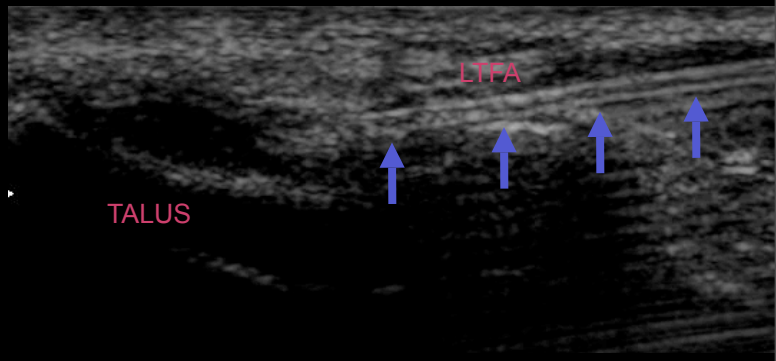




RESULTS

Ultrasonography: Synovitis / Thick ATFL

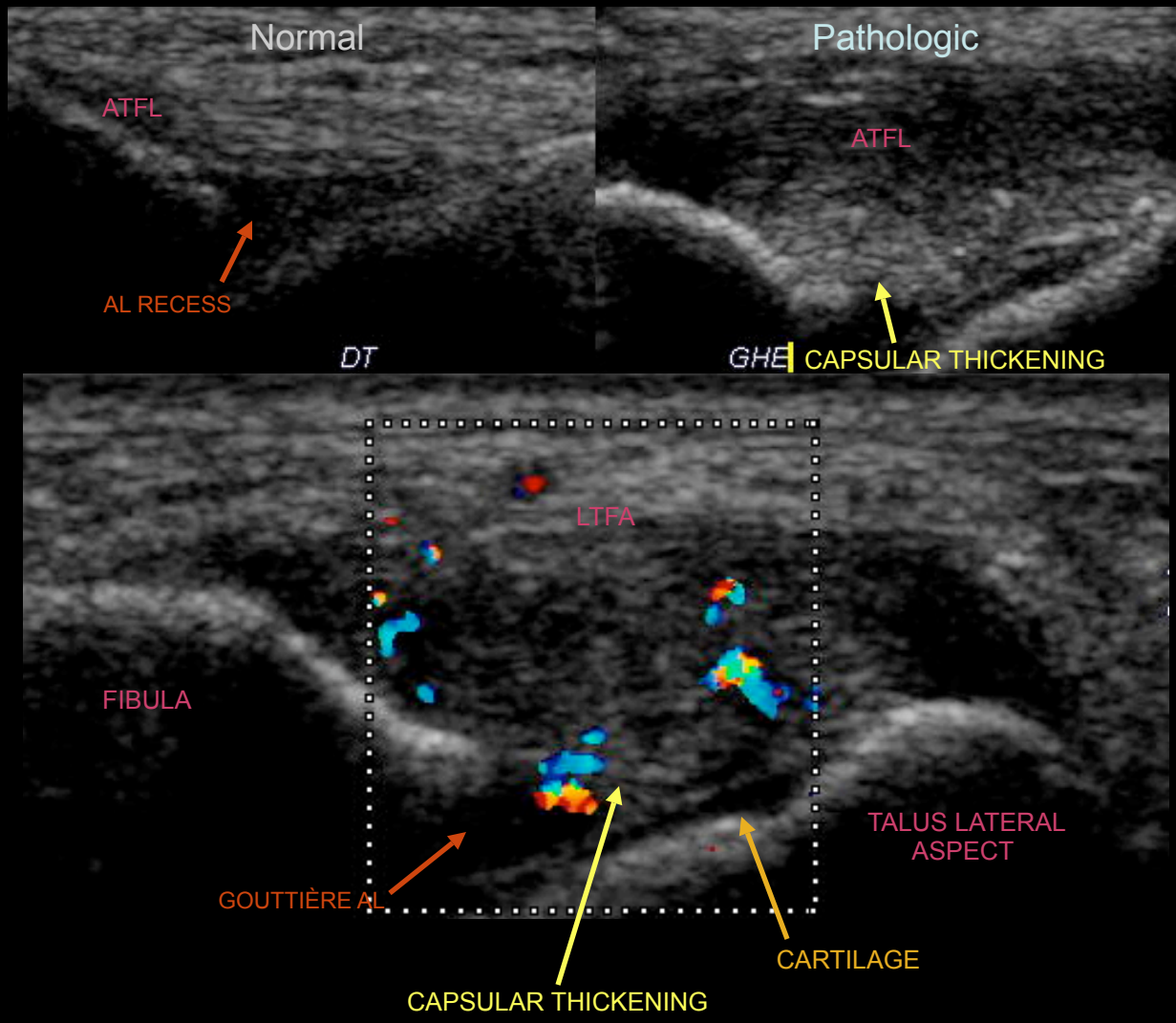
Capsular thickening (ATFL)

19 patients: 70,4%

Synovitis:

fluid in the AL recess +/- doppler

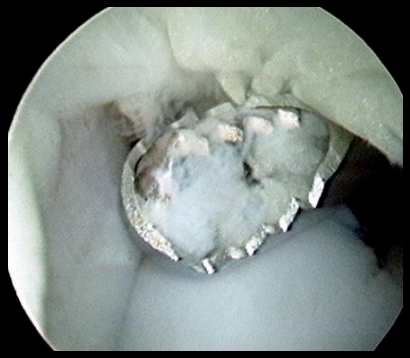
14 patients: 51,8%



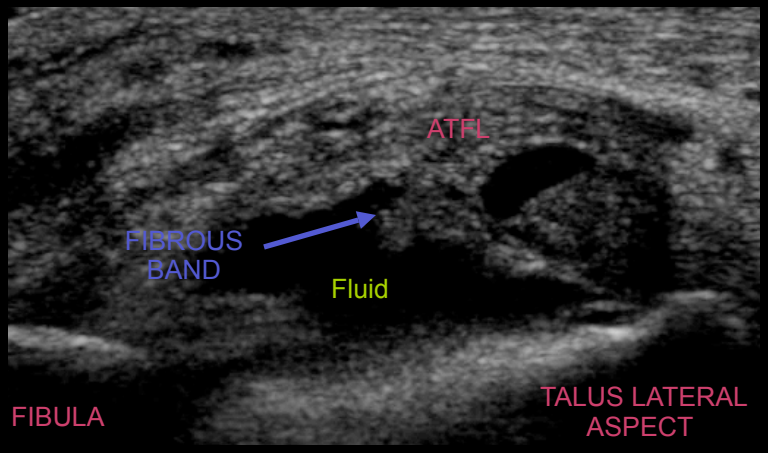
Ultrasonography: Fibrous bands

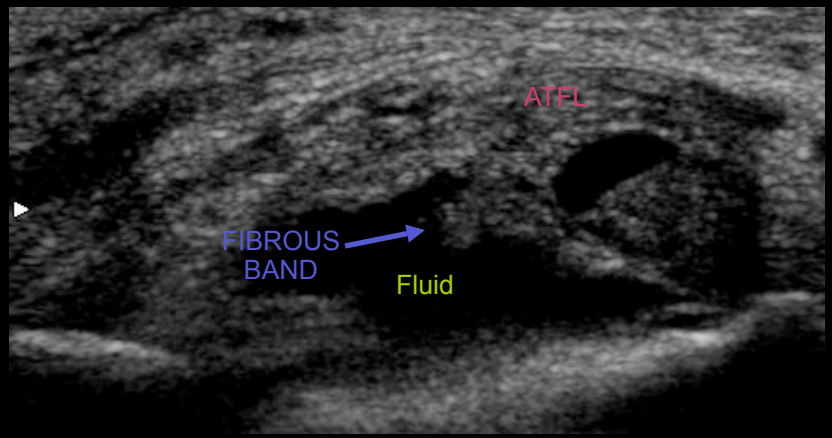
Inflammatory aspect of synovial fringes

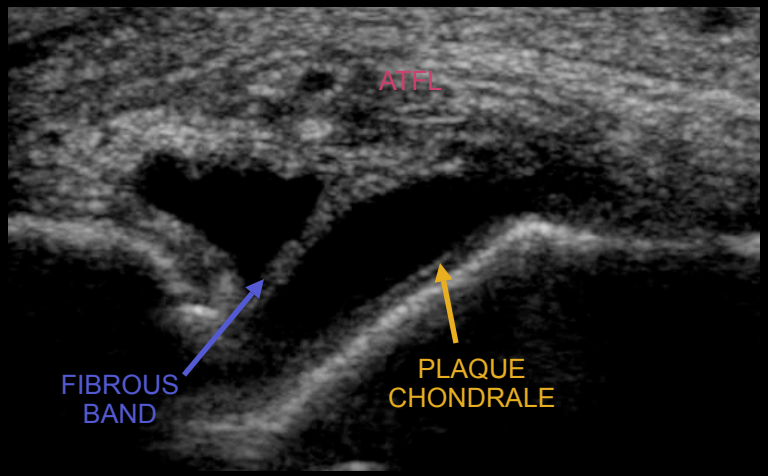
Linear and endoarticular hyperechoic bands

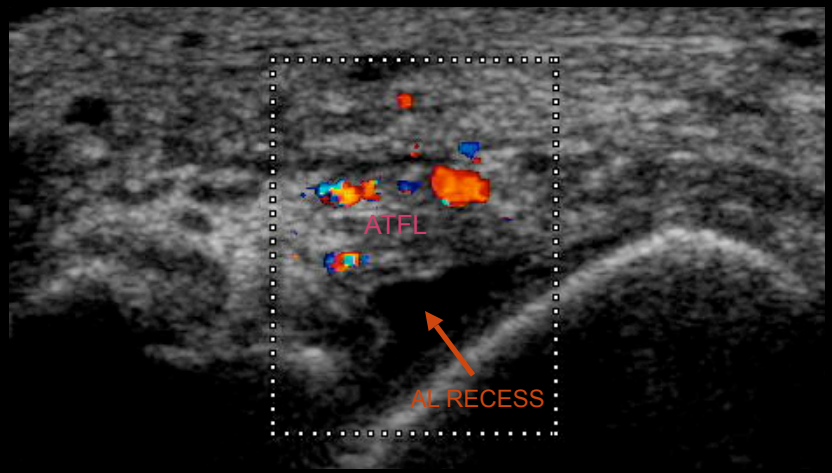


11 patients: 40,7%







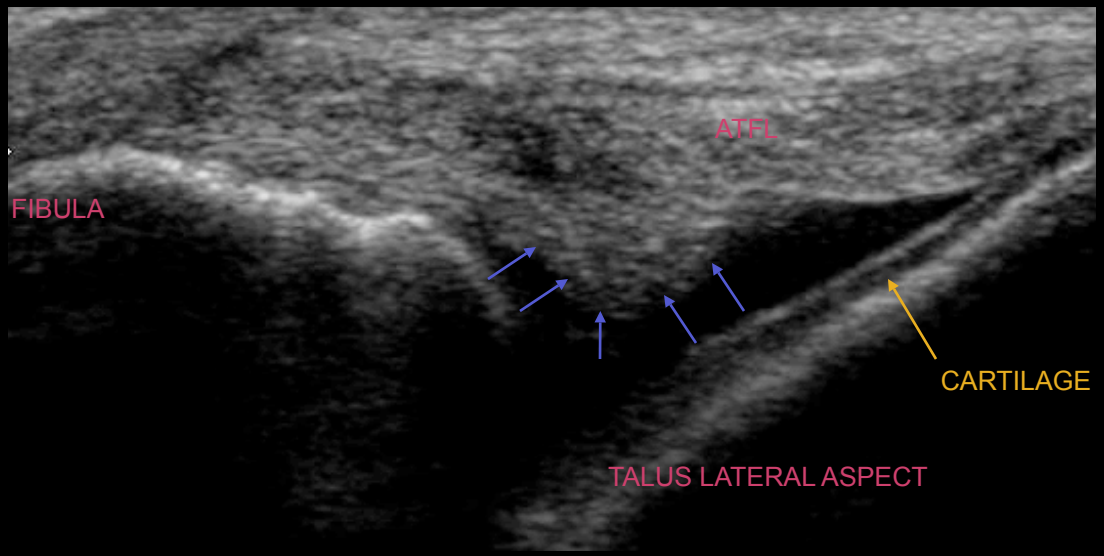


Ultrasonography: Fibrous nodule

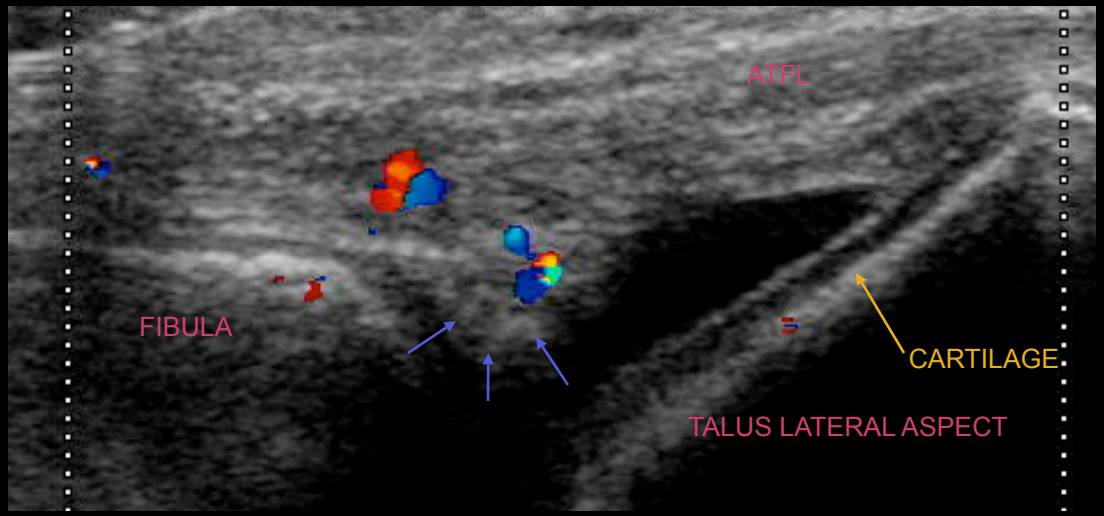
Endoarticular

Hyperechoic nodule

18 patients: 66,6%



All patients (27/27) had either fibrous bands or/ and nodule in the anterolateral recess.



RESULTS
US-guided therapy

PATIENT	FOLLOW-UP (M)	INFILTRATION
1	12	M
2	10	P
3	11	M
4	10	P
5	10	M
6	10	P
7	9	M
8	9	?
9	9	P
10	8	?
11	8	M
12	8	M
13	8	P
14	7	M
15	7	P
16	7	?
17	7	P
18	7	P
19	5	M
20	5	N
21	5	N
22	4	?
23	4	N
24	3	N
25	3	P
26	3	M
27	3	N

P= Positive = No more symptoms
N= Negative= None effect
M= Mild= Recurrency of symptoms
?= lost of sight

Patient outcome at 4 weeks:

complete pain relief: 9 patients (33%)

recurrent pain after pain relief:
9 patients (33%) => arthroscopic debridement

none effect: 5 patients (4 with chondral lesions on CTA)

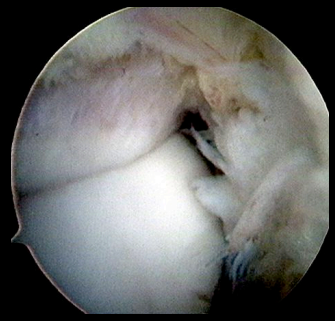
4 patients lost of sight

DISCUSSION

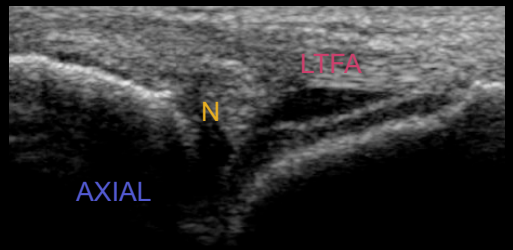
Ultrasonography

US allows diagnosis of anterolateral impingement when showing:

- fibrous bands and/ hyperchoic nodule (meniscoïd lesion)
- in the anterolateral recess (100%)
- +/- capsular thickening (67%) and synovits (52%).



US findings must be correlated to the clinical features (asymptomatic capsular thickenings of the anterolateral recess are frequent).

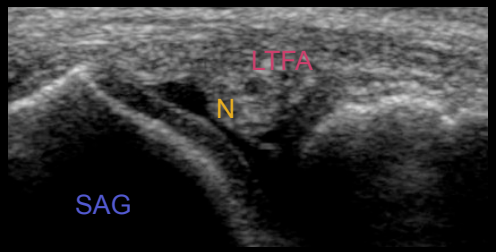


Advantages:

excellent spatial resolution,

availability,

dynamic examination



Limitations:

- low case number in the study
- lack of gold-standard and comparison with asymptomatic patients
- no cartilage analysis,
- US multi-observer study

US-guided therapy

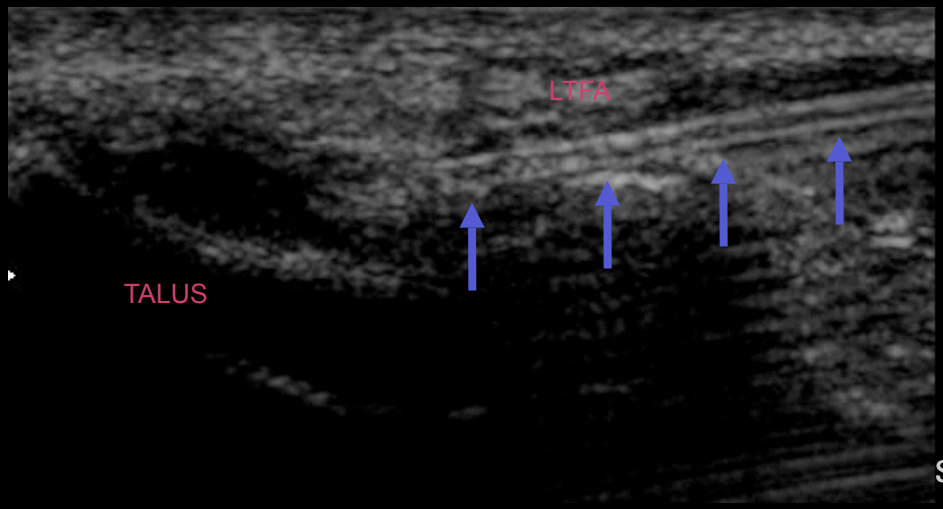
- Us-guided therapy

- therapeutic effect due to combination of local anaesthesia, anti-inflammatory effect of corticosteroid and damaged-tissue disruption

- no local or general complications

- allows complete rehabiltation and avoid CTA and surgery in 9 patients (33%)

- represents the treatment of 50% of patients with complete rehabilitation



s (no hindfoot scoring system)

- no study versus placebo

US-guided therapy

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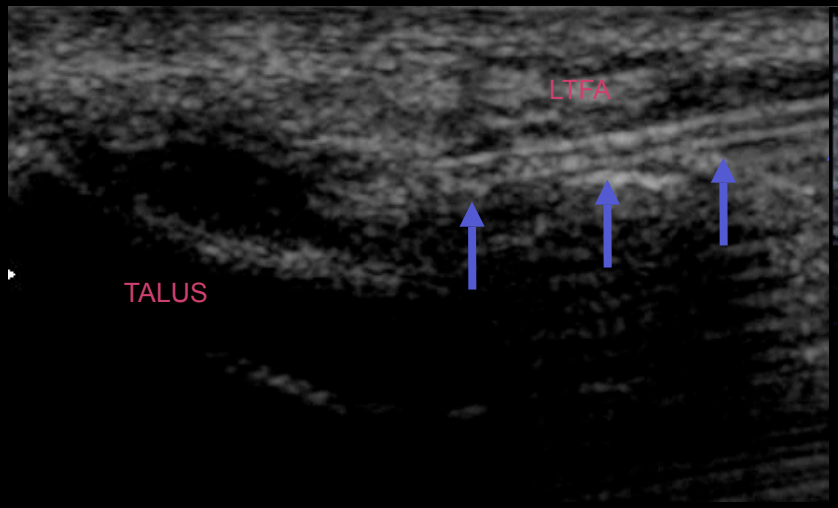

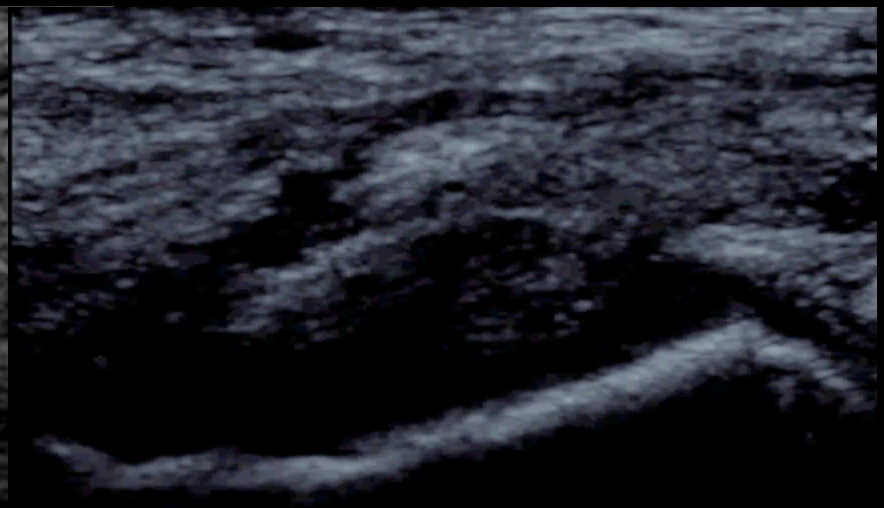

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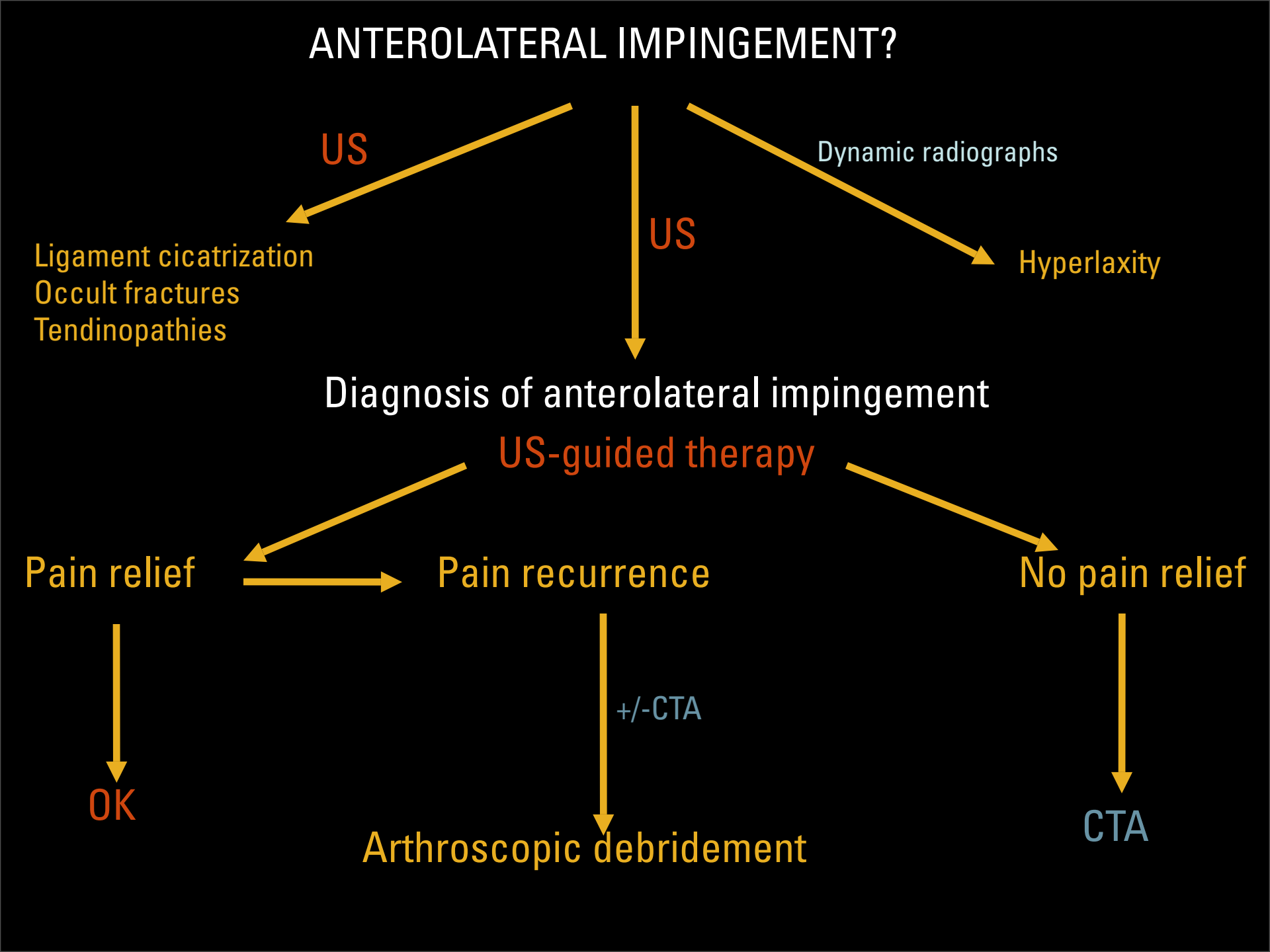
ANTEROLATERAL IMPINGEMENT?
US
US
Dynamic radiographs
Ligament cicatrization
Occult fractures
Tendinopathies
Hyperlaxity
Diagnosis of anterolateral impingement
US-guided therapy
Pain relief
Pain recurrence
No pain relief
OK
+/-CTA
CTA
Arthroscopic debridement

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