



Clinical practice guidelines

**Management of
chronic painful shoulder
without instability
in adults**

April 2005

This publication by the *Haute Autorité de santé* contains the guidelines produced by ANAES (the former French Agency for Accreditation and Evaluation in Healthcare, now part of HAS). The guidelines were validated by ANAES' Scientific Council in November 2004

Synopsis

Title	Management of chronic painful shoulder without instability in adults
Publication date	April 2005
Requested by	<i>Caisse nationale de l'assurance maladie des travailleurs salariés (CNAMTS)</i> , the French National Health Insurance fund for salaried workers
Produced by	ANAES - the former French Agency for Accreditation and Evaluation in Healthcare, now part of the <i>Haute Autorité de santé (HAS)</i> - Guidelines Department
Intended for	All doctors treating adults with chronic painful shoulder without instability, especially general practitioners and rheumatologists
Objectives	To address <ul style="list-style-type: none"> - diagnostic strategy (clinical examination and imaging studies) - the indications of medical and surgical treatment in tendinitis
Assessment method	<ul style="list-style-type: none"> - Systematic review of the literature - Discussion among members of an <i>ad hoc</i> working group - External validation by peer reviewers
Literature search	Period: 1994-2004 (Literature search performed by Emmanuelle Blondet with the help of Aurélien Dancoisne (Head of Dept: Rabia Bazi))
ANAES project leader	Professor Rémy Nizard (Head of Dept: Patrice Dosquet MD) secretarial services: Catherine Solomon-Alexander)
Author of report	Johann Beaudreuil MD, rheumatologist, Paris
Collaborations and participants (Annex 1)	<ul style="list-style-type: none"> - Learned societies - Steering committee - Working group (Chair: Gilles Walch MD, orthopaedic surgeon, Lyon) - Peer reviewers
Internal validation	Validated by ANAES' Scientific Council in November 2004
Related publications	The full report (in French) on which these guidelines are based is on the HAS website (www.has-sante.fr).

Contents

I.	Scope of the guidelines	4
II.	Assessment method	4
III.	How does clinical examination guide diagnosis?	4
IV.	Which imaging tests should be performed first?	5
V.	When should second-line imaging tests be performed? Which tests should be used? How effective are they?	5
VI.	What are the relative roles of medical and surgical treatment?	6
	- calcifying tendinitis	
	- tendinitis without cuff tear	
	- tendinitis with cuff tear.	

ANNEXES

1. Participants
2. Assessment method

I. Scope of the guidelines

These guidelines on chronic painful shoulder without instability in adults cover various conditions classed as extra-articular disorders of the shoulder.

- They cover all types of chronic degenerative or calcifying tendinitis affecting the rotator cuff.
- They distinguish between tendinitis with and without cuff tears (whether full- or partial-thickness tears).

The guidelines exclude:

- instability
- extraregional disorders
- local neurogenic and acromioclavicular disorders
- mechanical, inflammatory or infectious glenohumeral joint disorders and adhesive capsulitis (characterised by local joint or synovial pain, and often by restriction of glenohumeral joint mobility)

The following questions were addressed.

- How does clinical examination guide diagnosis?
- Which imaging tests should be performed first?
- Which factors need to be taken into account when deciding on further imaging tests? Which tests should be used and how effective are they?
- What are the indications of medical and surgical treatment:
 - calcifying tendinitis
 - tendinitis without cuff tear
 - tendinitis with cuff tear.

II. Assessment method

The guidelines were produced using the method described in Annex 2:

- a critical appraisal of the literature published from 1994 to 2004
- discussions within a multidisciplinary working group (3 meetings)
- comments by peer reviewers.

They were graded on the basis of the strength of the evidence of the supporting studies (Annex 2). If no grade is given, they are based on agreement among professionals within the working group after taking into account the comments of peer reviewers. Working group members and peer reviewers signed the guidelines.

III. How does clinical examination guide diagnosis?

There is a consensus on the role of clinical examination as the first step in the care of patients with chronic painful shoulder, and on its four stages: (i) case history, (ii) examination and palpation, (iii) testing of active and passive range of motion, and (iv) rotator cuff testing.

If muscle atrophy is found in the supraspinatus or infraspinatus fossa during examination, the supraspinatus and/or infraspinatus tendons have probably been torn.

It is essential to test passive range of motion to check that there is no restriction of the glenohumeral joint and to rule out adhesive capsulitis. This is best carried out with the patient supine so that they are unable to make compensating movements.

Active range of motion should be tested with the patient in a sitting position. The combination of full passive mobility and limited active range of motion suggests a rotator cuff tear.

The implications of the tests used to detect muscle weakness are given in Table 1.

Table 1. Clinical tests and their implication

Test used to detect weakness	Implication
Jobe test (empty can test)	Supraspinatus tear (sensitivity 77–95%, specificity 65–68%)
External rotation with the elbow close to the body	Infraspinatus tear
External rotation with the arm abducted 90°	Infraspinatus and teres minor tear
Internal rotation with the hand on the abdomen (belly-press test) ^a	Subscapularis tear

^a This test is more commonly used than the lift-off test, which has been studied more, but is painful for the patient.

Abnormal bulging of the biceps muscle suggests a biceps tendon rupture. The classic tests for biceps tendinitis (palm-up test, etc.) are not specific.

The Neer and Hawkins impingement tests are sensitive, but not very specific in diagnosing tendinitis. An indication for surgery cannot be based on these tests alone.

IV. Which imaging tests should be performed first?

Standard radiography should be performed for the initial diagnosis in the management of painful shoulder. In addition to ruling out other diagnoses, it will reveal any extra-articular calcification. A subacromial space less than 7 mm suggests an extensive degenerative tear.

Useful views are anteroposterior (AP) views in three rotations and a lateral view of the cuff, showing tendon insertion sites. The advantage of the AP view with vertical beam, in a comparison with the contralateral shoulder as described by Railhac and Rigal, is that it is simple and thought to be more reliable in diagnosing extensive cuff tears. Concurrent visualisation of the acromioclavicular joint may reveal the presence of other conditions.

Ultrasound cannot replace standard radiography. However, it may be used as first-line imaging by an experienced operator, to complement the clinical examination if there is uncertainty whether the patient has a full-thickness tendon tear.

V. When should second-line imaging tests be performed? Which tests should be used? How effective are they?

The request for second-line imaging is made by the practitioner managing the patient.

Second-line imaging is considered:

- when first-line treatment has failed
- earlier if the patient is under 50
- if there is any suspicion of a traumatic lesion in a patient of any age.

None of the following imaging studies provide all the prognostic factors needed to decide on surgery: ultrasound, arthrography alone, and CT scan without contrast medium.

Magnetic resonance imaging (MRI), CT arthrography and MR arthrography are sufficiently powerful to study the lesion, including the trophic condition of the muscles, when assessing degenerative tendinitis of the rotator cuff prior to surgery.

VI. What are the indications of medical and surgical treatment?

- **Calcific tendinitis**

Treatment should only be proposed for symptomatic forms.

- *First-line treatment*

The main treatments are analgesics, oral non-steroidal anti-inflammatories (NSAIDs) and subacromial cortisone injections. Injections performed under radiological or ultrasound guidance are more effective than unguided injections (grade C).

Ultrasound physiotherapy is a rehabilitation technique that has been validated in a randomised study (grade B).

- *In refractory cases*

Percutaneous needle aspiration and lavage may be proposed for large, radiographically homogeneous calcifications (grade C).

The benefit of lithotripsy is supported by published data of an acceptable level of evidence (grade B). Its use in France is not widespread.

Arthroscopy appears to be the treatment of last choice in calcific tendinitis (grade C).

- **Tendinitis without cuff tear**

The benefit of analgesics, NSAIDs and subacromial injection of cortisone derivatives has been confirmed in tendinitis without cuff tear (grade B).

Physiotherapy should focus on recovering and maintaining range of motion and on making full use of muscular capacity (grade B).

Acromioplasty should only be considered as a last resort in mature adults. It is not indicated as treatment for tendinitis in young sports players (grade C).

- **Tendinitis with cuff tear**

Medical management of rotator cuff tendinitis with a tear is no different from management of tendinitis generally (grade C). Drug therapy should therefore be proposed as first-line therapy (grade C).

If there is no improvement after 6 months of treatment, surgery should be considered. The risk of fatty degeneration of the muscle compromises the prognosis of surgery and functional therapy (grade C).

Cuff tears vary in severity, from a partial tear of one tendon to extensive tearing of three or four tendons. How they are tolerated will depend on the functional stress put on each individual tendon. Not all tears require surgical repair (grade C).

Two types of surgery are possible:

- repair surgery, if anatomical conditions and general situation permit: tendon reattachment, tendon transfer, muscle flaps etc. (grade C);
- pain-reducing surgery for rotator cuff lesions that cannot be repaired, involving the subacromial bursa, biceps long head tendon and/or the acromion (grade C).

Annex 1 – Participants

Learned societies consulted

Centre de documentation et de recherche en médecine générale
Collège national des généralistes enseignants
Société française de rhumatologie
Société française de chirurgie orthopédique et traumatologique

Société française de formation thérapeutique du généraliste
Société française de médecine générale
Société française de médecine physique et de réadaptation

Steering committee

Dr Johann Beaudreuil, rheumatologist, Paris
Professor Daniel Goutallier, orthopaedic surgeon, Créteil
Dr Gérard Morvan, radiologist, Paris

Professor Rémy Nizard, project manager, ANAES, Saint-Denis La Plaine
Dr Eric-Robert Noël, rheumatologist, Lyon
Dr Mireille Peyre, specialist in physical and rehabilitation medicine, Saint-Maurice

Working group

Dr Gilles Walch, orthopaedic surgeon, Lyon – working group chair
Dr Johann Beaudreuil, rheumatologist, Paris – report author
Professor Rémy Nizard, project manager, ANAES, Saint-Denis La Plaine

Professor Alain Blum, radiologist, Nancy
Professor Pascal Boileau, orthopaedic surgeon, Nice
Dr Catherine Dormard, general practitioner, Saclay
Dr Didier Godefroy, radiologist, Paris
Professor Philippe Hardy, orthopaedic surgeon, Boulogne-Billancourt
Dr Jean-Pierre Liotard, specialist in physical and rehabilitation medicine, Lyon
Thierry Marc, physiotherapist, Montpellier

Dr Mireille Peyre, specialist in physical and rehabilitation medicine, Saint-Maurice
Professor Jean-Jacques Railhac, radiologist, Toulouse
Dr Elisabeth Steyer, general practitioner, Talange
Professor Thierry Thomas, rheumatologist, Saint-Étienne
Professor Hervé Thomazeau, orthopaedic surgeon, Ren

Peer reviewers

Joëlle André-Vert, physiotherapist, Longjumeau
Professor Bernard Augereau, orthopaedic surgeon, Paris
Dr Hervé Bard, rheumatologist, Paris
Dr Jean-Louis Brasseur, radiologist, Montfermeil
Dr Philippe Brissaud, rheumatologist, Neuilly-sur-Seine
Dr Bernard Candau, orthopaedic surgeon, Saint-Jean-de-Braye
Dr Laure Chapuis, rheumatologist, Vitré
Dr Jeanne-Elisabeth Charrin, rheumatologist, Lyon
Dr Pascal Chazerain, rheumatologist, Paris
Professor Alain Chevrot, radiologist, Paris
Professor Anne Cotten, radiologist, Lille

Professor Henry Coudane, orthopaedic surgeon, Nancy
Dr Christian Delaunay, orthopaedic surgeon, Longjumeau
Professor Gérard-Philippe Desbonnets, general practitioner, Fleurbaix
Dr Joël Dubernet, general practitioner, Saint-Pey-de-Castets
Professor Fabrice Duparc, orthopaedic surgeon, Rouen
Philippe Durafourg, physiotherapist, Courbevoie
Professor Luc Favard, orthopaedic surgeon, Tours
Dr Jean-Pierre Gaume, general practitioner, Avanne-Aveney
Michel Gedda, physiotherapist, ANAES, Saint-Denis La Plaine

Pascal Gouilly, physiotherapist, Metz
Professor Daniel Goutallier, orthopaedic surgeon,
Créteil
Dr Jean-Michel Herpe, radiologist, Saintes
Rémy Hignet, physiotherapist, Rennes
Professor Jean-François Kempf, orthopaedic
surgeon, Strasbourg
Dr Pierre Khalifa, rheumatologist, Paris
Dr Bernard Le Henaff, radiologist, Brest
Professor Frédéric Lecouvet, radiologist,
Bruxelles
Dr Pierre Le Guilloux, orthopaedic surgeon,
Toulon
Dr Pierre Méchalay, general practitioner, Chilly-
Mazarin
Professor Henri Mestdagh, orthopaedic surgeon,
Lille
Professor Daniel Molé, orthopaedic surgeon,
Nancy
Dr Jacques Monet, director of the School of
Physiotherapy, Paris – member of the ANAES
Scientific Council
Dr Jean-Louis Moulin, general practitioner, Saint-
Junien
Dr Laurent Nové-Josserand, orthopaedic surgeon,
Lyon
Michel Paparemborde, physiotherapist, Lille –
member of the ANAES Scientific Council
Paul Pavan, physiotherapist, Grenoble
Gilles Peninou, physiotherapist, Paris
Dr Patrick Pochet, general practitioner, Clermont-
Ferrand
Michel Pocholle, physiotherapist, Châlon-sur-
Saône
Dr Jean-Claude Scheffer, orthopaedic surgeon,
Melun
Dr Claude Sichel, general practitioner, Carnoux-
en-Provence
Dr François Sirveaux, orthopaedic surgeon,
Nancy
Dr Thierry Tavernier, radiologist, Lyon
Dr Philippe Thomas, rheumatologist, Thionville
Dr Marie-Jeanne Tricoire, general practitioner,
Nice
Dr Isabelle Vanoni, general practitioner, Nice
Dr Ollivier Veron, geriatrician, Périgueux
Dr Jean-Paul Vigroux, orthopaedic surgeon,
Clermont-Ferrand
M. Philippe Voisin, physiotherapist, Lille
Dr Valérie Vuillemin-Bodaghi, radiologist, Paris

Annex 2 – Assessment method

The ANAES method for producing these clinical practice guidelines¹ comprised the following steps:

Defining the scope of the guidelines (Steering committee). ANAES invited representatives from learned societies concerned by the topic to take part in a steering committee whose job was to define the scope of the guidelines, to review previous work on the subject and to nominate professionals to take part in a working group or act as peer reviewers.

Literature search (Documentation Department of ANAES): See below

Drafting the guidelines (Working group). The ANAES project manager formed a working group of 14 professionals concerned by the topic, working in public or private practice, from all over the country. The chair of the working group coordinated the production of the guidelines with the help of the project manager whose job was to ensure that the methodological principles of guideline production were respected. One member of the working group identified, selected, and analysed relevant studies (from a literature search performed by the ANAES Documentation Department) and wrote a draft report, under the supervision of the ANAES project manager and the working group Chair. This draft report was discussed by the working group over 3 meetings and amended in the light of comments from other members of the working group and from peer reviewers.

External validation (Peer reviewers). Peer reviewers were appointed according to the same criteria as working group members. They were consulted by post after the second working group meeting, primarily with regard to the readability and applicability of the guidelines (scores from 1 to 9). The ANAES project manager summarized their comments and submitted them to the working group prior to the third meeting. Peer reviewers were asked to sign the final document.

Internal validation (Evaluation Section of the ANAES Scientific Council). Two members of the Council acted as referees reporting to the Council, together with the ANAES report manager. The working group finalized the guidelines with due regard to the Council's suggestions.

Literature search and analysis (general procedure)

The scope of the literature search was defined by the steering committee and the project manager. The search was carried out by the ANAES Documentation Department and focused on searching:

- medical and scientific databases over an appropriate period, with special emphasis on retrieving clinical practice guidelines, consensus conferences, articles on medical decision-making, systematic reviews, meta-analyses and other assessments already published nationally or internationally (articles in French or English)
- specific and/or financial/economic databases, if necessary
- all relevant websites (government agencies, professional societies, etc.)
- the grey literature (documents not identified through the usual information distribution circuits)
- legislative and regulatory texts

Further references were obtained from citations in the articles retrieved above and from working group members' and peer reviewers' own reference sources. The search was updated until the project was completed.

¹ Full details are given in *“Recommandations pour la pratique clinique – base méthodologique pour leur réalisation en France – 1999” (ANAES) - www.has-sante.fr*

The articles selected were analysed according to the principles of a critical appraisal of the literature, using a checklist, to allocate a level of scientific evidence to each study. Whenever possible, the working group based their guidelines on this review of the literature. Guidelines were graded from A to C as shown in Table 1 depending on the level of the evidence of the supporting studies. If no grading is given, they are based on agreement among professionals.

Table 1. Grading of guidelines

Level of published scientific evidence	Grade
Level 1 Randomised controlled trials of high power Meta-analyses of randomised controlled trials Decision analyses based on properly conducted studies	A: Established scientific evidence
Level 2 Randomised controlled trials of low power Properly conducted non-randomised controlled trials Cohort studies	B: Presumption of scientific foundation
Level 3 Case-control studies	C: Low level of evidence
Level 4 Comparative studies with major bias Retrospective studies Case series	