



An Integrated Care Pathway for the management of Hemiplegic Shoulder Pain

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Hemiplegic Shoulder Pain (HSP)

- Common complication of stroke
 - **Interferes with function, quality of life**
 - **Impedes UL function, balance, transfers**
 - **Interferes with rehabilitation**
 - **Increased LOS in hospital**
- Prevalence 16-72%
- Requires proactive management



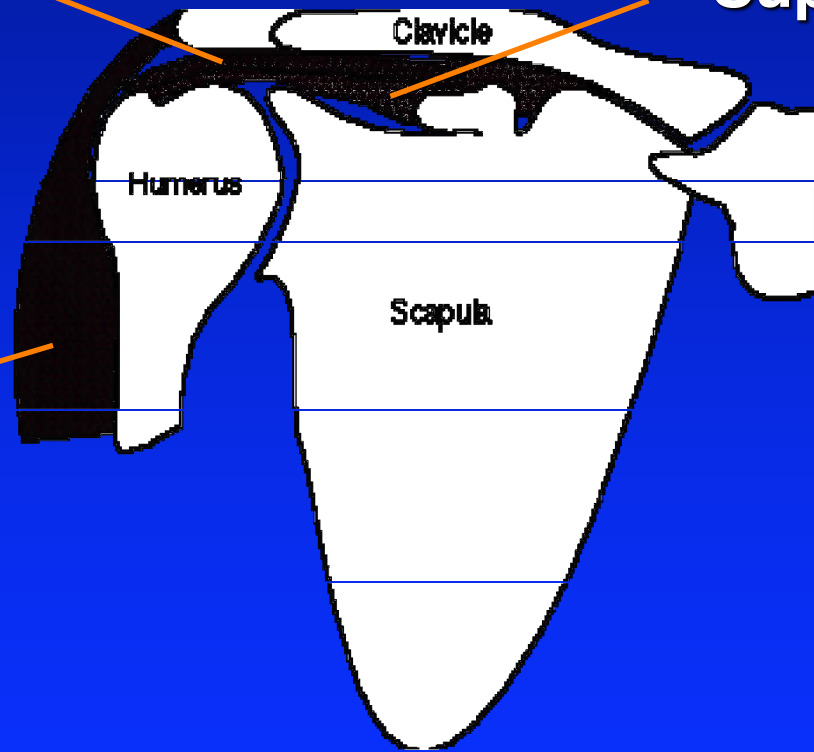
Causes of HSP

- Multi-factorial
 - **Mal-alignment - postural change**
 - **Tonal change**
 - Spastic
 - Flaccid
 - **Secondary rotator cuff damage**
 - Poor handling
 - **(Neurogenic pain)**
 - Central
 - Peripheral compression / traction

Functional anatomy

**Sub-acromial
Bursa**

Supraspinatus



Deltoid

Moving parts:

- Gleno-humeral joint
- Clavicle
- Scapula
- Sub-acromial bursa



Gleno-humeral joint (GHJ)

- Small area of bony contact
- Enlarged by glenoid labrum
 - **Enhances stability**
 - **Without restricting movement**
- Tuberosities on humerus
 - **Stabilise joint in full elevation**
 - **Require rotation during elevation**
 - **To avoid impingement**

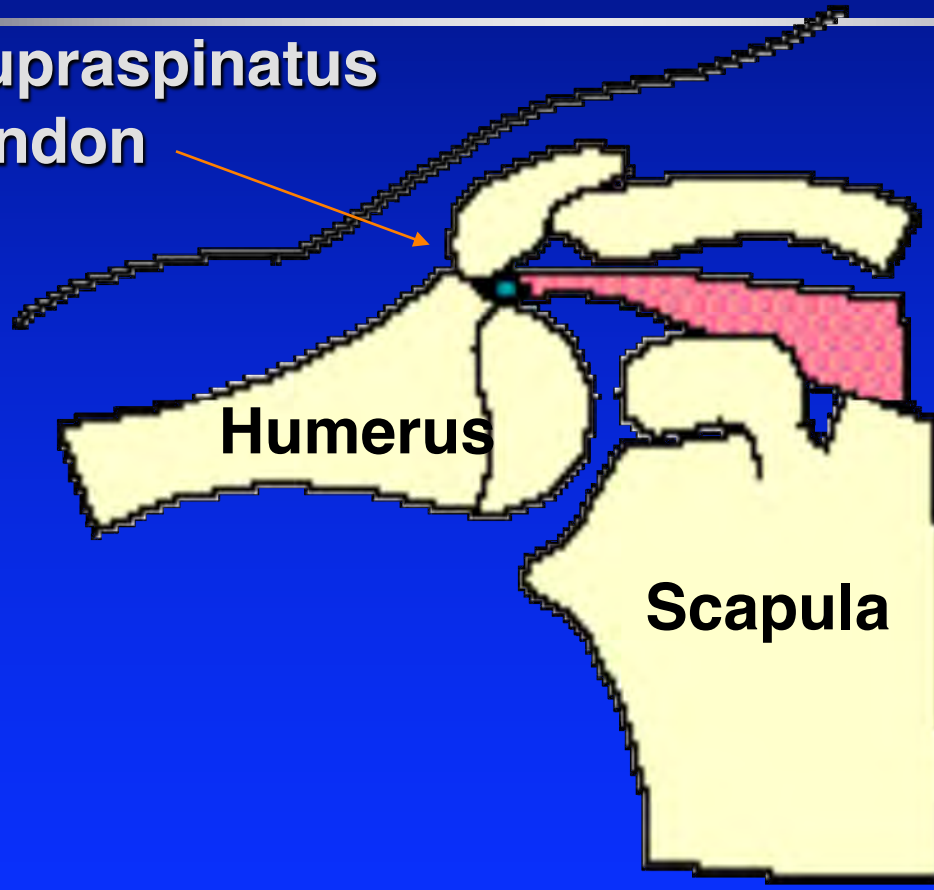


Scapula and clavicle

- Mobile props to stabilise shoulder
 - **Sterno-clavicular joint (SCJ)**
 - **Acromio-clavicular joint (ACJ)**
 - **Scapulo-thoracic mechanism**
- Move with GHJ - to extend stable range
 - **Or else cause impingement**
- Controlled by shoulder girdle muscles
 - **Rhomboids**
 - **Levator scapulae**

Impingement of supraspinatus

Supraspinatus
tendon





Full elevation requires rotation

- Full abduction:
 - **90° external rotation of humeral head**
 - **Or tuberosities impinge on acromion**
- Full flexion
 - **45° internal rotation**
- At full elevation: humeral head fixed
 - **Almost no rotation is possible**
 - **Joint is stable**



Role of rotator cuff

- “Tucks in” humeral head
 - **Stable fulcrum for elevation**
- Downward migration of humeral head
 - **Avoids impingement**
- Rotation of humerus for full elevation
 - **External rotation - abduction**
 - **Internal rotation - flexion.**



In hemiplegia

- Muscle paralysis
 - **Whole side – arm, trunk as well as shoulder**
 - **Mal-alignment**
- Flaccid stage
 - **Floppy subluxed shoulder**
- Spastic stage
 - **Painful stiff shoulder**
 - Often mis-diagnosed as Adhesive capsulitis



Flaccid paralysis

- Weight of unsupported arm
- Lowers coraco-acromial arch
 - **Impingement during elevation**
 - **Loss of angulation of scapula**
 - **Inferior subluxation**
- Capsular stretching and pain
- Damage in handling
 - **Rotator cuff tears**



Spastic HSP

- Increased tone in shoulder muscles
 - **Subscapularis / inter-scapular muscles**
 - **Latissimus dorsi / Pectoralis major**
- Shoulder retracted and internally rotated
 - **Lack of external rotation**
 - **Impingement on abduction**
 - **Traction on periosteal attachments**
- Damage on handling
 - **Rotator cuff tears**



Management slightly different

- Flaccid HSP
 - **Careful handling**
 - **Support weight of arm, 24 hours/day**
 - **?Functional electrical stimulation**
- Spastic HSP
 - **Careful handling**
 - **Reduce spasticity - physio,**
 - **? Botulinum Toxin**



Team Management of HSP

- Involves all disciplines
 - **Nurses -**
 - Handling, positioning in bed
 - **O/Ts**
 - Support of arm in wheelchair, during ADL
 - **Physios**
 - Maintain range, restore alignment
 - **Medical**
 - Analgesia, spasticity reduction, nerve blocks



Integrated Care Pathway



Main principles

- **H**andling and positioning
- **S**upport
- **P**ain relief

Specific treatments for tone

- **Flaccid shoulder**

- Functional electric stimulation

- **Spastic shoulder**

- Botulinum Toxin




Within 24 hours of admission

- Doctors' assessment
 - **Is there shoulder pain?**
 - AbuityQ / ShoulderQ
 - SPIN Screen
 - **Presentation**
 - Spastic / floppy
 - Preliminary assessment form
 - **Initial medication**
 - **Tell team**
 - Nurse / physio / O/T



Within 48 hours of admission

- First team assessments
 - **Nurse**
 - Protocol A – floppy subluxed
 - Protocol B – Spastic HSP
 - **O/T**
 - Support system – wheelchair
 - Support system – ambulatory
 - **Physio**
 - More detailed assessment
 - Goals for treatment



Days 3-10

- All staff
 - **Complete assessment forms**
 - For their discipline
- SLTs
 - **Full SPIN**
 - If unable to do AbilityQ
- Docs
 - **Review pain regularly**
 - SPIN / shoulderQ
 - Pain graph for medical ward round
 - Adjust medication



Day 10-14

- First MDT assessment
 - **Shoulder clinic**
 - Update pain control
 - Review handling / support system
 - What is the current support system?
 - Is it appropriate / the best available?
 - If not, what is recommended?
 - And why is it not being used?
 - Record variance
 - Eg ottobock preferred but not available

Support systems - wheelchair

**Low / Mixed
Tone**



Able to reach
neutral rotation

Yes

No



Ottobock

Bexhill

**High
Tone**



Tight adduction /
internal rotation

Yes

No

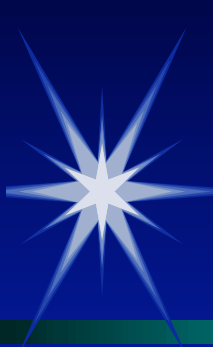


**Whale
cushion**

**Bean cushion
on Bexhill**

**First
choice**

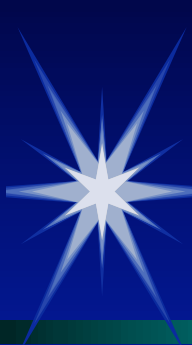






FL WEST







Pain relief

- Analgesics

- **Prefer NSAIDs if tolerated**

- Long-acting - eg diclofenac retard

- **Avoids**

- Sedation } Poorly tolerated by stroke pts

- Constipation }

- **Contra-indications**

- Gastritic history

- Warfarinisation

- Renal failure



Timing and severity of pain

- Timing and severity are critical
 - **Day-time at rest**
 - Long acting analgesics in am
 - **During movement only**
 - Target analgesics on active periods
 - Eg dressing , physiotherapy sessions
 - **Night-time**
 - Long-acting analgesics at bed-time



Obtaining a pain history

- Difficult in stroke patients
 - **Aphasia**
 - **Cognitive / memory defects**
- Unable to complete pain scores
 - **Verbal questionnaires**
 - **Visual analogue scales**
 - Visuo-spatial problems



Questionnaire system

- AbilityQ
 - **Tests ability to complete a questionnaire**
 - Verbal questions
 - Visual analogue questions
 - **Identifies strengths - help needed**
- ShoulderQ
 - **Pain questions - different formats**
 - Verbal / VAS
 - Deliver in most suitable format
 - **Assesses timing and severity of pain**



AbilityQ

Q4 Please mark the "Yes" box

Yes

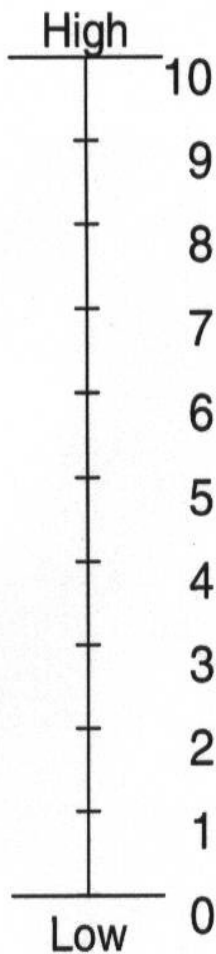
No

Q5 Now please mark the "No" box

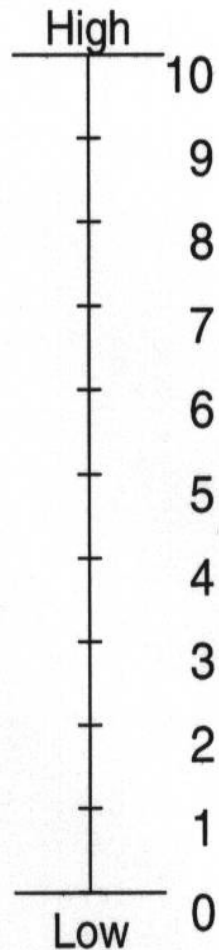
Yes

No

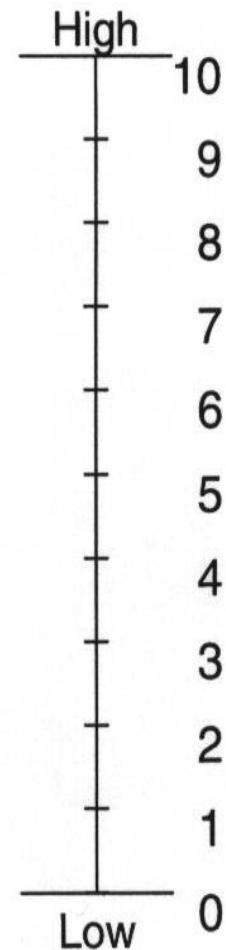
Q6 Mark the highest score on the line below



Q7 Mark the lowest score on the line below



Q8 Mark mid-point on the line below





Q9 Please indicate "mild" below:

- None
- Mild
- Moderate
- Severe

Q10 Please indicate "much worse" below:

- A lot better
- A little better
- The same
- Worse
- Much worse

Q11 How was the questionnaire completed?

- By patient alone*
- With help from friend / family*
- With help from staff*

Q12 If help given, describe type of help

- Just acting as scribe*
- Reading Qs out to them*
- Presenting each Q one at a time*
- Presenting Qs enlarged on cards*
- Bringing them back on track*



SPIN-screen

- If unable to do AbilityQ
 - **But appears able to respond to SPIN screen**
 - **Not specific to shoulder pain**
 - Record pain level
 - Can the patient understand?



Full SPIN

- SPIN-screen
 - **Unable**
 - **Uncertain**
- Full-SPIN
 - **In collaboration with SLTs**
 - **Once cued in**
 - May be able to manage with minimal prompting



Scale of Pain Intensity (SPIN)

Which picture shows
shoulder pain?

Which picture shows
no pain?

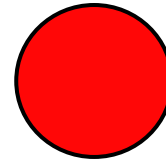




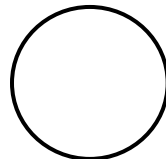
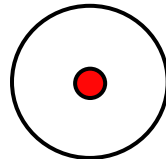
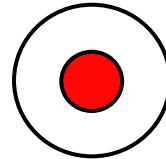
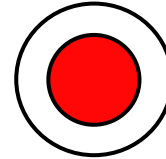
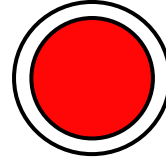
Yes



No

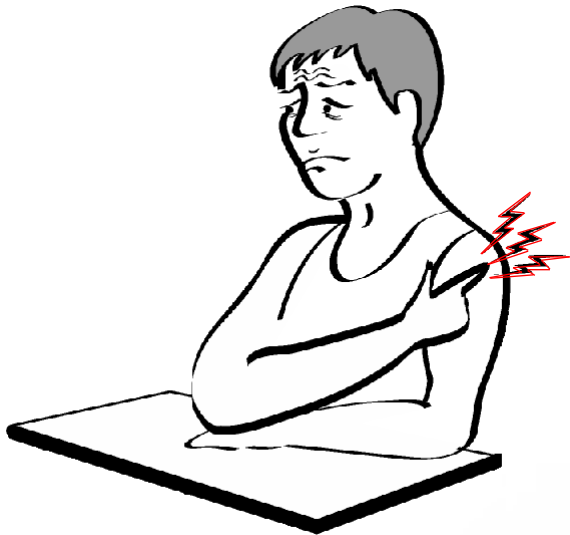


**Pain as bad
as it could be**



No pain

Do **you** have
pain
in your
shoulder?



Pain when your
arm is **moved**



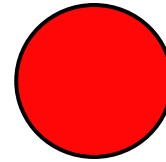
Yes

No

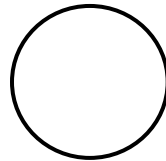
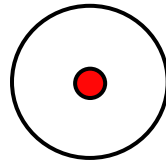
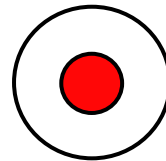
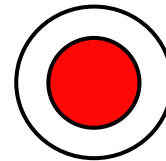
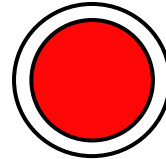
Yes

No

How **bad** is the **pain**
when your
arm is **moved**?

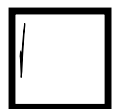


**Pain as bad
as it could be**



No pain

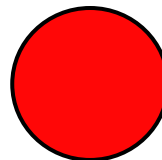
Pain when sitting still



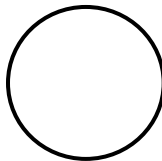
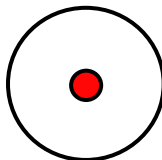
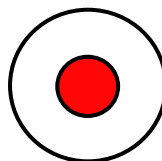
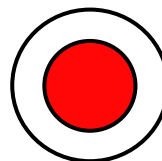
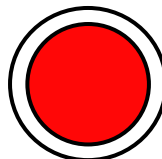
Yes



No

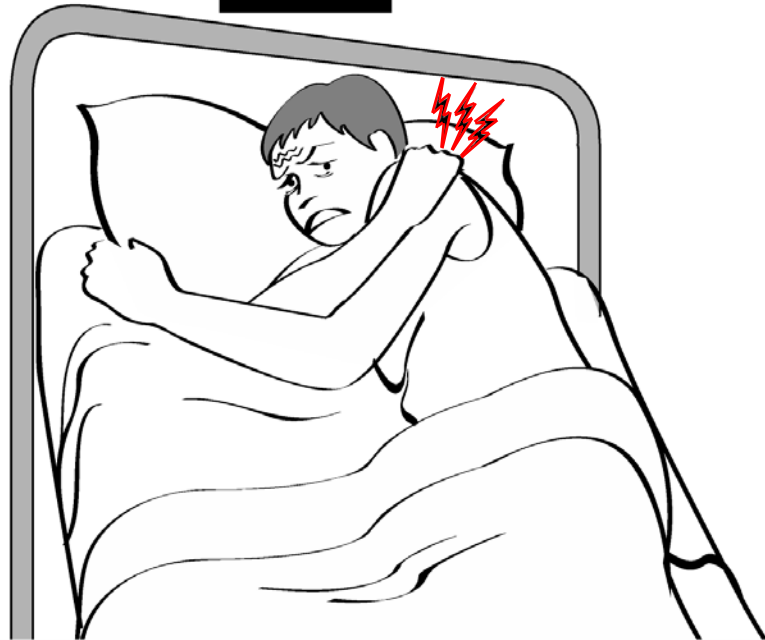


Pain as bad as it could be



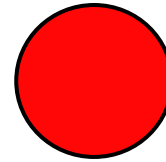
No pain

Pain at night

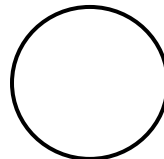
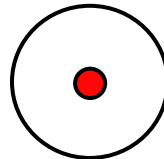
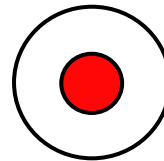
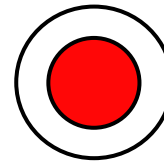
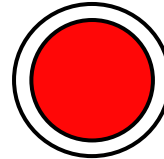


Yes

No



Pain as bad
as it could be



No pain



Repeated pain assessments

- Review pain scores
 - **At least every 2 weeks**
 - Before Shoulder clinic
 - **SPIN**
 - **ShoulderQ**
 - Pain Graph for ward round



After initial assessment

- Progress notes
 - **Record any changes**
 - Including reasoning / variance
- Discharge
 - **Pain resolved**
 - Or as well controlled as possible
- Final assessment sheet
 - **Whole team**
 - Review of protocol
 - Reasons for variance