UiO : Faculty of Medicine
University of Oslo

Treatment of Type II SLAP lesions of the shoulder

Cecilie Piene Schrøder

HELSE SØR-ØST

Lovisenberg Diakonale Sykehus

SLAP (superior labral anterior posterior) lesions, what are we talking about ?

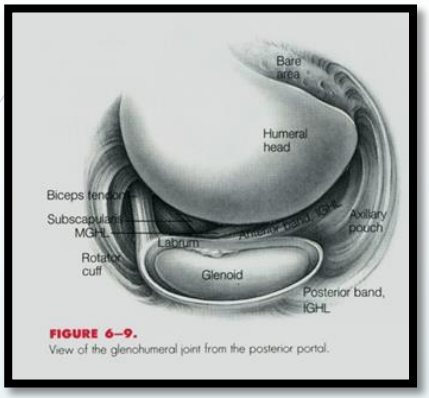


FIGURE 6–9.
View of the glenohumeral joint from the posterior portal.

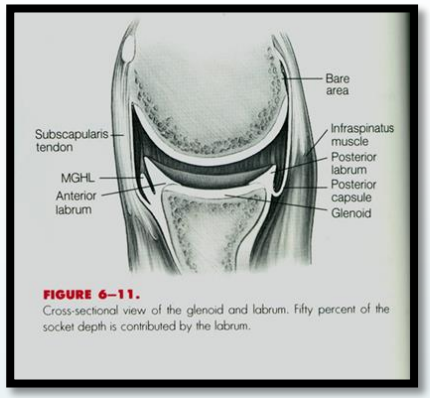


FIGURE 6–11.
Cross-sectional view of the glenoid and labrum. Fifty percent of the socket depth is contributed by the labrum.

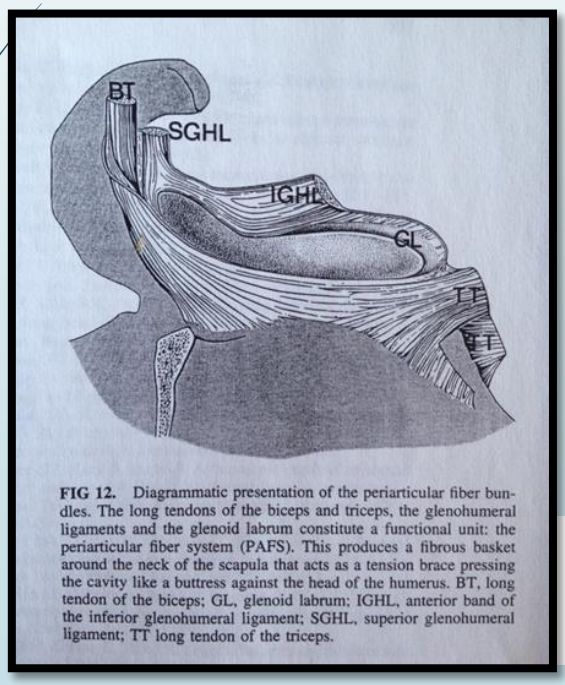
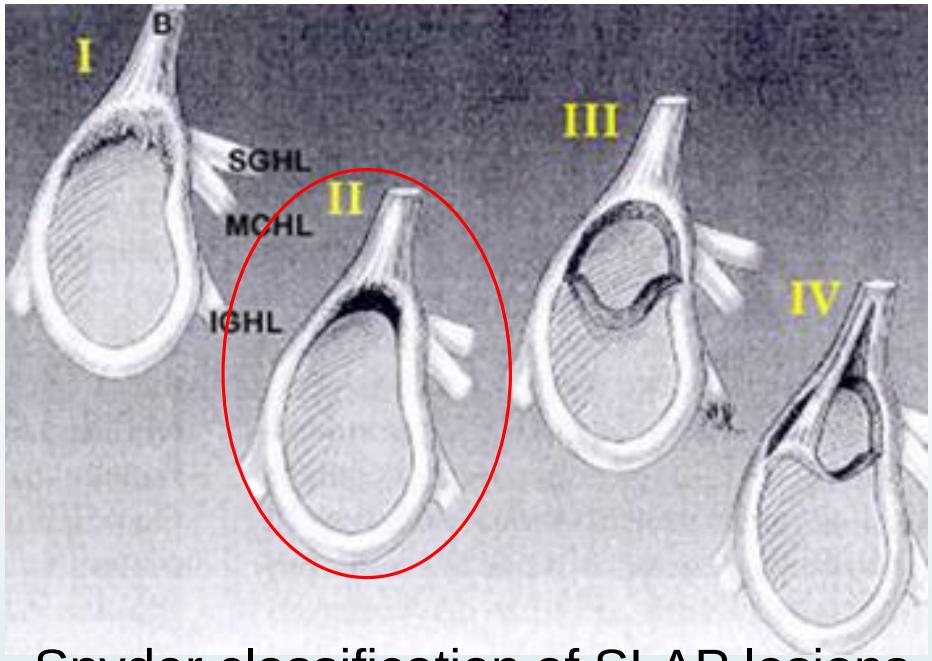


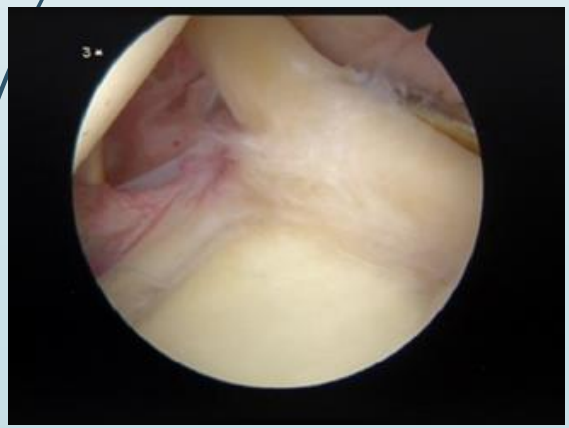
FIG 12. Diagrammatic presentation of the periarticular fiber bundles. The long tendons of the biceps and triceps, the glenohumeral ligaments and the glenoid labrum constitute a functional unit: the periarticular fiber system (PAFS). This produces a fibrous basket around the neck of the scapula that acts as a tension brace pressing the cavity like a buttress against the head of the humerus. BT, long tendon of the biceps; GL, glenoid labrum; IGHL, anterior band of the inferior glenohumeral ligament; SGHL, superior glenohumeral ligament; TT long tendon of the triceps.

Periarticular fiber system of the shoulder Joint.

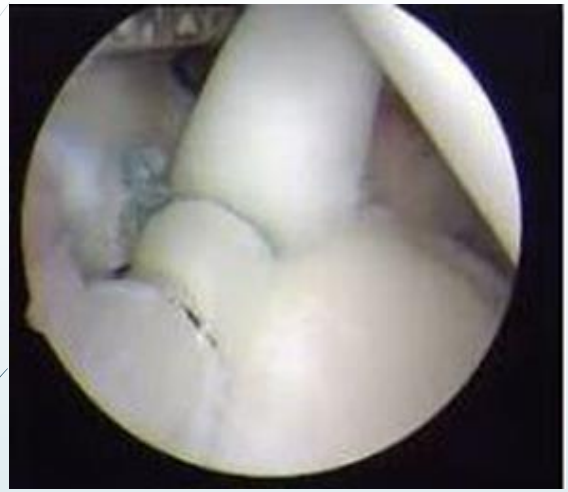
Huber, Putz, Arthroscopy 1997

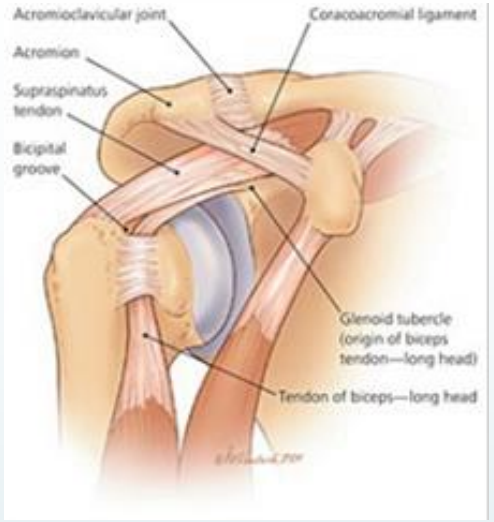


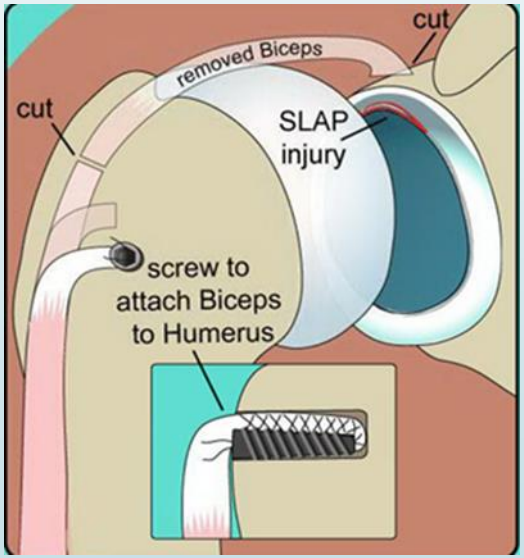
Snyder classification of SLAP lesions, type I-IV, Arthroscopy 1990.



Treatment

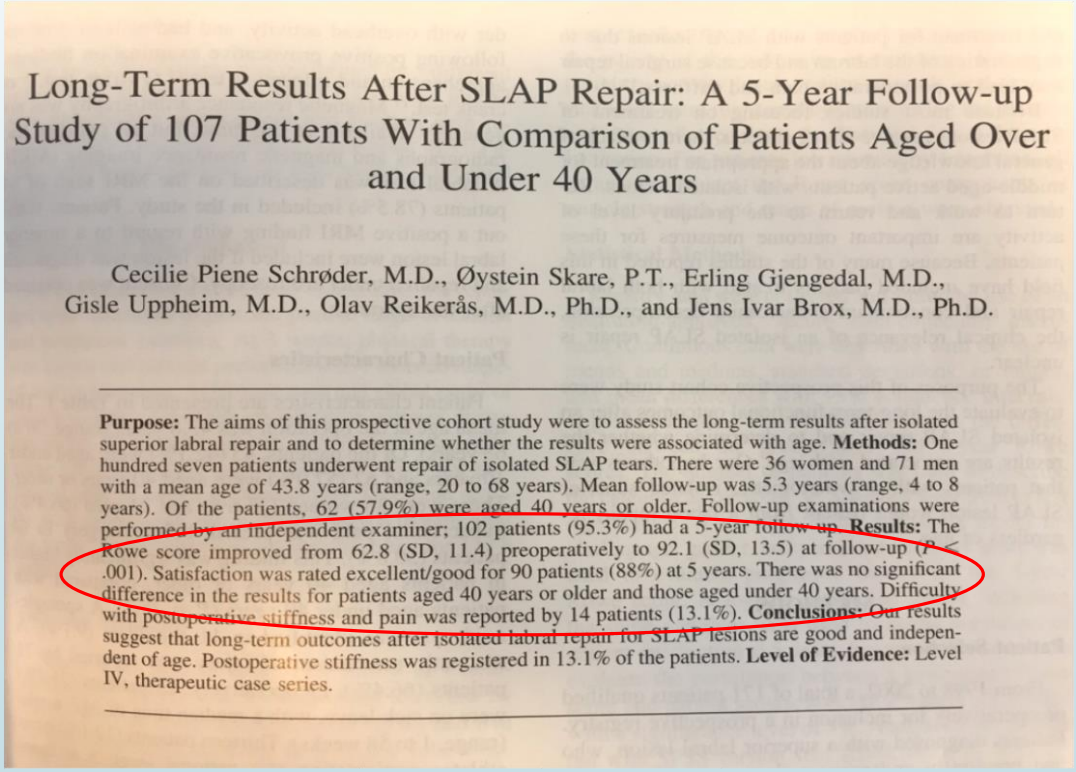



Acromioclavicular joint
Coracoacromial ligament
Acromion
Supraspinatus tendon
Bicipital groove
Glenoid tubercle (origin of biceps tendon—long head)
Tendon of biceps—long head


cut
removed Biceps
cut
SLAP injury
screw to attach Biceps to Humerus

What were the motives for doing these studies ?

- In 1998, the discussion concerning the treatment of SLAP lesions was mainly on operative techniques and what devices to use. Some discussion around whether this was a lesion of any importance.



Long-Term Results After SLAP Repair: A 5-Year Follow-up Study of 107 Patients With Comparison of Patients Aged Over and Under 40 Years

Cecilie Piene Schrøder, M.D., Øystein Skare, P.T., Erling Gjengedal, M.D., Gisle Uppheim, M.D., Olav Reikerås, M.D., Ph.D., and Jens Ivar Brox, M.D., Ph.D.

Purpose: The aims of this prospective cohort study were to assess the long-term results after isolated superior labral repair and to determine whether the results were associated with age. **Methods:** One hundred seven patients underwent repair of isolated SLAP tears. There were 36 women and 71 men with a mean age of 43.8 years (range, 20 to 68 years). Mean follow-up was 5.3 years (range, 4 to 8 years). Of the patients, 62 (57.9%) were aged 40 years or older. Follow-up examinations were performed by an independent examiner; 102 patients (95.3%) had a 5-year follow-up. **Results:** The Rowe score improved from 62.8 (SD, 11.4) preoperatively to 92.1 (SD, 13.5) at follow-up ($P <$ .001). Satisfaction was rated excellent/good for 90 patients (88%) at 5 years. There was no significant difference in the results for patients aged 40 years or older and those aged under 40 years. Difficulty with postoperative stiffness and pain was reported by 14 patients (13.1%). **Conclusions:** Our results suggest that long-term outcomes after isolated labral repair for SLAP lesions are good and independent of age. Postoperative stiffness was registered in 13.1% of the patients. **Level of Evidence:** Level IV, therapeutic case series.

No randomized trials, few prospective studies:

- Good to excellent results; 40 to 94 %
- Return to previous level of sports; 20 to 94%
- Biceps tenodesis may present a viable treatment for SLAP repair because of a high failure rate of SLAP repair **(Gorantla et al,2010, Huri, McFarland et al, 2014)**

- Increasing incidence in repairs past 10 years, especially in the middle aged and elderly.
  (Vogel et al, J Shoulder Elbow Surg, 2014, Weber et al, Am J Sports Med, 2012)

- The incidence of repair is associated with a significant rate of complications and poor outcomes.
  (Weber et al. Sports Med Arthrosc,2010, Katz et al. Arthroscopy 2009)

- N° & percentage of SLAP repair has decreased, the age undergoing repair has decreased, while biceps tenodesis is increasing **(Erickson BJ, et al.Arthroscopy)**

Evidence of its efficacy is lacking….

(Gorantla et al, Arthroscopy 2010, Huri, McFarland et al, 2014)

➨We originally designed a two-armed study comparing labral repair and biceps tenodesis, but were challenged by critics in our group asking how we could know that it wasn`t just the physiotherapy, natural course or regression to the mean that could explain our results- and that we should include a placebo arm.

➨We designed a prospective, double-blind, sham controlled trial

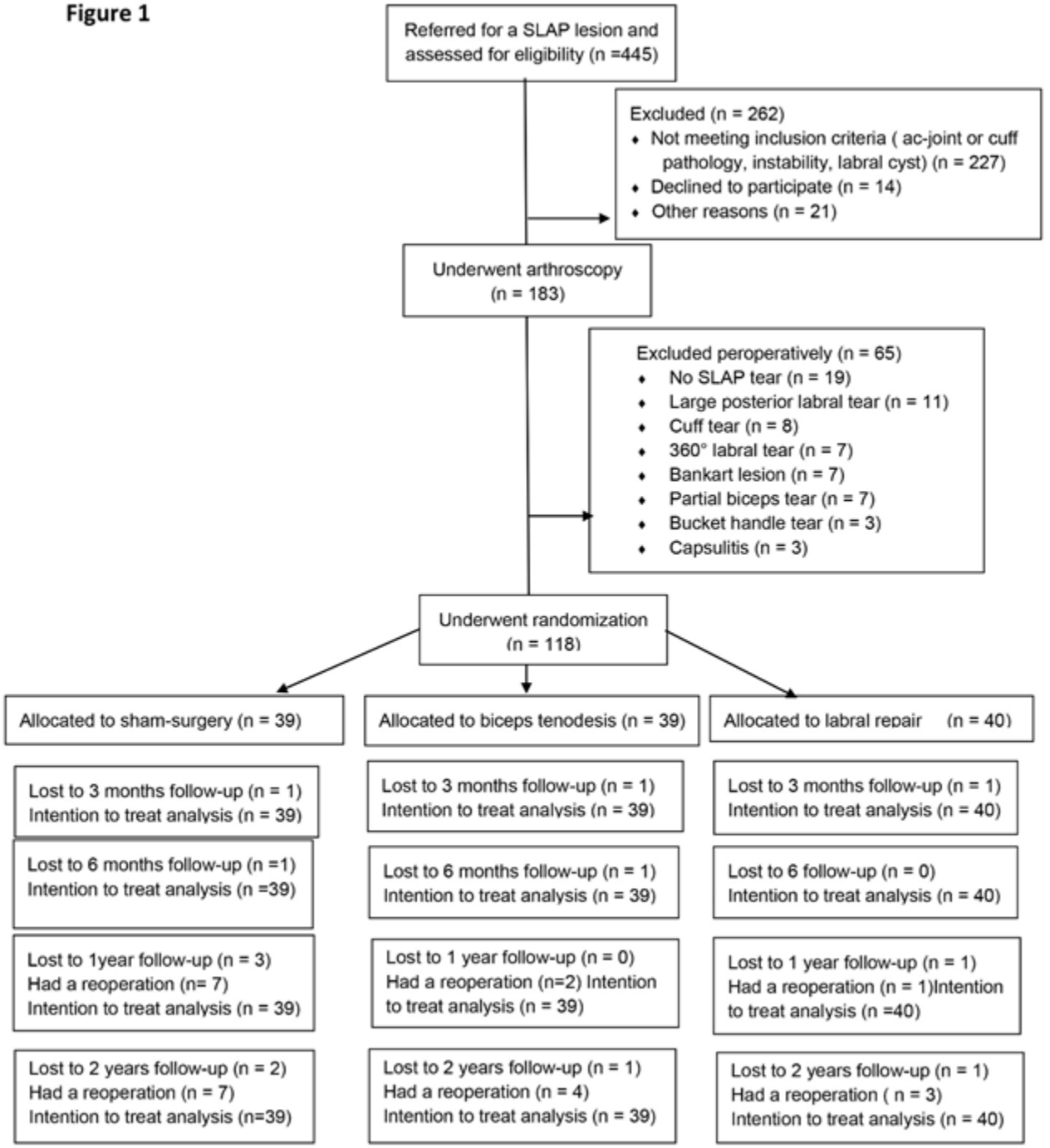
➨What did we think this study would show before we started it ?

➨We thought that operative treatment would come out superior…….

Design, patients and outcome

- Approval from the ethics committee, study registered in Clin.gov.
- Inclusion from January 2008 to January 2014
- 118 patients, age 40.1 years (18-60)
- No differences in baseline characteristics
- Validated outcome measures for SLAP lesions (Rowe, WOSI, OISS) (Skare et al. J Shoulder Elbow Surg 2011, BMC Research Notes,2013)
- The patients were informed that if they were not satisfied with their shoulder function at 6 months, the blinding could be unfolded
- All patient received standardized, but individually adjusted physiotherapy

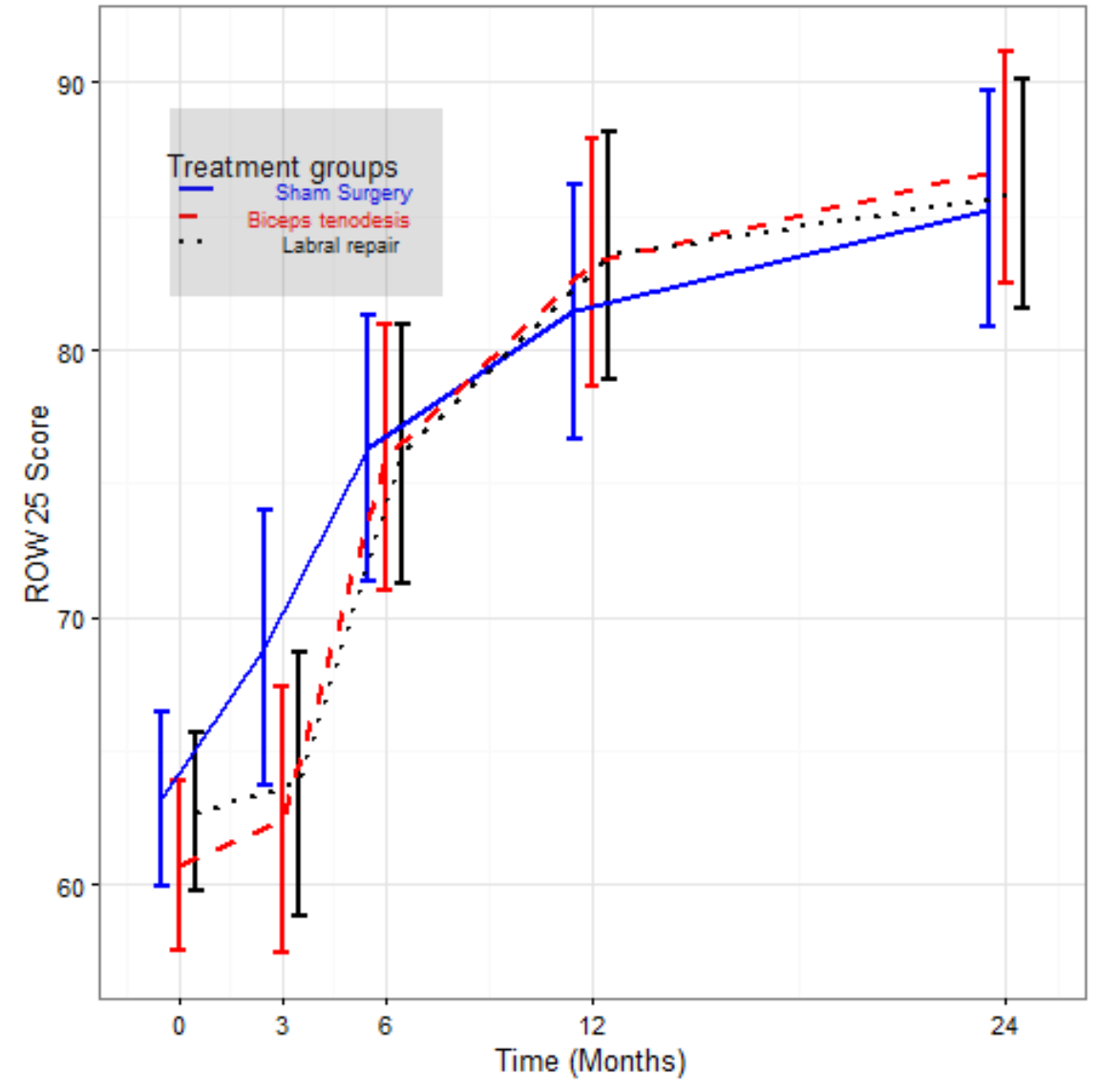
Figure 1



4 patients lost to follow-up at 2 years

Rowe Score 2 years

Intention to treat

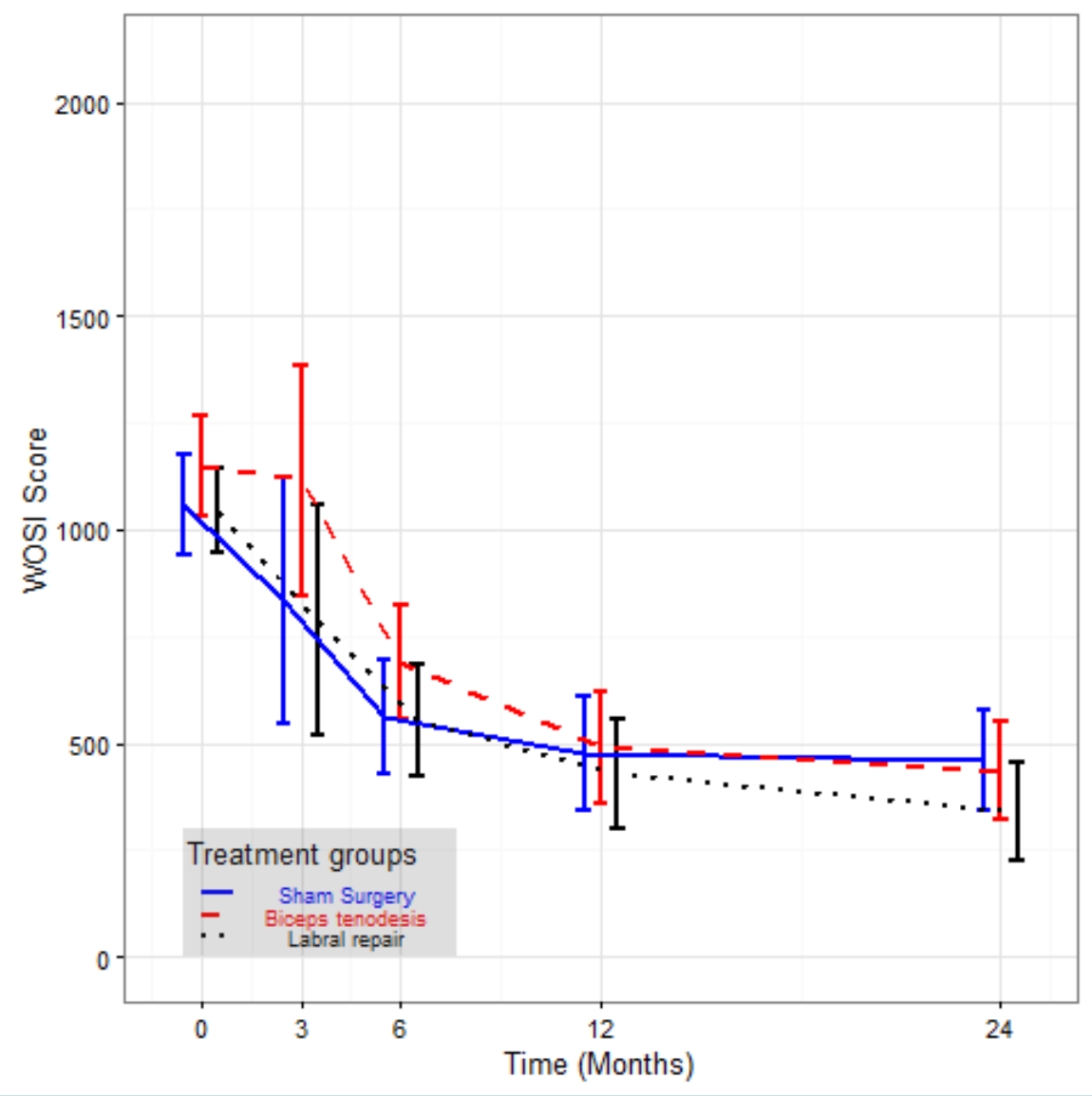


Sham: 86.5

Biceps tenodesis: 86.8

Labral repair: 86.3

WOSI 2 years

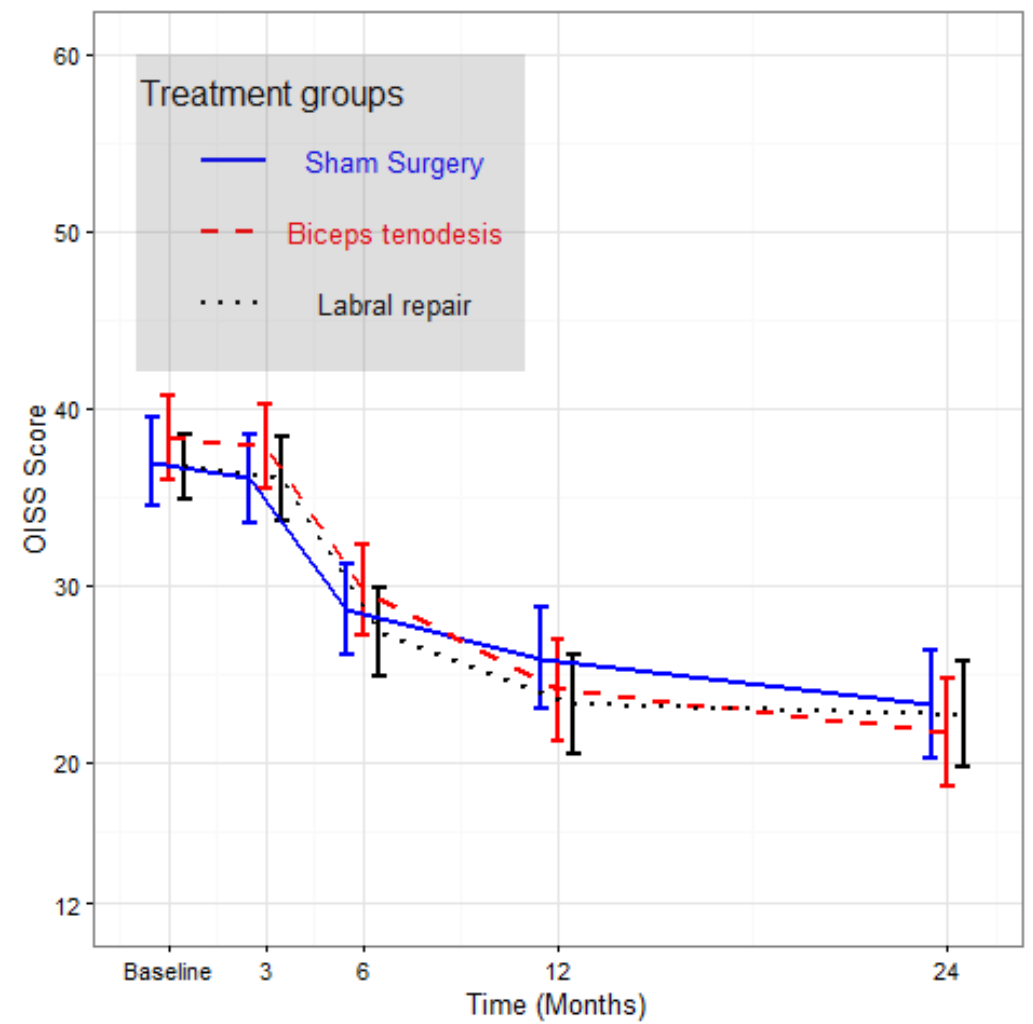


Sham: 436

Biceps: 455

Labrum: 334

Oxford Instability Shoulder Score(OISS)



Adjusted between-group differences (age, gender, baseline score, trauma, manual work and time):

No significant difference except baseline score and time, p = 0.001

Prolonged postoperative stiffness

Labral repair: 5
Biceps tenodesis: 4
Sham surgery: 1

Reoperations (from 6 to 24 months postop)

n = 24 :

	Labral repair	Biceps tenodesis	AC-joint resection	Capsular release	Total
Sham	12	2	-	-	14 crossed over
Biceps tenodesis	3	-	1	2	6
Labral repair	-	3	1	-	4

25/39 (64%) of the patients in the sham group were satisfied

Patient satisfaction

	excellent	good	fair	poor	total	EQ-5 VAS
Sham	19	12 84%	6	0	37	77.3
Biceps tenodesis	25	9 89%	1	3	38	80.0
Labral repair	23	6 83%	5	1	35	81.9

Not physically active sign lower EQ-VAS, p = 0.02

Cross-overs

pat. no	2	15	16	25	33	39	42	54	74	75	86	99	115	116
T/S	T	T	S	T	T	T	T	S	?	T	S	?	T	T
Lr/ Bt	Lr	Lr	Lr	Lr	Lr	Lr	Lr	Lr	Bt	Lr	Lr	Bt	Lr	Lr
	63	83	78	100	78	87	95	81	?	72	100	83	44	87
	G	G	F	Ex	G	F	Ex	G	?	F	Ex	G	?	Ex

8/14 with Rowe over 80 and rated the shoulder as excellent/good (some effect lost in the mean?)

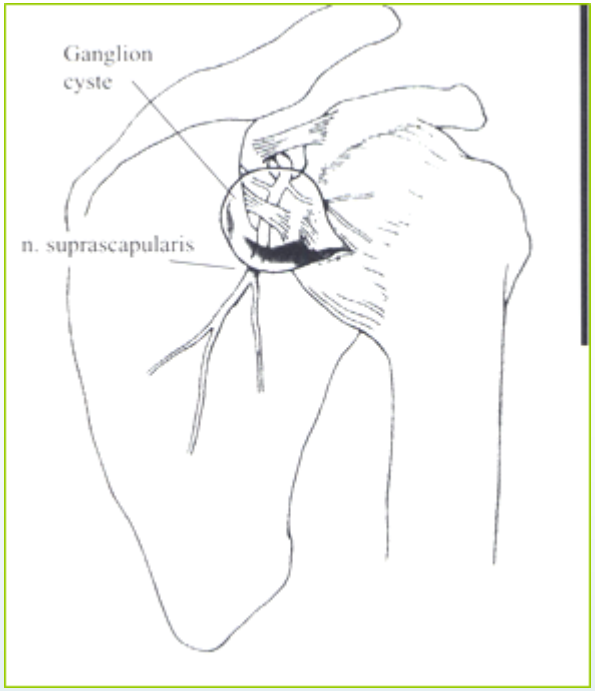
Conclusion

- There is a significant improvement for all groups, both for objective and subjective scores.
- No significant difference between the three treatment groups. (Intention to Treat or Per Protocol)
- The groups are not large enough to perform sub-group analysis and further studies are needed to establish whether younger and more active patients will receive greater benefit from operative than non-operative treatment.

But, one subgroup of SLAP patients is worth treating…

N. Suprascapularis

mixed sensory/motor nerve



- Supraspinatus
- Infraspinatus
- Teres minor (von Lanz 1959)
- AC-joint
- Posterior capsule

Approximately 1.8 from the posterior glenoid rim (Bigliani, 1990)

In our first prospective study of the 107 patients with a SLAP lesion, 11 patients had a spinoglenoid cyst.
We chose to repair the labral lesion and they were included in the study, but we also decided to follow them with MRI control.

Treatment of Labral Tears with Associated Spinoglenoid Cysts without Cyst Decompression

By Cecilie P. Schroder, MD, Oystein Skare, PT, Morten Stiris, MD, Erling Gjengedal, MD, Gisle Uppheim, MD, and Jens Ivar Brox, MD, PhD

Investigation performed at the Department of Orthopaedic Surgery, Lovisenberg Deaconal Hospital, and the Department of Radiology, Aker University Hospital, Oslo, Norway

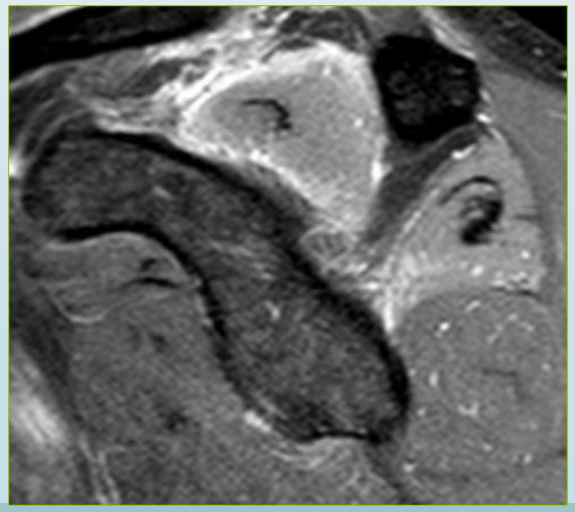
Results: In thirty-seven (88%) of the forty-two patients, the cysts had resolved completely. In five patients, a cyst was still present but with a clear reduction in size. These five patients had remission of pain and were satisfied with the shoulder function. Three patients with preoperative muscular atrophy without fatty infiltration regained normal appearing muscle, while the seven with preoperative fatty changes continued to demonstrate those changes postoperatively. The median Rowe score improved from 61.5 points preoperatively to 98.0 points at the time of follow-up. Thirty-one patients assessed the result of treatment as excellent; nine, as good; and two, as fair.

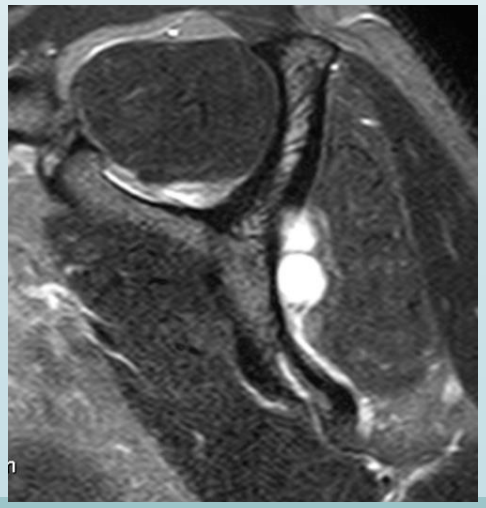
Conclusions: Most spinoglenoid cysts resolve, and patient satisfaction can be expected to be high after labral fixation without cyst decompression.

Level of Evidence: Prognostic Level IV. See Instructions to Authors for a complete description of levels of evidence.

Kliniske symptomer

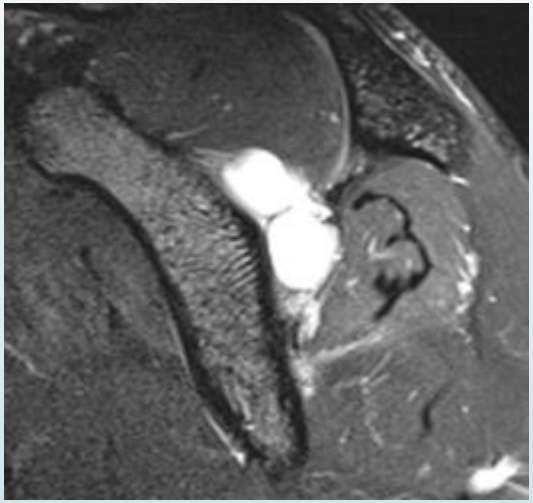
- Smerter i bakre del av skulderen
- Palpasjonsømhet i infraspinatus
- Redusert utadrotasjonskraft
- Klinisk atrofi av supra/infraspinatus, evt teres minor
- Radiologisk ødem/atrofi/fettinfiltrasjon av suprascapularisinnervert muskulatur





Diagnostikk

- Tidligere først oppdaget pga klinisk atrofi av infraspinatus, og betydelig atrofi og fettinfiltrasjon på MR



- Utvidet bruk av MR har gitt muligheter for tidlig diagnostikk av cyster med affeksjon av nervus suprascapularis

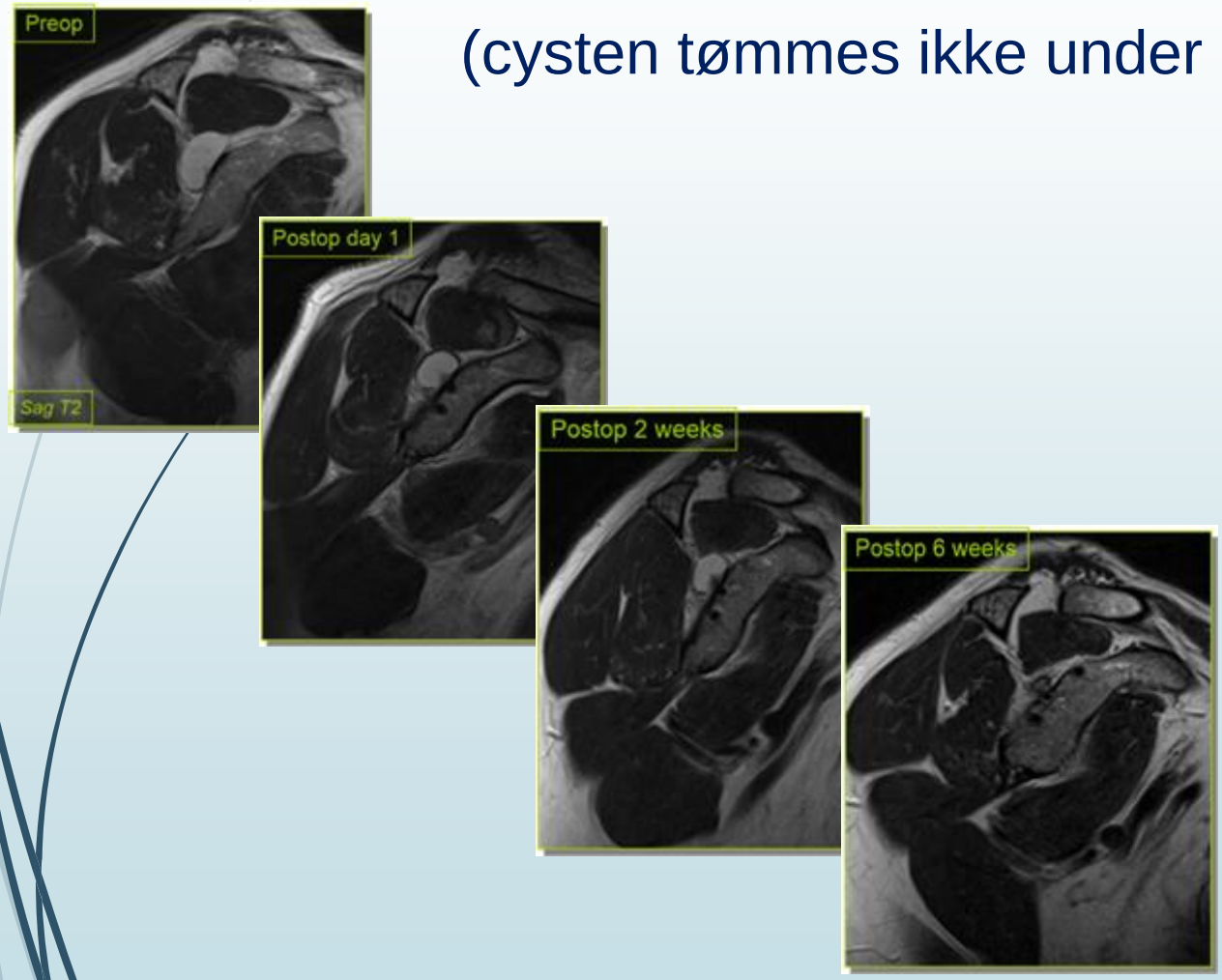
Materiale og metode

- 47 pasienter m/ cyste > 2cm
- 20 pasienter (43%) hadde muskelatrofi og radiologisk ødem; 13 av infraspinatus, 4 av infra- og supraspinatus og to av infraspinatus og teres minor og en av alle tre.
- 8 pasienter hadde varierende grad av fettinfiltrasjon
- 3 pasienter hadde erosjon av scapula pga kompresjon fra cysten
- Median cystestr var 6.8 cm^3(2.1-88.9), SD 18.3

Resultater

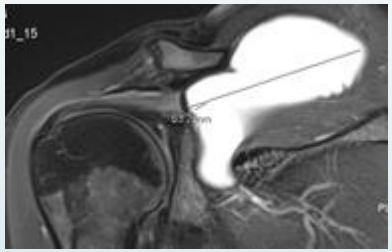
- Ingen sign. reduksjon i cystestr 1. postopr dag.

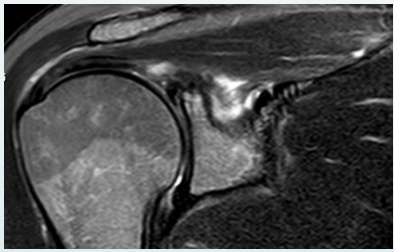
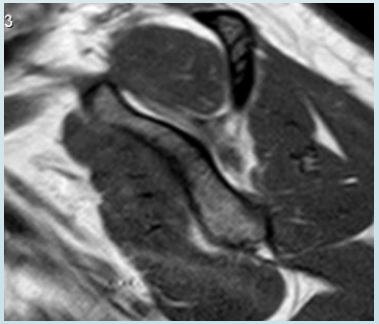
  (cysten tømmes ikke under debridementet)



Resultater

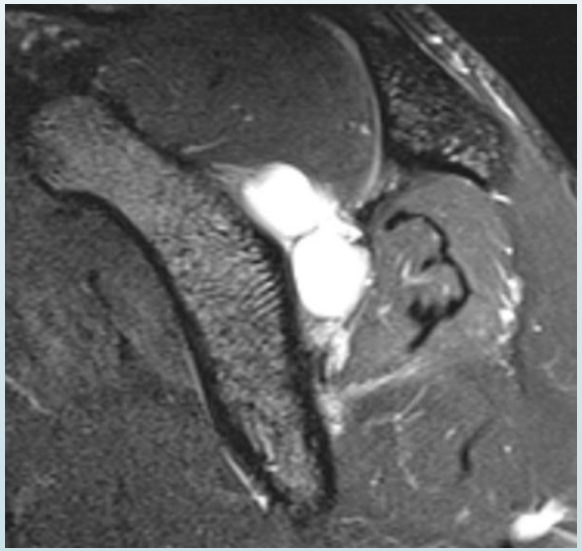
- Gjennomsnitttid før cysten var resorbert var 11 uker (3-30, SD 5.9).

Resultater

- Muskelødemet forsvinner gradvis, men med stor variasjon i tid,14 uker (3-52, SD 10.6)
- Den kliniske atrofien forsvant hos de pasientene som hadde preoperativt ødem

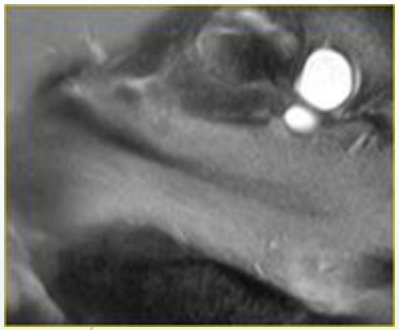


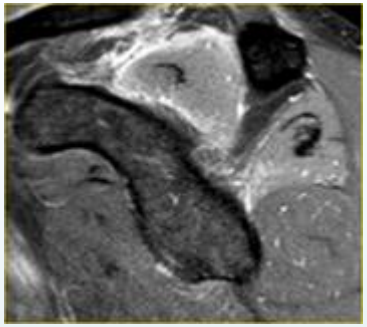
Resultater

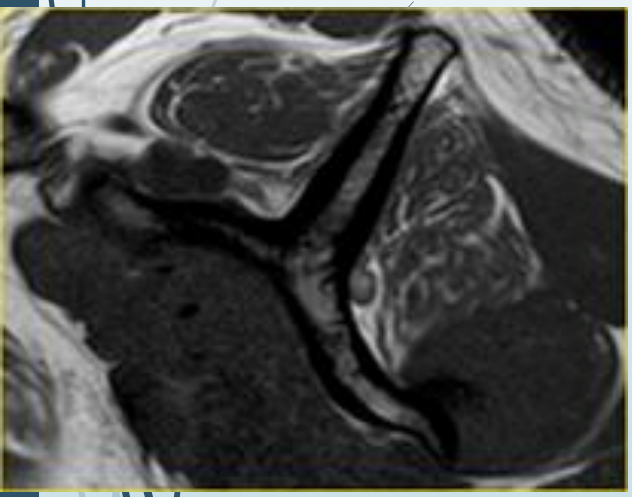
- Relativt få pasienter hadde fettinfiltrasjon av betydning (2 av 10)
- Preoperativ fettinfiltrasjon med samtidig ødem ser ut til å kunne være reversibelt, men det tar lang tid
- Teres minor ser ut til å være mest sårbar for at fettinfiltrasjonen persisterer

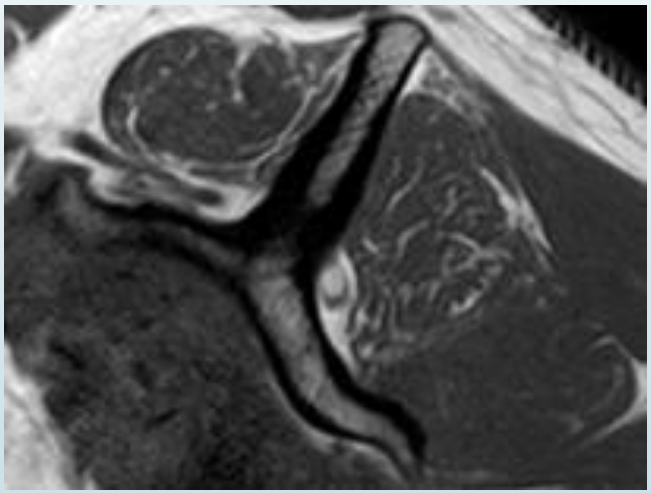
Resultater

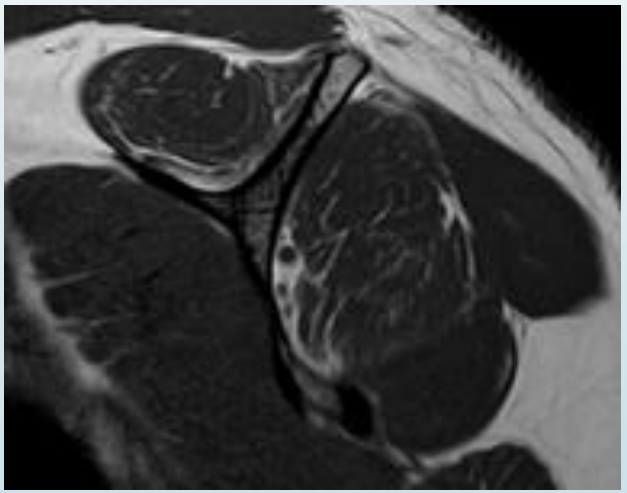
Fettinfiltrasjon grad II-III









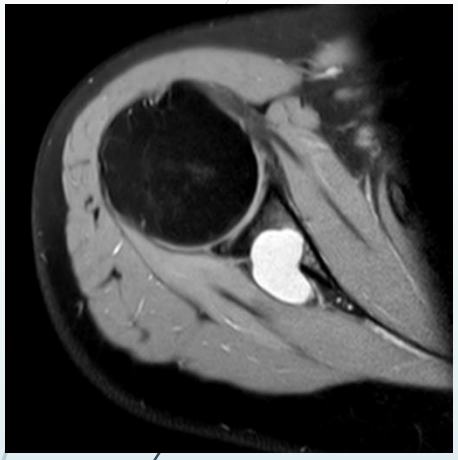


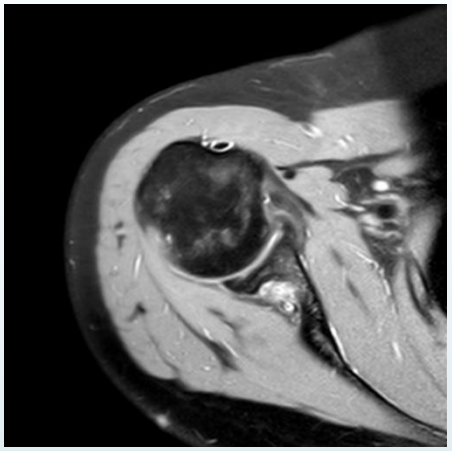
Preoperativt

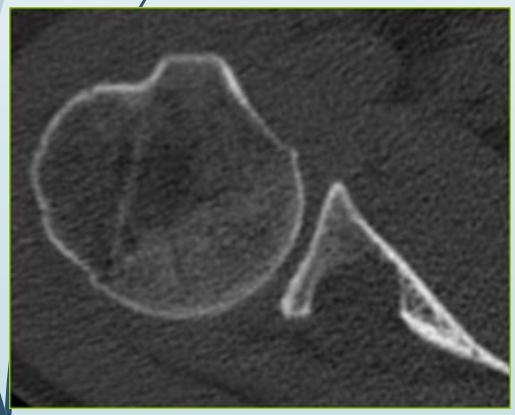
1 år postop

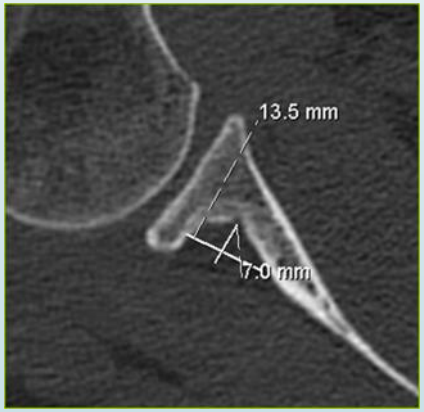
5 år postp

Glenoiderosjon ser ut til å være reversibel









Konklusjon

- Pasienter med cyster som komprimerer n. suprascapularis har smerter i bakre del av skulderen og ofte redusert kraft for utadrotasjon
- Noe under halvparten av pasientene har preoperativt ødem på MR, og klinisk atrofi.
- Cystene forsvinner som regel mellom 6 og 12 uker postoperativt

Konklusjon

- Ødemet forsvinner, men det kan ta lang tid
- Relativt få har fettinfiltrasjon av betydning og dersom den opptrer samtidig med ødem, er det muligheter for regresjon, men også dette kan ta lang tid
- Pasienter med cyste og muskelødem bør opereres relativt raskt for å oppnå best prognose

J Shoulder Elbow Surg (2018) ■■, ■■–■■

ELSEVIER

JOURNAL OF SHOULDER AND ELBOW SURGERY

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ORIGINAL ARTICLE

Paralabral cysts of the shoulder treated with isolated labral repair: effect on pain and radiologic findings

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[b]*Department of Radiology, Lovisenberg Diaconal Hospital, Oslo, Norway*

Results: Median cyst size was 6.8 cm^3 (range, 2.1-88.9; standard deviation [SD], 18.3 cm^3). Preoperatively, 20 patients (43%) presented clinical muscle atrophy and radiologic edema on MRI, 8 had fatty infiltration, and 3 presented bony scapular erosion caused by cyst compression. Median time to cyst resolution and regression of muscular edema was 11 weeks (range, 3-20; SD, 8.8 weeks) and 14 weeks (range, 3-52; SD 10.6 weeks), respectively. Preoperative fatty infiltration grade I and II of the supraspinatus and infraspinatus muscles was reduced in two patients. Bony erosions remodeled after cyst resolution. Mean pain ratings (1-10 scale) improved from 7.7 (SD, 1.8) to 1.3 (SD, 1.3; 95% confidence interval of difference, 5.5-6.8; $P < .001$).

Conclusion: Labral repair leads to significant pain relief with cyst resolution within 2 to 3 months in most patients. Secondary muscle pathology (ie, edema, atrophy and fatty infiltration) may be partially or completely reversed. Bony erosion caused by cyst compression may be remodeled after cyst resolution.

Level of evidence: Level IV; Case Series; Treatment Study

A woman is driving in her car on a road.

A man is driving in his car on the same road, but in the opposite direction.

When they pass each other, the woman opens her window and shouts to the man:

DONKEY!

The man immediately responds:

BITCH!

Both continue their separate ways, the man being very satisfied with his quick and bitchy reaction.
And just as he reaches the first curve in the road …


10/22/2018

Moral:

"Men never really understand what women are trying to say to them."

Takk for oppmerksomheten !