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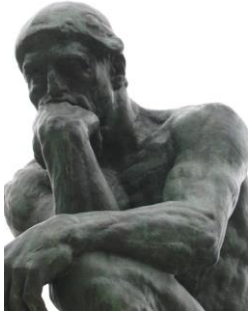
MODENA E REGGIO EMILIA

FST-Calcific tendinopathies



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Direttore prof. Fabio Catani
Direttore scuola di specializzazione prof. G. Porcellini

Calcific tendinopathies

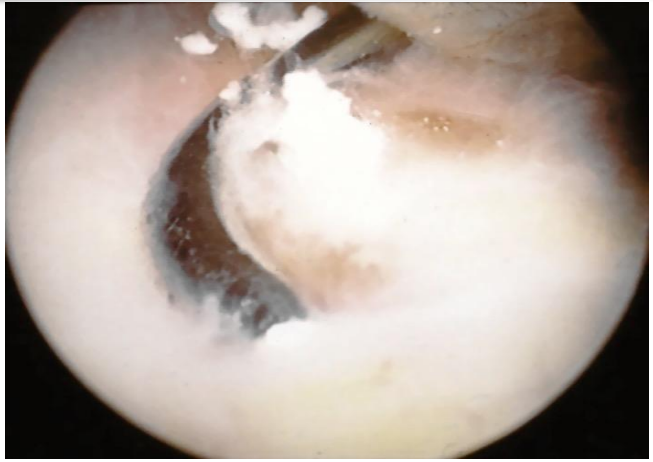
Formative phase

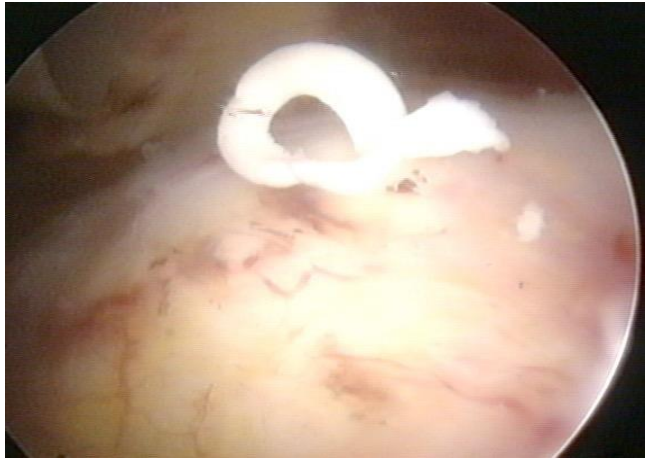
“chalk”

Resorption phase

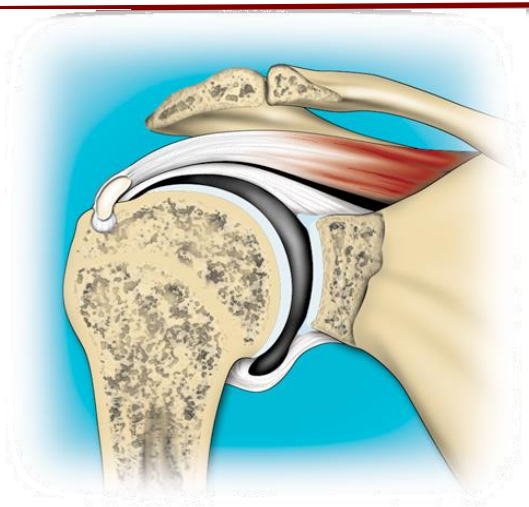
“cheese”

Tendon repair phase





Calcific tendinopathies



Associated conditions:
- SLAP
- Cuff tear
- CLBO
- Instability
- AC arthrosis

-Size

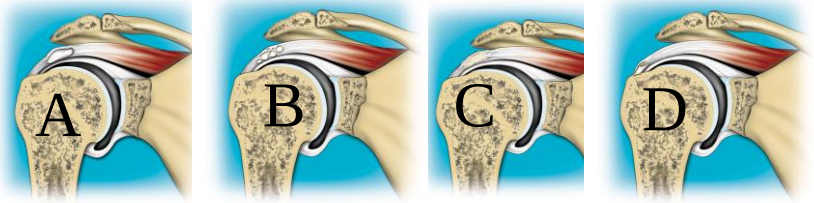
- Number

- Position

- Phase

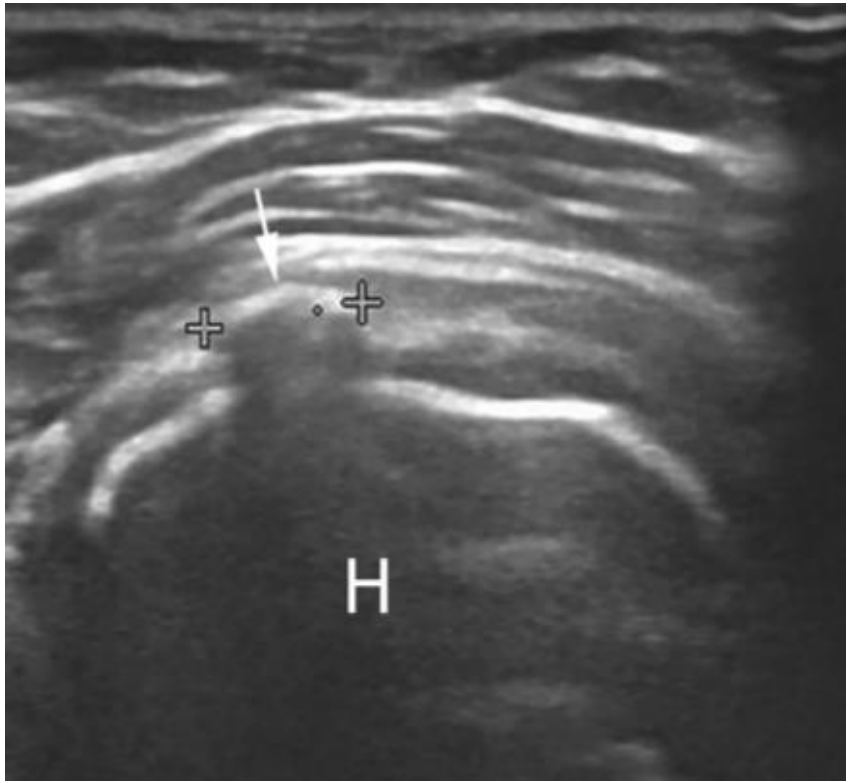
Classification

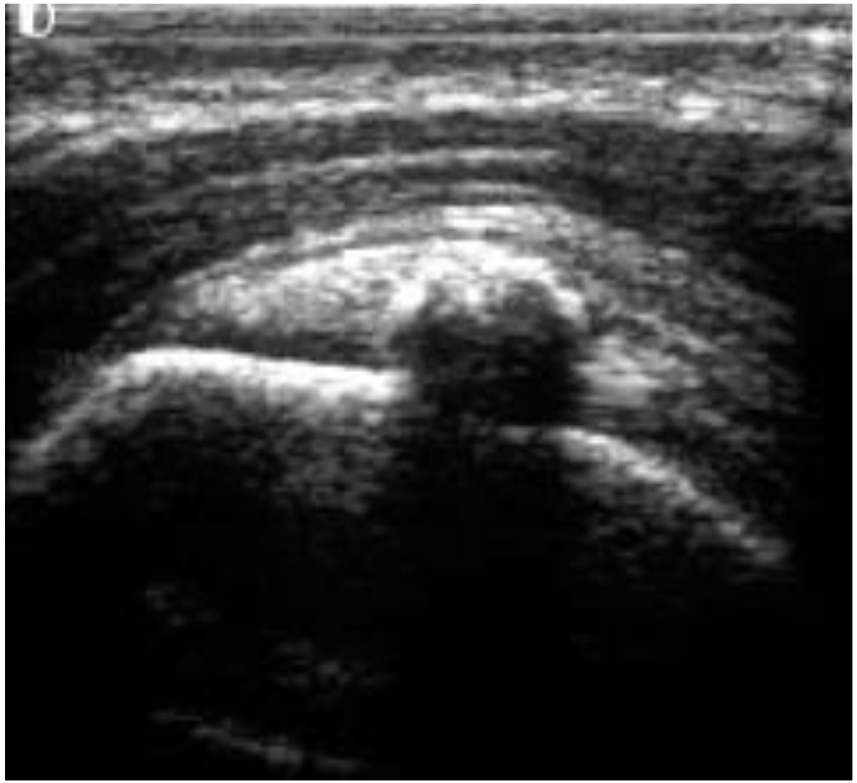
Author	Subtype	Description
Bosworth	Small	<0.5 cm
	Medium	0.5–1.5 cm
	Large	1.5 cm
DePalma et al.	Type I	Fluffy, amorphous and ill defined
	Type II	Defined and homogeneous
Molè et al. (French Arthroscopy Association)	Type A	Dense, rounded, sharply delineated
	Type B	Multilobular, radiodense, sharp
	Type C	Radiolucent, heterogeneous, irregular outline
	Type D	Dystrophic calcific deposit
Gartner et al.	Type I	Well demarcated, dense
	Type II	Soft contour/dense or sharp/transparent
	Type III	Soft contour/translucent and cloudy



Molè, Kempf 1993

Ultrasound evaluation





MRI Evaluation

J Shoulder Elbow Surg (2009) ■, 1-6

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JOURNAL OF SHOULDER AND ELBOW SURGERY

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Osteolytic lesion of greater tuberosity in calcific tendinitis of the shoulder

Giuseppe Porcellini, MD*, Paolo Paladini, MD, Fabrizio Campi, MD, Francesco Pegreffi, MD

Unit of Shoulder and Elbow Surgery, D. Cervesi Hospital, Cattolica (RN), Italy

Summary This study investigated tuberosity osteolysis, an uncommon and frequently misdiagnosed form of calcific tendinitis of the shoulder, and evaluated its effects on clinical and surgical outcomes. A total of 126 patients with calcific tendinitis studied with radiographs, ultrasound, and magnetic resonance images (MRIs) were divided into groups positive and negative for tuberosity osteolysis and treated by arthroscopy. Follow-up evaluation was at 2 years, using the Constant score. Tuberosity osteolysis was associated with significantly lower Constant scores, both before and after surgical treatment. Clinical and imaging findings exhibited a significant correlation. A 100% correlation was found between arthroscopy and MRI findings of tuberosity osteolysis compared with 90% with radiographs. Imaging and functional data indicate that calcific tendinitis of the rotator cuff with tuberosity osteolysis is a distinctive form of calcific tendinitis that should be considered in clinical and surgical practice.

Calcific tendinitis, a condition characterized by multifocal, cell-mediated calcification of viable tissue, affects a significant number of patients with shoulder complaints.[21] Hypoxia, microtrauma, and disuse have been suggested as causative factors, but its etiology remains unclear.[10-19] It may be an incidental finding in an asymptomatic shoulder (3% to 20%), or it may be the cause of pain (7%), often bilateral (13% to 47%), with a predilection for the right shoulder.[1] Women are affected slightly more frequently than men.[1] The propensity for the supraspinatus tendon (51%), just medial to the greater tuberosity, is still unexplained; the infraspinatus (44.5%), teres minor (23.3%), and subscapularis (3%) tendons are less commonly affected.[1,7,17]

According to Uhthoff and Loehr,[20] the disease progresses through correlating pathologic and clinical stages. The initial phase of deposit formation is rarely symptomatic. The acute symptoms are usually associated with the resorptive phase, where vascular invasion, an influx of phagocytic cells, and edema raise intratendinous pressure.[22] Symptoms may become chronic.

Conservative treatment with anti-inflammatory drugs, steroids, nonsteroid drugs (NSAIDs), local injection of anesthetic, and needling is frequently successful.[6,9,13,24] Extracorporeal shock wave (ECSW) therapy is effective in selected patients and has minimal complications.[5,18,23] Radiation therapy is increasingly used less because of its potential for adverse consequences.[14] Arthroscopic treatment of chronically painful calcific tendinitis of the rotator cuff, resistant to conservative or semi-invasive treatment (needling), is successful in more than 90% of patients.[3,19]

Some authors have described a different disease course[3] with a longer duration of painful symptoms and a reduction

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doi:10.1016/j.jse.2008.09.016

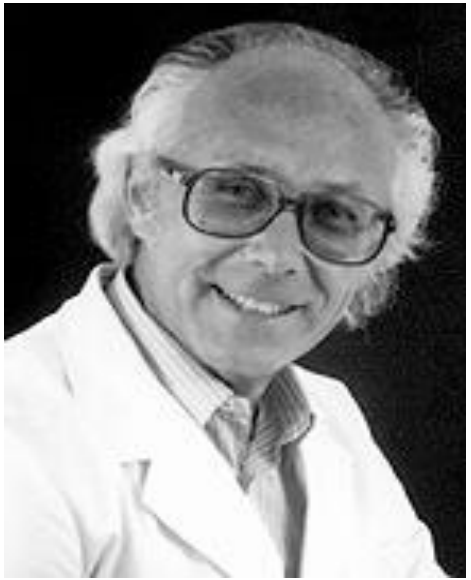
Greater tuberosity osteolysis

Treatment

Conservative treatment

90%

Good outcomes



Gschwend 1981

Treatment

Conservative treatment:

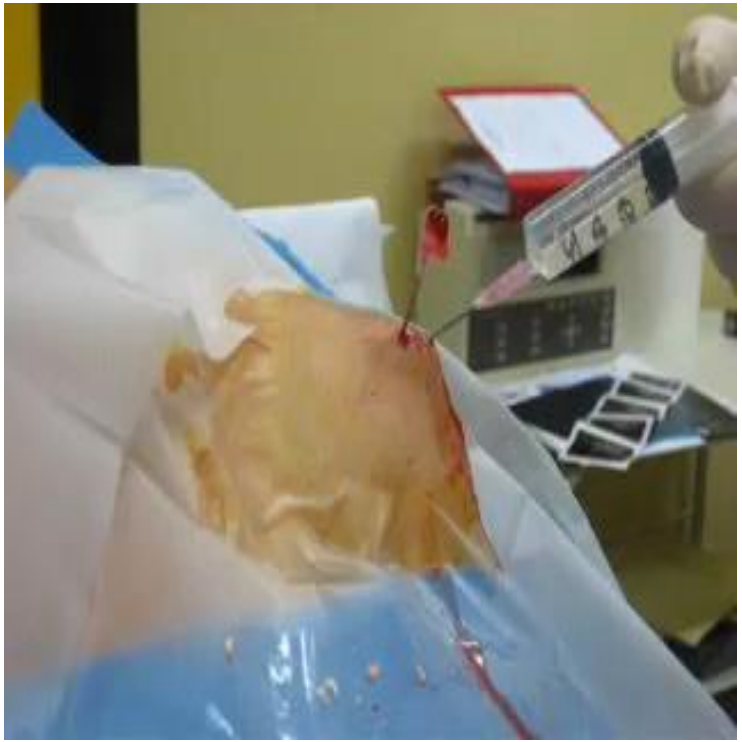
- FANS
- Steroid injections
- Needling
- ESWT

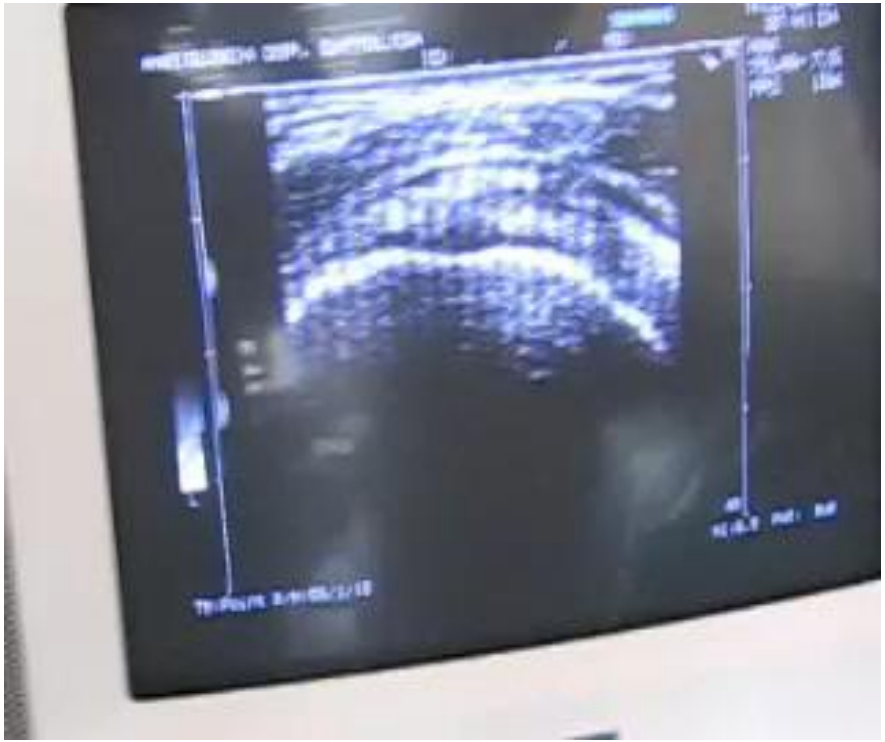
Surgical treatment

- **arthroscopy procedure** reserved for chronic cases that have not responded to conservative treatment

Needling

Acute phase

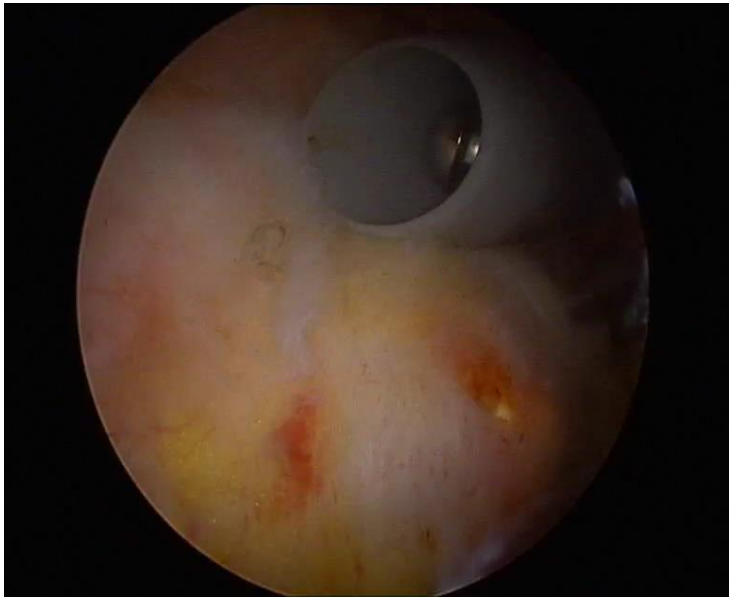




Arthroscopic treatment (Chronic)

Arthroscopic treatment of calcifying tendinitis of the shoulder: Clinical and ultrasonographic follow-up findings at two to five years

Giuseppe Porcellini, MD, Paolo Paladini, MD, Fabrizio Campi, MD, and Massimo Paganelli, MD, *Forlì, Italy*



In case of failure of conservative treatment

ESWT

Best statistically results in **ESWT VS PLACEBO**

Wang (2003) Gerdesmeyer (2003

Reduction of pain and improvement of functional outcomes in more **90%**

Malliaropoulos (2017) Pan (2003)

Reduction in number and size of calcification in **40-60%**

Rebuzzi (2008) Cosentino (2003) Wang (2003)

Overlapping clinical outcomes between **surgery and ESWT** (in early stage)

Rompe (2011) Rebuzzi (2008)

Our experience- ESWT

158 calcific tendinopathies

- 71% Complete resorption of calcification
- Short and long term antalgic control
- Good functional outcomes

Calcific tendinopathies - ESWT

158 patients

Divided into 2 groups according to the size:
Group A: 88 calcification < 15mm
Group B: 70 calcification > 15mm

Prognostic factors for the outcome of extracorporeal shockwave therapy for calcific tendinitis of the shoulder

W-Y Chou [1], C-J Wang [1], K-T Wu [1], Y-J Yang [1], J-Y Ko [1], K-K Siu [1]

Author	Subtype	Description
Bosworth	Small	<0.5 cm
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Calcific tendinopathies - ESWT

Ultrasound evaluation:
- **Position**
- **Morphological caracteristics**

Subdivision into subgroups ”arc-shaped / non arc-shaped”

Group A1: 45 < 15mm non arc-shaped
Group A2: 43 < 15mm arc-shaped
Group B1: 36 > 15mm non arc-shaped
Group B2: 34 >15mm arc-shaped

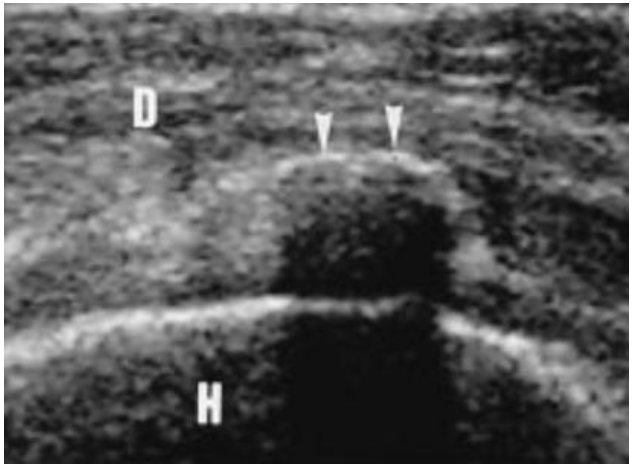
› Ultrasound Med Biol. 2001 Jun;27(6):735-43. doi: 10.1016/s0301-5629(01)00353-2.

The role of high-resolution ultrasonography in management of calcific tendonitis of the rotator cuff

H J Chiou [1], Y H Chou, J J Wu, T F Huang, H L Ma, C C Hsu, C Y Chang

Affiliations + expand

PMID: 11516532 DOI: 10.1016/s0301-5629(01)00353-2



Protocol - ESWT

Treatment protocol:

- 6 sessions
- 7-day interval between sessions
- No pre-treatment local anesthesia
- 3000 pulses with *Energy Flux Density* between 0,10 e 0,20 mJ/ mm2
- Average frequency 5Hz
- Ultrasound during treatment

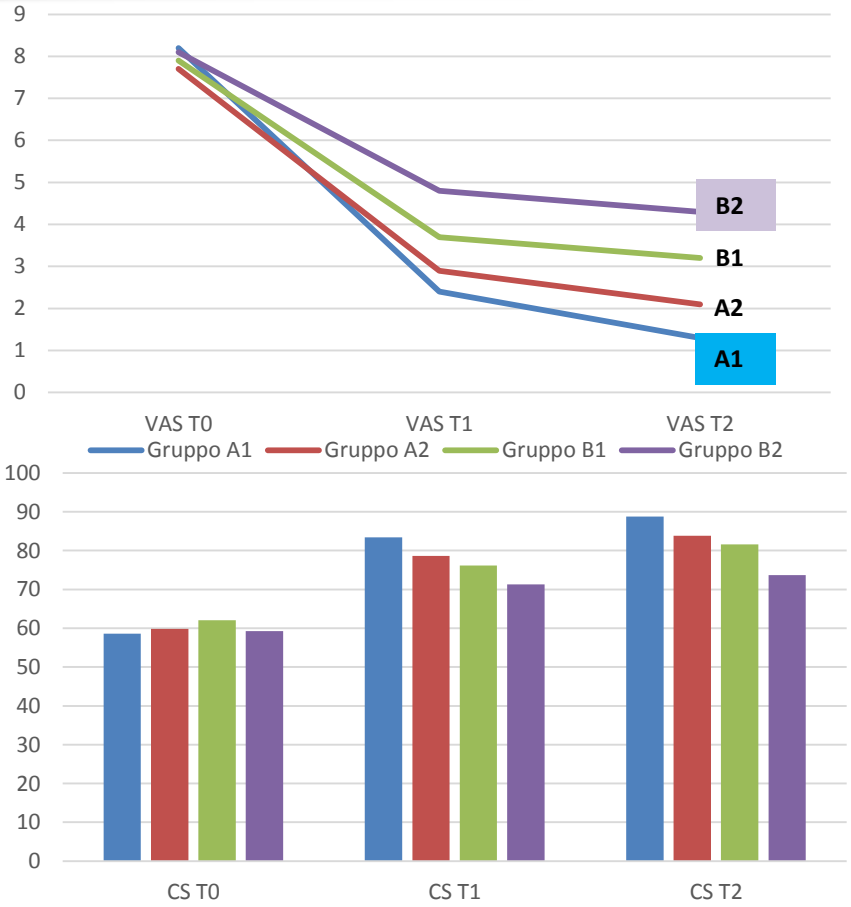
Clinical Results - ESWT

(VAS)

	N°	VAS T0	VAS T1	VAS T2
GROUP A1	45	8,2 (s=1,19)	2,4 (s=0,99)	1,3 (s=0,92)
GROUP A2	43	7,7 (s=1,04)	2,9 (s=1,18)	2,1 (s=1,05)
GROUP B1	36	7,9 (s=1,16)	3,7 (s= 1,23)	3,2 (s= 1,13)
GROUP B2	34	8,1 (s=1,18)	4,8 (s=1,05)	4,3 (s=1,21)

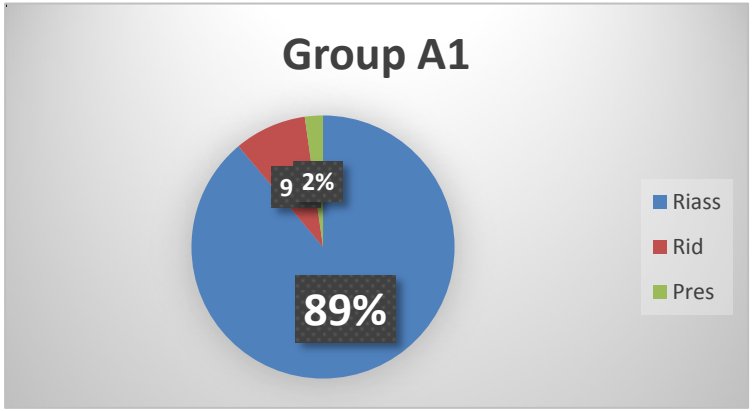
(Constant Score)

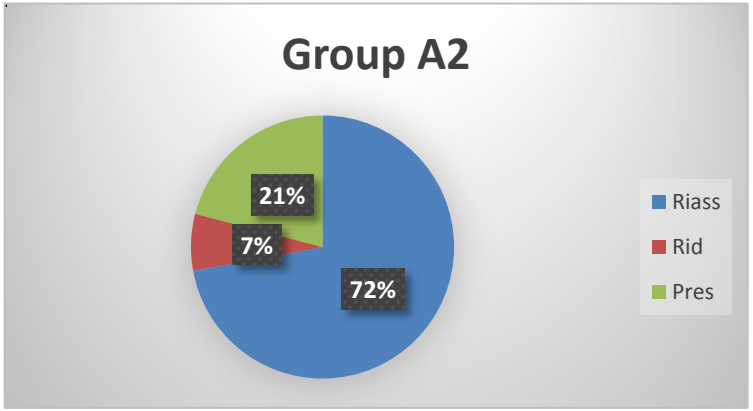
	N°	CS T0	CS T1	CS T2
GROUP A1	45	58,6 (s=4,96)	83,4 (s=6,29)	88,76 (s=3,86)
GROUP A2	43	59,8 (s=3,91)	78,6 (s=4,18)	83,87 (s=2,71)
GROUP B1	36	62,1 (s=3,89)	76,2 (s= 2,81)	81,64(s= 2,58)
GROUP B2	34	59,3 (s=3,77)	71,3 (s=3,82)	73,73 (s=3,06)

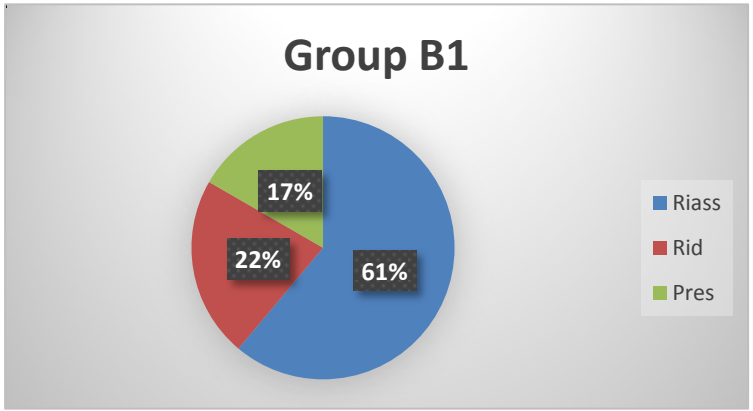


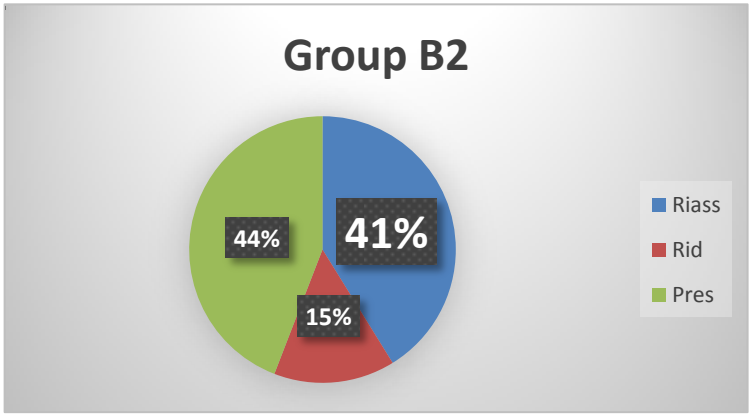
US results - ESWT

US Follow-up at 6 months









Conclusion - ESWT

- Calcification size (</>15mm) is the main prognostic factor
- The ’’arc-shaped’’ ultrasound form results in a percentageally higher rate of nonresorption
- Unsatisfactory results if these 2 conditions are associated

Thanks


spalla
ginocchio
caviglia
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