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COVID-19 IMPACTS: RUNNING YOUR COMMUNITY OFFICE SAFELY – INCORPORATING VIRTUAL MUSCULOSKELETAL EXAMINATIONS DURING A PANDEMIC

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Recording & Presentation Slides: https://ubccpd.ca/2022-02-10-covid-19-impacts-running-your-community-office-safely-incorporating-virtual

Disclaimer: Information on COVID-19 is changing rapidly and much of the research is preliminary. Assessment and management protocols are suggestions only; they do not take the place of clinical judgement. Please check with your own health authorities and local medical health officers as policies and support for the suggested approaches to patient care may vary between regions.

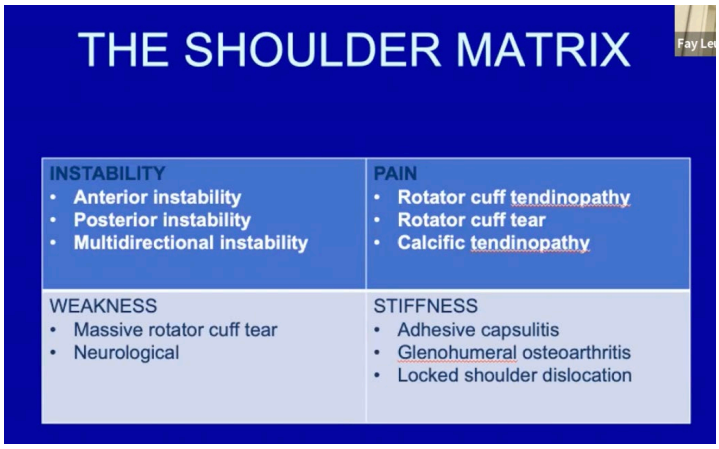
This summary was prepared by Dr. Birinder Narang and not by the speakers.

Webinar Summary

Assessment & Management of Common Disorders of the Shoulder – Dr. Fay Leung

Objectives

1) Maximize a virtual/telehealth exam of shoulder
2) Determine when a physical encounter is necessary
3) Identify acute injuries that require emergent/urgent orthopedic referral
4) Discuss appropriate use of imaging



- Generally, history is 80% of the diagnosis
- With respect to history, age is really important and plays a role in what you're likely to see
    - 15-30 yo: Likely instability/AC separation related to trauma
    - 30-45 yo: Calcific tendinitis from tendinopathy
    - 40-50 yo: Adhesive capsulitis associated with DM, thyroid, disorders in women
    - 45-50 yo: Impingement, cuff tears from degeneration
    - >60 yo: Arthritis & late cuff tears from Osteoarthritis & silent tears

History

- Traumatic
    - Generally does not involve day-to-day activities, but a fall from significant height, MVA or high-energy injury may be considered trauma
    - Examples: Instability/dislocation, AC separation, fracture, acute cuff tear
- Non-Traumatic
    - Generally involves day-to-day activities
    - Examples: Degenerative rotator cuff tears, tendinopathy

Physical Examination: Location of Pain – The Finger Test

- The Finger Test can be used to locate pain
    - E.g.: Anterolateral shoulder pain
        - Most shoulder pathology
        - i.e. rotator cuff, OA, biceps tendinopathy, AC joint arthrosis, SLAP tears
    - E.g.: Posterior shoulder pain
        - Rare
        - i.e. poster shoulder instability, scapulothoracic, occasional OA/SLAP
- Location of pain

- Shoulder pain rarely radiates past the elbow
- If it does, consider:
  - C-spine
    - 15% overlap
  - GI/chest pain
  - Pancoast tumour (apical tumour)

Virtual Examinations

- First step: Inspection
  - i.e. use the Finger Test
- Second step: Range of Motion (ROM) – Active + Passive
  - Always examine the joint above and below and examine ROM in neck movements
  - E.g.: ROM of shoulder
    - Active: "Please lift your arms above your head."
      - Look for symmetry
      - May need to ask patient to turn to the side so you can see both arms
    - Passive: Ask patient to use their arm to lift the other arm (especially if there is a discrepancy between how high the arms raise with active movement)
    - External Rotation – elbows are at the side and externally rotate while tucked in; look for symmetry
    - Internal Rotation – measure up the level of spine (e.g. thumb to T10)
- Third step: Rotator cuff testing for strength
  - If they can lift above their head, you know their flexion/extension/abduction is grade 4–5 strength
  - If they can externally rotate at least Grade 2–3 and can do a "stop sign" (external rotation palm facing forward), they are likely intact
  - Internal rotation – ask the patient to push their hand onto their belly and watch if they can keep their shoulder stable as they push, as that is a good sign of subscapularis strength
- Fourth step: Impingement testing
  - Ask the patient to pretend to pour to a jug of milk
- Fifth step: Stability testing – Apprehension test
  - Ask: "If you reach behind you and put your hand behind your head, does that bother you?"
  - If the position hurts, the apprehension test could be positive
- Imaging
  - Start with radiographs

        - This is usually all you need
        - Look for A/P and lateral views in the scapular plane
        - Axillary view is very important for stability
    - Conduct additional imaging if:
        - There have been traumatic injuries
        - There are degenerative conditions after failure of non-op management

Instability

- Classic case:
    - 21 yo complains of recurrent right shoulder instability
    - First dislocation at age 17
    - Football tackle with arm outstretched, externally rotated
    - Reduced in ER
    - 5 subsequent dislocations in ABD+ER
    - No daily pain
- Physical exam:
    - Full, pain-free ROM
    - No obvious tenderness
    - No weakness
    - Positive apprehension test
    - +/- signs of hyperlaxity
- X-ray:
    - May see a Hill-Sachs defect (punch/notch defect in the humeral head)
- 90% of shoulder instability is anterior
- Further work-up is required if atypical features are present
    - Examples of atypical features:
        - Pain, atypical position of risk, multiple dislocations with no associated trauma, multi ligamentous hyperlaxity, family history
        - Work-up may include MR arthrogram CT to look at the labrum
- When dislocating for the first time:
    - Age 18 years – risk of recurrence is as high as 90%
        - Refer early to reduce the risk of recurrent instability and bone loss, which is associated with poor outcome
    - Age 40 years – risk of recurrence is 10%, but the risk of rotator cuff tear is 30-80%
        - Conduct further work-up if there are complaints of shoulder pain/weakness

Pain

- Classic case:
    - 56 yo male, construction worker
    - 2-year history of anterolateral shoulder pain
    - No antecedent trauma
    - Worse with activity (e.g. lifting the arm above shoulder height)
    - Night pain
- Physical exam:
    - Tenderness over tuberosities/subacromial area
    - Full ROM
    - +/- painful arc
    - Impingement test is positive
    - Pain but not necessarily weakness with rotator cuff testing
- Differential diagnosis:
    - Rotator cuff/impingement
    - Calcific tendinitis
    - AC Joint arthropathy
    - Small RC Tear
- X-ray:
    - Usually normal (may see some calcification)
- Management
    - For impingement, tendinopathy, bursitis, calcific tendinopathy, partial thickness cuff tears or full thickness tears:
        - Oral analgesia
        - Activity modification
        - ACTIVE PHYSIOTHERAPY
        - Subacromial steroid injections
            - Hit rate blind in shoulder is not that high
            - Some soft evidence suggests that steroid injection could hinder surgical repair
        - Shock wave therapy or Barbotage for calcific tendinitis
        - Image if refractory
        - Surgery if non-op fails
- Rotator cuff tear and treatment
    - The description of “tear” can indicate normal wear pattern
        - The word can be distressing
        - Discuss it like a pair of jeans; the pair of jeans can have some wear pattern, such as at the knee where fabric gets thinner and softer, and sometimes holes

develop. That is a “full thickness tear”; everything short of that will be described as partial thickness tear.

Weakness

- Classic case history:
    - 38 yo old male, fell off a bike and down a cliff
    - Presents with shoulder pain and inability to raise their arm
- Physical exam:
    - Limited active ROM
        - Differentiate between limited passive ROM
        - Differentiate from pain inhibition
    - An acute massive rotator cuff tear would present like this where there is in inability to do full active ROM or maintain it once passive support is removed
- Differential diagnosis:
    - Acute massive rotator cuff tear
        - URGENT referral to Orthopedics surgeon + URGENT request for imaging
    - Chronic massive cuff tear
    - Neurologic injury
    - Myopathy
- X-ray is crucial in this case:
    - Humeral head is riding high
    - “Rotator cuff arthropathy”

Shoulder Stiffness

- Classic case:
    - 42 yo female presents with 3 months of severe shoulder pain
    - Woke up in the morning with severe pain in the entire arm
    - Pain is now improving but finds that the shoulder is stiff
    - PMHx: DM, hypothyroid
- Physical exam:
    - Tenderness over tuberosities
    - Limited active and passive ROM
        - Look at ER with elbow at the side
- Differential diagnosis:
    - Adhesive Capsulitis (AC)
    - Glenohumeral osteoarthritis
    - Locked dislocation of shoulder

- X-ray:
    - If the x-ray is normal and there is a classic pattern of shoulder stiffness, we don't need anything else to tell us this is a locked dislocation
- Management:
    - Adhesive capsulitis
        - Expectant management:
            - Persistence and patience
            - ROM exercises
            - Steroid injections (may help with pain)
            - Management of endocrinopathy → referral if does not resolve after 12-18 months
    - Glenohumeral osteoarthritis
        - Non-op: Physiotherapy, oral analgesics, OASIS referral, viscosupplementation, cortisone
        - Surgical: Arthroplasty

The Ideal Surgical Candidate

- Indications for surgery:
    - Functionally is limited by pain
    - Failed trial of non-operative management
    - Motivated for procedure
    - Ability to adhere to post-op protocol
        - 6-week sling immobilization + over 6 months of recovery

When to See in Person

- Unable to establish clear diagnosis (i.e., failure of internet, history or exam)

When to Refer

- URGENT: Trauma (fracture, locked dislocation, acute cuff tear), tumour
    - Failure of non-op management, diagnostic/treatment clarity, shoulder instability

Hand & Wrist Injuries – Dr. Rod French

Objectives

- Identify unique fractures on history that aid in work-related hand and wrist injury diagnoses
- Perform specific physical examinations tests
- Order specific imaging

- Make appropriate referrals for workers

History tips

- Fall – fractures, ligaments
- Cut – tendons, nerves
- Crush – how heavy, by what? Scar in all layers!
- Twist with load – acute De Quervain's, TFCC
- Torque Force – TFCC
    - Examples:
        - Triangular fibrocartilage complex Injuries
        - Unique injury: care aide grasped by elderly demented patient

Pearls of Physical Exams

- Finger Fractures
    - Two things to look for:
        - Scissoring – when someone tries to make a fist, they will malrotate and cause scissoring
        - Extensor lag
    - Always compare sides
        - Ask the patient to make a fist and compare both (posterior and anterior)
- TFCC
    - Very complex; these are deep and superficial fibers
    - Dual function
        - Cushion (wrist)
        - Stabilizer (DRUJ)
            - Like a hammock, it needs an anchor to hold the radius/ulnar together and the rest supports the carpus
    - TFCC Injuries: 3 tests
        - Foveal tenderness (Berger's sign) – push in on the TFCC, find the pisiform on ulnar side, and head of ulnar
            - Diagonally between the two is a tender notch that can be pushed in
        - TFCC Grind Test – ulnarly deviate from side-to-side, testing the hammock
            - Patient will feel pain if the test is positive
        - DRUJ stability – ulnar doesn't move at all when you pronate/supinate, only the radius moves over top

        - In pronation (palm down), that joint will have a lot of motion; if you grasp the radial side and push the ulnar back and forth, it should lock in supination. If does not and they have pain, that is a sign of TFCC damage
    - MRI – Everyone over the age of 40 will show some type of tear of the TFCC in an MRI
- ECU Subluxation (subsheath injuries)
    - Patient may be able to show you a snapping tendon
    - The tendon is robust but can be very bothersome for patients
    - Ulnar-sided wrist pain is missed for TFCC
    - ECU Synergy test – when you ask the patient to hold their hand with fingers splayed apart and push your thumb to the long finger, it activates the ECU
- X-rays
    - Under-rated
    - Do PA/Lateral/Oblique/scaphoid if concerned
    - Clenched fist views (for scapholunate tears)
        - Scaphoid and lunate will spread apart if torn
        - You can do a pencil-grip view to compare between both

TFCC – MRI versus not MRI

- Order an MRI to clarify a diagnosis when you have one in mind
    - For suspected ligament tears, do an MRI arthrogram as it increases sensitivity
- Dye goes into the proximal joint and should stay there
    - If there is a TFCC tear, the dye may leak into the head of the ulnar
- Dye will also leak in a SL ligament tear

Referrals

- Certified Hand Therapists (CHT) are specialized in the hand
    - Physio's + Occupational Therapists – very highly trained
    - Will give very good advice and can directly refer the patient to surgeons

Workhorse Splints

- Off-the-shelf Splint:
    - They are made to fit everyone, so they fit no one well
- Hand based Opponensplasty Splint:
    - Custom-made by CHTs
    - Thumb MCP joint: UCL ligament (Skier's thumb)
- Push-Ortho CMC Splint:
    - Good for any CMC joint problem

    - Can be bought online
    - Most CHTs carry these
    - Comfortable, increases function and can postpone surgery
- **Wrist Widget**
    - TFCC – mainstay of treatment
    - Can be bought online
    - Most CHT's carry these
    - Splits over the head of ulnar and pulls back on itself through holes and Velcro's up
        - Patients can dial up the tension

Question & Answers

Q: Would a slip on the ice warrant an X-ray?

A: Yes, a fall from body height is considered trauma and warrants imaging if indicated. We have seen a lot of proximal humerus fractures during recent ice storms. Note that ADLs are not considered trauma.

Q: Should we be worried if we did not conduct a neurological exam on a shoulder pain with stiffness that is not associated with trauma?

A: As clinicians, we are in the habit of recognizing patterns; throughout our practice we try to establish certain patterns with examinations. If you are a purist and teaching trainees, then yes, you want to do a thorough exam. As you log hours and gain experience, you'll see that it's rare to see a stiffness problem associated with neurology.

Q: There seem to be a lot of tests that are better done in-person, especially for wrist exams. Should I be bringing these patients in?

A: There are some that are tough to do virtually, such as a skier's thumb, especially if you are trying to stress a joint. Wrist exams are also very tough to do virtually. However, the "finger test" has been very useful to help the differential diagnosis process. ROM tests are mostly what you can do virtually.

Q: Do you have good shoulder resources that we can share with patients?

A: The Fowler Kennedy group has put out a lot of resources, as well as Mayo Clinic and HSS.

Q: Where are some places in the Lower Mainland that do Barbotage?

A: Two major places are UBC Hospital and St. Paul's Hospital.

Q: How significant is a small labral calcification (i.e. 0.4 cm on reduced function and pain)?

A: Calcification likely means some type of degeneration, in which case there is likely degeneration in other places as well. Most of the time it is in the context of osteoarthritis.

Q: Is it ever okay to order an X-ray after the history but before the examination in the context of virtual care?

A: It depends on the patient and how well you can take that history. For example, what was the force, and where is the pain exactly? Are you able to describe and localize it well, especially if an exam is conducted via phone? If you have high confidence in what they are discussing, then it is reasonable to move ahead with an X-ray. In the context of the hand, a lower threshold for ordering X-rays is suggested due to the small bones in the wrist. Serial imaging may also be helpful.

Q: There is a lot of CMC arthritis. What are the indications for surgery?

A: The CMC joint is a good example of treating the patient, not the X-ray. It is 10x more common in females; the joint is physiologically flatter. You can work your way through the non-invasive treatments and try to save surgery. Some options are to see a hand therapist and to use some splinting, which can be removed during heavier activities. Pain is usually delayed after the event. Oral medications can help. Steroid injections can help later in the course and may delay the need for surgery.

The War Amps society "Aids to Daily Living" contains good guides regarding how to use bulk-up pads to help minimize pain.

Indications for surgery correlate to function; if something is just a "nuisance", the risks of surgery are not worth it.

Q: I am never sure if calcific tendinitis is responsible for symptoms. Should we always consider Barbotage?

A: If you see an X-ray like that, go back to the basics and consider activity modification, oral analgesia and especially physiotherapy. Also do some imaging, as there may also be a small rotator cuff tear. If there is no tear, then consider Barbotage.

Q: How many weeks of physiotherapy should we recommend for shoulders before saying it is not working anymore?

A: Assess the quality of physiotherapy and how well the patient has been engaging. What is the relationship between the patient and therapist? If they have had a good trial that has been effective, 3 months is a reasonable trial period before reassessment. If you are improving then continue, but if you are not seeing any improvement, then reconsider.

For TFCC, most wrist surgeons will not operate for at least a year.

Q: At what point would you consider surgery for Dupuytren's contracture? Could this exam be done virtually?

A: This can be done virtually. The main things to look for are the effect on joints; look at the MP joint and PIP joint. The MP joints are quite forgiving but if you start to see a bend with the PIP joint, you may want to be more aggressive. The important question when considering surgery is whether or not they can put their hand flat on a table. We do fewer surgeries now because of neurotomy procedures, followed by night extensor splinting. The problem with is this is it can recur, with about a 66% chance of recurrence after 4 years.

Q: What do you do to prepare patients for appointments?

A: Staff will send an e-mail with instructions that say you should be available and in a quiet space. An inappropriate set up is essentially like a no-show.

Q: What is included in the indication of the wrist widget?

A: It is a splint that won't do harm. It is generally indicated for ulnar-sided pain. They are about $40 on Amazon and can be a cost-effective treatment to try out. Patients can dial up the tension. It provides stability without impacting function.

Q: Are there any risk factors that lead to rotator cuff tears?

A: The most important one is age; the older you get, the higher your risk of tears. Most do respond to physiotherapy, but it may not always be painful. Other risk factors include heavy labour, heavy overhead workers and arm dominance, with a slight preponderance to men.

Q: Any examples of patients you wish you had seen in-person rather than imaging first?

A: A person who got an X-ray first after being seen virtually had a significant deformity that was not picked up without clinical examination. Remember the importance of following up with serial examinations.

Q: Is a fall on ice leading to a wrist fracture considered a fragility fracture?

A: Not necessarily. In the context of a distal radius fracture, young people can have a missed fracture or scapho-lunate tears that can lead to degenerative disease later as they were thought to be sprains initially.

Thanks to the speakers on the video:

- **Dr. Fay Leung –** Orthopedic Surgeon, Clinical Associate Professor, UBC Department of Orthopaedics
- **Dr. Rod French –** Plastic Surgeon, Clinical Assistant Professor, UBC Division of Plastic Surgery
- Moderator: **Dr. Brenda Hardie –** Family Physician