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Introduction

This Clinical Handbook is intended as a quick reference that takes the clinician through a systematic approach to the patient who presents in your practice with a complaint of pain. In this way, it differs from other manual therapy texts that take a systematic approach to assess the patient for somatic dysfunction, which reflects an approach to the patient which aims to address ‘cause’ rather than symptom.

Before focussing on somatic dysfunction, we suggest that it’s useful to first focus on understanding the pain, as much as is made possible by the history and physical examination, and then focus on a more typical manual therapy physical examination for somatic dysfunction. There are two main reasons for this. First, by exploring the pain, the manual therapist pays attention to both the probable and rare serious causes of the patient’s pain; and secondly, the manual therapist can apply pain management techniques and symptomatic treatment in cases of acute and chronic pain and also directly address the patients concern.

Taking this approach does not preclude a wholistic approach to the patient or identifying and treating somatic dysfunction. It simply places pain management and safety as the first priority before addressing somatic dysfunction. This approach is consistent with international recommendations that somatic dysfunction be made as a secondary diagnosis to a primary medical diagnosis.

There were two aims in mind when formulating this manual: First, to help students and novice practitioners integrate knowledge and skills gained in the medical disciplines with those from their manual therapy training; and secondly, to provide a convenient memory aid in the clinical setting where it is often difficult to access large textbooks.

For ease of use this handbook presents each body region as a separate section. Each section is arranged with the following subheadings, which are considered in sequential order:

Sources of pain; Diagnostic Sieve; History, Physical Examination; Investigations; Referral and Clinical Notes.

Sources of Pain

This serves as an aid to integrating pathoanatomical knowledge about possible structural sources of pain by prompting you to consider all of the structures known to be able to produce pain in a certain region. It is also important to have a working knowledge of those structures that are capable of referring pain to the region. Once you have this understanding, you can begin to formulate a problem solving approach to the patient’s pain.

Diagnostic Sieve

The second stage in determining the patient’s source of pain is to take a pathological approach – what things can go wrong with the structures in the region of pain that could explain the patient’s current symptoms? In order to aid our memory, we have adopted the commonly used mnemonic ‘FININDICAATERS’ which is defined here as:

- Functional
- Inflammatory / Infection
- Neoplastic
- Neurological
- Degenerative
- Iatrogenic
- Congenital
- Autoimmune
- Arterial / Venous
- Trauma
- Endocrine / Metabolic / Nutritional
- Referred pain
- Psychosocial considerations
Introduction

This system requires (and reinforces) a basic knowledge of the common pathologies and their clinical presentation.

Once a list of possible diagnoses has been generated it is then necessary to narrow these down into a short list of the most likely diagnoses. Therefore, it is only necessary to ask relevant questions and perform relevant tests for those potential diagnoses.

For example, if the patient complains of knee pain, you will have in your mind all of the structures capable of producing knee pain, or referring pain to the knee. You will also have in your mind the list of possible pathologies that can occur at the knee. Once you’ve narrowed down the possible diagnoses by asking directed questions, you will then need to determine what physical examinations you should perform?

How do you make sure that you take a wholistic approach to the whole body and not just focus on the painful part?

One approach that can be useful in this regard is the ‘Screen → Scan → Define’ approach used to bring increasing focus to a problem.

**Screen**
The screening examination aims to reveal body regions that require closer scrutiny, for instance, observing the patient’s attempt at squatting is a common screening procedure.

**Scan**
The scan localises the structure/s which require even closer scrutiny. Obviously, you will scan the painful region and any other regions identified during the screening examination. For instance, if the screening examination identified the hips as being of interest, the Scan would now involve a more detailed examination of the hip.

**Define (or Segmental Definition)**
The segmental definition aims to define the nature of the injury or somatic dysfunction that is suggested by the scan. The acronym S.T.A.R.T (Sensory changes, Tissue texture change, Assymetry, Altered Range of Motion, Tenderness) serves as a useful reminder of the characteristics of somatic dysfunction.

As with all patients, the history may also indicate that certain systems examinations be undertaken prior to a musculoskeletal assessment (e.g. neurological or cardio-respiratory etc).

This sequence is demonstrated in the following example.

**Presenting Complaint:**
**Neck pain and headaches**

From this information alone you know that you will need to perform a head and neck examination, including a cranial nerve examination, and a comprehensive orthopaedic and manual therapy assessment of the neck (‘Scan 1’). So in this example you would initially carry out a head and neck examination to determine if the patient required further medical investigations or referral.

**Results of Head and Neck Examination:**
No Abnormality Detected – Safe to proceed with screening examination.

You would then perform a screening examination to detect other regions of somatic dysfunction, eg the Screening Examination.

**Results of Screening Examination:**
Somatic dysfunction detected in the cervical, thoracic and lumbopelvic regions.
You would then perform ‘Scan 1’, a comprehensive orthopaedic and manual therapy assessment of the neck, and ‘Scan 2’, the manual therapy assessment of the thoracic and lumbopelvic regions.

Results of ‘Scan 1’ and segmental definition
- Full range of cervical motion
- Pain present on right rotation and right side-bending
- Cervical compression test: negative
- Tenderness located over the right C2/3 zygapophyseal joint, which reproduces the patient’s familiar headache
- Poor segmental range of motion at C2/3
- Tender points and altered tissue texture on palpation of sub-occipital muscles

Primary diagnosis → cervicogenic headache arising from right C2/3 zygapophyseal joint
Secondary diagnosis → somatic dysfunction C2/3, sub-occipital muscles

Results of ‘Scan 2’ and segmental definition
- Extension restricted at T6-T7
- Exhalation restricted at right Rib 1

Secondary diagnosis → somatic dysfunction T6/7, Rib 1

Bringing it all together into a comprehensive diagnosis:

Primary diagnosis: Cervicogenic headache arising from right C2/3 zygapophyseal joint
Secondary diagnosis: Somatic dysfunction of: C2/3, sub-occipital muscles, T6/7, R1

Summary
This handbook presents a systematic approach to the patient who presents with a pain problem. It directs the reader through an anatomical and pathological approach to diagnosis and then through a manual therapy approach to somatic dysfunction.

Please don’t attempt to use this handbook as a comprehensive work of clinical diagnostic reasoning – it’s certainly not intended for that purpose. This handbook is intended to serve as a simple memory aid in the clinic and as an adjunct to reference texts and other sources. There are a number of key texts from which some of the concepts in this handbook are based. For example, the concepts of “Diagnoses not to be missed” and “What is the probability diagnosis?” are based on the work of Professor John Murtagh (2007).

Finally, as this is the first edition, we would appreciate any feedback regarding the readability and usefulness of the handbook, including any suggestions you might have for improvement.

Please post any comments to:
http://support@cpdonline.zendesk.com

Nic Lucas
Sydney, 2011

Robert Moran
Auckland, 2011

Reference
1. **Headaches**

**Sources of nociception**
- Skin, subcutaneous tissues, fascia, muscles, cranial periosteum, sutures, arteries, venous sinuses, dura, neurogenic pain, TMJ, mucosa, eyes
- [Innervated by cranial nerves V, VII, IX, X and cervical nerves II and III]
- Somatic Referred Pain: upper 3 cervical joints, trigger points in cervical/shoulder muscles
- Visceral Referred Pain: heart, oesophagus, lung carcinoma, thyroiditis, cervical adenitis, poliomyelitis, tetanus

**Referred pain of cervical origin**
- Somatic referred pain (commonest): widespread pain due to pressure/inflammation of dura; distribution of CNV1, and cervical plexus
- Neurogenic pain: specific nerve

**International Headache Classification**

**Systemic or neurological causes**
- Glaucoma, tumour, cerebral aneurism, temporal arteritis, optic neuritis, dissection carotid/vertebral arteries, neuralgia, herpes zoster, meningitis, sinusitis, intracranial
- Hypertension, exertional headache, atypical facial pain

**Vascular Headaches**
- Classic migraine, common migraine, cluster headaches, subarachnoid haemorrhage, temporal arteritis

**Musculoskeletal**
- Tension headache, cervicogenic headache, cervicogenic migraine, post-traumatic headache, cervical spondylosis, trigger points/tender points

**Clinical Notes**
- Pain may be experienced as neck pain or referred to head, ear, face, shoulder, arm, scapulae, and chest. Patients may experience dizziness/vertigo and visual dysfunction
Headaches

Diagnostic Sieve

<table>
<thead>
<tr>
<th>Category</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td>joint dysfunction/suture/muscle</td>
</tr>
<tr>
<td>Inflammatory /</td>
<td>meningitis</td>
</tr>
<tr>
<td>Infectious</td>
<td></td>
</tr>
<tr>
<td>Neoplasia</td>
<td>mets, multiple myeloma, cerebellar tumor, chordoma, etc.</td>
</tr>
<tr>
<td>Neural</td>
<td>dura, cranial nerve neuralgias</td>
</tr>
<tr>
<td>Degenerative</td>
<td>spondylosis, arthrosis</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>adverse reaction to manual therapy, medication or surgery</td>
</tr>
<tr>
<td>Congenital</td>
<td></td>
</tr>
<tr>
<td>Arterial</td>
<td>VBI, temporal arteritis, atherosclerosis, CVD/Angina, haemorrhage, TIA</td>
</tr>
<tr>
<td>Trauma</td>
<td>flexion/extension injury, fracture, dislocation, sprain/strain, other</td>
</tr>
<tr>
<td>Endocrine</td>
<td>soft tissue injury</td>
</tr>
<tr>
<td>Referred</td>
<td>see above</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>Depression, catastrophising, distress, anxiety</td>
</tr>
</tbody>
</table>

Describe the symptoms (SQIDS)

- Site, quality, intensity, depth, sensory/motor phenomena

History of presenting complaint

- Previous episodes, onset, pattern – 24hr behaviour, duration, offset?
- Establish step-by-step temporal profile of headache: Were there any antecedent or associated factors present: e.g. emotional stress, physical stress (exercise); other medical conditions, e.g: Hypertension, glaucoma, sinus infection, ear, eye or tooth infection, head trauma, recent dental work, medication (new or withdrawal), relationship to menstruation, food or medication?

Questions that should be asked

- Is the patient experiencing a new or unusual headache, or a chronic recurring headache?
- Does it pound or squeeze? (Vascular/fluid or tension?)
- Presence of night pain, pain that wakes the patient or prevents falling asleep?
- Does it localise to extracranial arteries, sinus, teeth, TMJ, cervical spine?
- Is there an acute, severe onset [sub-archnoid haemorrhage]?
- Is it a once in a lifetime event [CNS infection]?
- Presence of any aura – wavy lines in front of eyes, visual defect, scotoma, unilateral motor weakness, numbness or diplopia – or prodrome?
- Associated with nausea, vomiting or sensitivity to light/Hypertension or sound?
- Do any relatives suffer same symptoms?

Aggravating Factors

- Stress, eye strain, noise, poor ventilation, menstruation, activity, exercise, head/neck position, time of day, sleep habits, environmental toxicity [chemical, smell], food /drink [choc, wine, coffee, preservatives] medications
Relieving Factors
• Relaxation, position, movement, heat, massages, exercises, medications, meditation, avoidance of certain behaviours, eating or drinking (dehydration)

Previous Treatment
• Medical: medication, imaging [do they have their x-rays, CT, MRI?], other
• Manual Therapy: osteopathy, physiotherapy, chiropractic, massage?

Associated Symptoms
• Ask specific questions to detect other symptoms that may be related to the presenting complaint: e.g. fever, recent illness, depression, bleeding, chronic cough, previous neoplasia?

General Health
• Weight loss or gain, fatigue, malaise, depression. Last time they saw their general practitioner?

Past Medical History
• Should ask about previous neoplasia, trauma, rheumatological conditions, orthopaedic problems, autoimmune conditions, psychosocial problems

Family Medical History
• Should ask about neoplasia, rheumatological conditions, orthopaedic problems, autoimmune conditions, hereditary conditions, serious family illness

Systems review
• Cardiorespiratory, gastrointestinal, urogenital, neurological, endocrine, musculoskeletal

What is the probability diagnosis?
• Upper respiratory tract infection [acute headache] tension type headaches, cervicogenic headaches, migraines – or combinations of
• Common sources of pain: upper cervical z-joints, IVD, pre- and post- vertebral mm

Diagnoses not to be missed
• Space occupying lesions → tumour, abscess, and haemorrhage/haematoma
• Infection → meningitis
• Haemorrhage → subarachnoid & intracerebral
• Temporal arteritis
• Glaucoma
• Benign intracranial Hypertension

Physical Examination
• Blood pressure
• Head and neck exam
• Neurological and vascular exam of upper limb
Screen

Scan 1: Region with pain (comprehensive)

Scan 2: Other regions indicated by the screen (S.T.A.R.T)

Segmental definition

Referral indicated by
- Plain film radiography indicated by serious trauma
- Suspicion of bleeding
- Complicated migraine
- Uncertain diagnosis
- Positive neurological signs despite typical headaches
- Headaches which are getting progressively worse
- Headaches not responding to treatment

Clinical notes – dangerous headaches
- Sudden onset of a new headache without previous history
- Recent onset for first time in older person
- Recurrent headaches in children
- Headache progressively worsening
- Headache wakes patient at night
- Local pain in definite area (eg ear, artery)
- Headache aggravated by coughing, stooping, straining, valsala, lying down
- Neurological signs and symptoms
2. **Dizziness and Vertigo**

**Causes of vertigo**

**Peripheral Disorders**
- Labyrinth: labyrinthitis, Meniere’s disease, drugs, trauma, and otitis media
- Vestibulocochlear nerve: neuronitis, neuroma, and drugs
- Cervical vertigo
- Drugs (affect VIIICN): Alcohol, aspirin, antibiotics, antiepileptics, antidepressants, antihypertensives, antihistamines, cocaine, diuretics

**Central Disorders**
- Brain Stem: VBI, infarction
- Cerebellum: degeneration, tumours
- Migraine; Multiple Sclerosis & Diabetes

**Diagnostic Sieve**

<table>
<thead>
<tr>
<th>Category</th>
<th>Possible Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td>cervical spine, benign paroxysmal positional vertigo</td>
</tr>
<tr>
<td>Inflammatory</td>
<td>chronic otitis media</td>
</tr>
<tr>
<td>Infectious</td>
<td>acoustic neuroma, medulloblastoma, other 1° or 2° tumours or mets usually from lung</td>
</tr>
<tr>
<td>Neoplasia</td>
<td>neuronalitis, OA</td>
</tr>
<tr>
<td>Neural</td>
<td>neuroitis, arthritides</td>
</tr>
<tr>
<td>Degenerative</td>
<td>VBI, temporal arteritis, atherosclerosis, CVD/Angina, haemorrhage, TIA</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>Manual therapy, surgery, and medication?</td>
</tr>
<tr>
<td>Congenital</td>
<td>trauma, fracture, path fracture, fracture-dislocation</td>
</tr>
<tr>
<td>Arterial</td>
<td>diabetes</td>
</tr>
<tr>
<td>Endocrine</td>
<td>anxiety, hyperventilation</td>
</tr>
<tr>
<td>Referred</td>
<td>see above</td>
</tr>
</tbody>
</table>

**History**

**Describe the symptoms**

Is it vertigo, pseudovertigo (‘giddiness’), syncope or disequilibrium?
- Giddiness: sensation of uncertainty or light-headedness eg: ‘swimming sensation’, ‘ground going beneath me’; usually no rotation, tinnitus, deafness nausea or vomiting associated; can walk without difficulty
- Syncope: sensation of impending fainting or loss of consciousness
- Disequilibrium: loss of balance while walking; no associated spinning feelings
History of presenting complaint

- Previous episodes, onset, pattern – 24hr behaviour, duration, offset?
- Establish step-by-step temporal profile of dizziness: Were there any antecedent or associated factors present eg emotional stress, physical stress (e.g., exercise), other medical conditions?

Questions that should be asked

- Does it come on by standing or turning (vertigo)?
- Does it feel like you’re being pulled to one side when you walk (vertigo)?
- Does it only happen every now and then, or is it continuous?
- Are you taking any medication?
- How does your position or posture effect the dizziness?
- Are there any aural symptoms: tinnitus, deafness?
- Do you have any visual symptoms?
- Do you have any nausea or vomiting?
- Have you had a cold recently?
- Any recent head injuries – even minor?
- Drug Hx: Alcohol, marijuana, hypotensives, psychotropics etc?
- Any difficulty getting to sleep?
- Do you suffer from headaches?
- Is there any pain or stiffness in your neck?
- What do you think is the basis of your problem?

Aggravating Factors

- Walking, sitting up, standing, closing eyes, position of head

Relieving Factors

- Lying down, position of head, medication

Previous Treatment

- Medical: medication, imaging (do they have their x-rays, CT, MRI?), other
- Manual Therapy: osteopathy, physiotherapy, chiropractic, massage

Associated Symptoms

- Ask specific questions to detect other symptoms that may be related to the presenting complaint: eg fever, recent illness, depression, bleeding, chronic cough, previous neoplasia?

General Health

- Weight loss/gain, fatigue, malaise, depression. Last time they saw their general practitioner?

Past Medical History

- Should ask about previous neoplasia, diabetes, psychosocial
Family Medical History
- Should ask about neoplasia

Systems review
- Cardiorespiratory, gastrointestinal, urogenital, neurological, endocrine, musculoskeletal

Probability Diagnosis
- Anxiety/Hyperventilation
- Postural Hypotension
- Vasovagal syncope
- Ear infection – acute labyrinthitis
- Vestibular neuronitis
- Motion sickness
- Post head injury
- Cervical spine dysfunction/spondylosis

Diagnoses not to be missed
- Cardiovascular: VBI, brain stem infarct,
- Neoplasia: acoustic neuroma, posterior fossa tumour eg medulloblastoma, other 1° or 2° tumours; or mets from lung
- Infection: abscess
- Neurological: Multiple Sclerosis, complex partial seizures

Often overlooked
- Ear wax
- Arrhythmia
- Hyperventilation
- Alcohol and other drugs
- Cough or micturition syncope
- Vertiginous migraine
- Parkinsons disease
- Meniere’s disease
- Anaemia

Physical Examination
- Head/Neck: ear disease → otoscopic exam, hearing tests; eyes → acuity, nystagmus
- Cardiovascular: atherosclerosis, BP supine, standing, seated, arrhythmias
- Neurological: cranial nerves, cerebellum (Rhomberg’s, gait, co-ordination, finger-nose, past pointing)
- General search for anaemia, polycythemia, Alcohol dependence

Screen
Scan 1: Head and Neck (comprehensive)
- Ask patient to perform any manoeuvre that may provoke the symptom
- Position the head to test for nystagmus

Scan 2: Other regions indicated by the screen (S.T.A.R.T)

Segmental definition if indicated

Referral indicated by:
- Vertigo of uncertain diagnosis, especially children
- Possibility of neoplasia or infection
- Following trauma
- Vertebrobasilar insufficiency

Clinical notes
- BPPV → is common and can be treated using exercises to desensitize the labyrinth e.g. Brandt or Cawthorne-Cooksey program
3. **TMJ Pain and Dysfunction**

**Sources of TMJ pain**

- Bone
- Fibrocartilage
- Joint capsule
- Ligments: temporomandibular, stylomandibular, sphenomandibular, pterygomandibular
- Muscle: masseter, pterygoid, temporalis
- Skin, subcutaneous tissues, fascia, muscles, arteries
- Innervated by cranial nerves V, C2-3 transverse cervical

- Somatic Referred: C2-3 cervical spine, cranium, eyes, ears, nose, sinuses, teeth, mouth, other facial structure, and diaphragm via phrenic nerve
- Visceral Referred: heart, gallbladder

**Referred pain of TMJ origin**

Somatic referred pain: headaches, trigger points, frontal, retro-orbital, temporal, occipital

**Diagnostic Sieve**

<table>
<thead>
<tr>
<th>Category</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td>dysfunction, masticatory muscle disorder [masseter, pterygoid, temporalis], dislocation, articular disc displacement, hypermobility, bruxism</td>
</tr>
<tr>
<td>Infectious</td>
<td>synovitis, capsulitis, arthritides, and dental caries</td>
</tr>
<tr>
<td>Neoplasia</td>
<td>YES</td>
</tr>
<tr>
<td>Neural</td>
<td>cranial nerve neuralgias</td>
</tr>
<tr>
<td>Degenerative</td>
<td>arthrosis</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>adverse reaction to manual therapy, medication/surgical, dental procedures, and infection</td>
</tr>
<tr>
<td>Congenital</td>
<td>arthridites</td>
</tr>
<tr>
<td>Autoimmune</td>
<td>Pagets, acromegaly, metabolic bone disease</td>
</tr>
<tr>
<td>Arterial</td>
<td>CVD, Angina</td>
</tr>
<tr>
<td>Trauma</td>
<td>fracture, dislocation, ligament sprain, muscle strain, other soft tissue injury, degeneration, bruxism – minor repetitive injury, loose dentures</td>
</tr>
<tr>
<td>Endocrine</td>
<td>Pagets, acromegaly, metabolic bone disease</td>
</tr>
<tr>
<td>Metabolic</td>
<td>Pagets, acromegaly, metabolic bone disease</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Pagets, acromegaly, metabolic bone disease</td>
</tr>
<tr>
<td>Referred</td>
<td>see above</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>depression, anxiety, other psychiatric condition</td>
</tr>
</tbody>
</table>

**Describe the symptoms**

- Site, quality, intensity, depth, sensory/motor phenomena [SQIDS]?

**History of presenting complaint**

- Previous episodes, onset, pattern - 24hr behaviour, duration, offset?
- Establish step-by-step temporal profile of the TMJ pain: Were there any antecedent or associated factors present eg emotional stress, physical stress [eg exercise], other medical condition eg tooth infection, head trauma, recent dental work, medication
Questions that should be asked

• Do you grind your teeth at night?
• Do symptom/s wake you at night – which one/s?
• How many times in last week?
• How long to get back to sleep?
• How many, and what type of pillows?
• Facial numbness and tingling?
• Difficulty swallowing?
• Any relatives suffer same symptoms?
• What do you think is the basis of your problem?

Aggravating Factors

• Yawning, chewing, talking

Relieving Factors

• Relaxation, meditation, heat, massages, exercises, medications, position, avoidance of certain behaviours, eating

Previous Treatment

• Medical: medication, imaging (do they have their x-rays, CT, MRI?), other
• Manual Therapy: dental, orthodontic, osteopathy, physiotherapy, chiropractic, massage?

Associated Symptoms

• Ask specific questions to detect other symptoms that may be related to the presenting complaint: eg fever, recent illness, depression, chronic cough, previous neoplasia?

General Health

• Weight loss/gain, fatigue, malaise, depression. Last time they saw their general practitioner/dentist?

Past Medical History

• Must ask about previous neoplasia, psychosocial

Family Medical History

• Must ask about neoplasia

Systems review

• Cardiorespiratory, gastrointestinal, urogenital, neurological, endocrine, musculoskeletal

What is the probability diagnosis?

• Articular disc derangement, dental malocclusion
Diagnoses not to be missed

- Space occupying lesions: tumour, abscess, and haemorrhage
- Infection
- CVS - angina
- Referred pain
- Temporal arteritis

Physical examination

- Blood pressure
- Head and neck exam

Screen

Scan 1: Region with pain (comprehensive)

Scan 2: Other regions indicated by the screen (S.T.A.R.T)

Segmental definition

Referral indicated by:

- Unresolving TMJ pain
- Consider involving a dentist in the management of TMJ pain

Clinical notes

- TMJ disorders often related to symptoms from C0-C3
- Upper C-spine can refer pain to the same areas as the TMJ ie frontal, retro-orbital, temporal, occipital
4. **Cervical Pain**

**Sources of nociception**

- Vertebrae (periostium): trauma; fracture; tumour; bone disease
- Joints/synovial membrane: spondylosis, inflammation, infection, and dislocation
- Capsule: strain/sprain, inflammation
- Ligaments: OA/AA membranes, alar, cruciate, tectorial membrane, ALL, PLL, intertransverse, flavum, inter/supraspinous
- Musculotendinous (pre-post vertebral mm): strain/sprain; spasm, tender/trigger points, muscle function/weakness, muscle disease
- Disc: discitis, internal disc disruption, prolapse
- Dura: infection, compression
- Neural: IVF, central canal, mobility, inflammation, radiculopathy, referred

- Somatic Referred: intracranial haemorrhage, tumour or abscess, meningitis, trigger points
- Visceral Referred: heart, oesophagus, lung carcinoma, thyroiditis, cervical adenitis, poliomyelitis, tetanus

**Referred pain of cervical origin**

- Somatic referred pain (commonest): widespread pain due to pressure on dura or in distribution of posterior rami, brachial plexus and V₁
- Radicular pain: specific nerve root

**Clinical notes**

- May be experienced as neck pain or referred to head, ear, face, shoulder, arm, scapulae, chest
- May experience dizziness/vertigo and visual dysfunction
- C2/C3 headache joints, refer to greater occipital, transverse cervical, V₁
- C5/6/7 OA joints, can refer to upper limb

**Diagnostic sieve**

<table>
<thead>
<tr>
<th>Functional</th>
<th>z-joint dysfunction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammatory / Infectious</td>
<td>RA, AnkySpon, SLE, Tender Point, Reiter's syndrome,</td>
</tr>
<tr>
<td>Neoplasia</td>
<td>mets, multiple myeloma, haemangioma chordoma, etc.</td>
</tr>
<tr>
<td>Neural</td>
<td>myelopathy, radicular pain</td>
</tr>
<tr>
<td>Degenerative</td>
<td>Arthrosis, spondylosis</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>adverse reaction to manual therapy, medication/surgical</td>
</tr>
<tr>
<td>Congenital</td>
<td></td>
</tr>
<tr>
<td>Autoimmune</td>
<td>arthridites</td>
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<tr>
<td>Arterial</td>
<td>VBI, temporal arteritis, atherosclerosis, CVD/Angina, haemorrhage, TIA</td>
</tr>
<tr>
<td>Trauma</td>
<td>flexion/extension injury, fracture, dislocation, ligament sprain, muscle strain, other soft tissue injury, degeneration</td>
</tr>
<tr>
<td>Endo / Nut / Met</td>
<td>Thyroiditis, metabolic bone disease</td>
</tr>
<tr>
<td>Referred</td>
<td>see above</td>
</tr>
<tr>
<td>pSychosocial</td>
<td>depression, anxiety, other psychiatric condition</td>
</tr>
</tbody>
</table>
Describe the symptoms

• Site, quality, intensity, depth, sensory/motor phenomena [SQIDS]?

History of presenting complaint

• Previous episodes, onset, pattern - 24hr behaviour, duration, offset?
• Establish step-by-step temporal profile of the cervical pain: Were there any antecedent or associated factors present eg emotional stress, physical stress [exercise, trauma], other medical condition eg Hypertension, throat infection, sinus infection, ear, eye or tooth infection, head trauma [whiplash], medication [new or withdrawal]

Questions that should be asked

• Have you had any accidents [MVA flexion-extension injury] or trauma to your neck?
• Is this a new or unusual pain, or is it chronic and recurring?
• Is there any night pain or pain that wakes the patient/prevents falling asleep?
• Have you had any dizziness?
• Do you get headaches with your neck pain?
• Do you experience pain or numbness in your face?
• Do you have any tingling in your legs? [myelopathy]
• Have you noticed any difficulty with walking or leg stiffness [myelopathy]?
• Is there an acute, severe onset [sub-arachnoid haemorrhage]?
• Is it a once in a lifetime event [CNS infection]?
• Aura: wavy lines in front of eyes, visual defect, scotomata, unilateral motor weakness, numbness, diplopia or prodrome?
• Associated with nausea, vomiting or sensitivity to light or sound?
• Any relatives suffer same symptoms?
• What do you think is the basis of your problem?

Aggravating Factors

• Vibration, reversing car, lying in bed, holding head/neck in prolonged position ie sitting reading/writing

Relieving Factors

• Heat, massages, exercises, medications?

Previous Treatment

• Medical: medication, imaging [do they have their x-rays?], other
• Manual Therapy: osteopathy, physiotherapy, chiropractic, massage?

Associated Symptoms

• Ask specific questions to detect other symptoms that may be related to the presenting complaint: eg fever, recent illness, depression, bleeding, chronic cough, previous neoplasia?

General Health

• Weight loss/gain, fatigue, malaise, depression. Last time they saw their general practitioner?

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Past Medical History
• Must ask about previous neoplasia

Psychosocial

Family Medical History
• Must ask about neoplasia

Systems review
• Cardiorespiratory, gastrointestinal, urogenital, neurological, endocrine, musculoskeletal

What is the probability diagnosis?
• Z-joint pain, discogenic pain
• Pre and post-vertebral mm

Diagnoses not to be missed
• Cardiovascular: Cerebral haemorrhage (especially subarachnoid), angina and AMI
• Neoplasia: primary, metastasis, Pancoast tumour,
• Infection: meningitis, osteomyelitis
• Vertebral fractures/dislocations and disc herniation
• Space occupying lesion: retropharyngeal abscess, cervical myelopathy, and radiculopathy

Often overlooked
• Spondyloarthopathy
• Polymyalgia Rheumatica, especially lower cervical in older patients
• Fibromyalgia syndrome
• Cervical lymphadenitis
• Thoracic outlet [esp cervical rib]
• Paget’s disease
• Psychogenic origin

Physical examination
• Blood pressure
• Head and neck exam
• Neurological/vascular exam of upper limb
Screen

Scan 1: Region with pain (comprehensive)

Scan 2: Other regions indicated by the screen (S.T.A.R.T)

Segmental definition

Referral indicated by:
- Trauma
- Persisting radicular pain into an arm despite conservative treatment
- More than one nerve root lesion in the arm
- Presence of hard neurological signs eg numbness and/or weakness
- Clinical or radiological evidence of cervical instability
5. Shoulder Pain

Sources of nociception

- Bone/periosteum [humerus, clavicle, scapula]
- Muscle: sprain, spasm, muscle imbalance, trigger points [SttS, biceps]
- Neural: nerve trunks, impingement, brachial plexus
- Ligaments: coracoacromial, coracohumeral, coracoclavicular, costoclavicular, acromioclavicular, sternoclavicular, capsular thickenings
- Costovertebral joints:
- Bursae: subacromial structures

- Somatic referred: cervical spine, thoracic spine, elbow, wrist, and hand
- Visceral referred: lungs [pancoast], heart, diaphragm, gall bladder, spleen

Diagnostic sieve

<table>
<thead>
<tr>
<th>Functional</th>
<th>GH/AC/SC/scapulothoracic dysfunction, thoracic outlet, muscle attachments, control/weakness, snapping scapula, FMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammatory / Infectious</td>
<td>Polymyalgia Rheumatica, RA, osteomyelitis, TB, adhesive capsulitis, bursitis, and tendonitis</td>
</tr>
<tr>
<td>Neoplasia</td>
<td>mets, Pancoast, etc</td>
</tr>
<tr>
<td>Neural</td>
<td>Dura, DRG, T4 syndrome, impingement, tension</td>
</tr>
<tr>
<td>Degenerative</td>
<td>Arthrosis</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>adverse reaction to manual therapy, medication/surgical</td>
</tr>
<tr>
<td>Congenital</td>
<td>sprengles shoulder, cervical rib</td>
</tr>
<tr>
<td>Autoimmune</td>
<td>arthritides</td>
</tr>
<tr>
<td>Arterial</td>
<td>VBI, temporal arteritis, atherosclerosis, CVD/Angina, haemorrhage, TIA</td>
</tr>
<tr>
<td>Trauma</td>
<td>fracture, path fracture, fracture-dislocation, lig/muscular strain (SttS), ruptured long head biceps</td>
</tr>
<tr>
<td>Endocrine // Metabolic //</td>
<td>AVN, osteoporosis, osteomalaica, Paget’s etc</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Visceral and somatic referred (see above see above depression, anxiety, other psychiatric condition</td>
</tr>
<tr>
<td>pSychosocial</td>
<td></td>
</tr>
</tbody>
</table>

Describe the symptoms

- Site, quality, intensity, depth, sensory/motor phenomena [SQIDS]?

History of presenting complaint

- Previous episodes, onset, pattern – 24hr behaviour, duration, offset?
- Establish step-by-step temporal profile of shoulder pain: Were there any antecedent or associated factors present eg emotional stress, physical stress [eg exercise], other medical condition, especially visceral [cardiac, GIT, respiratory-asthma]
Questions that must be asked

• Did you have an injury, even very minor, before your pain S.T.A.R.Tted?
• Do you have pain or stiffness in your neck?
• Aching/pain both shoulders or hips? (PMR)
• Do you have any trouble clipping your bra/touching shoulder blades? (AC/ capsular)
  /combing hair [Adhesive Capsulitis]
• What position is most comfortable/uncomfortable?
• Any difficulty getting to sleep?
• What is your normal sleeping position compared to present?
• Can you lie on the affected shoulder?
• Do symptom/s wake you at night – which one/s? How many times in last week?
• How long to get back to sleep?
• How many, and what type of pillows?
• Do you wake with the pain in the morning? – indicates inflammation
• RA - family history?
• Neurological/dizziness?
• Numbness/tingling in both upper limbs → myelopathy?
• What do you think is the basis of your problem?

Aggravating Factors

• Lying on shoulder – joint compression
• Reaching up/washing hair etc (flexion)

Relieving Factors

• Relaxation, meditation, heat, massages, exercises, medications, position, avoidance of certain behaviours

Previous Treatment

• Medical: medication, imaging [do they have their x-rays, CT, MRI?], other
• Manual Therapy: osteopathy, physiotherapy, chiropractic, massage?

Associated Symptoms

• Ask specific questions to detect other symptoms that may be related to the presenting complaint: eg fever, recent illness, depression, bleeding, chronic cough, previous neoplasia?

General Health

• Weight loss/gain, fatigue, malaise, depression. Last time they saw their general practitioner?

Past Medical History

• Should ask about previous neoplasia
Shoulder Pain

Psychosocial

Family Medical History
• Should ask about neoplasia,

Systems review
• Cardiorespiratory, gastrointestinal, urogenital, neurological, endocrine, musculoskeletal

What is the probability diagnosis?
• Cervical spine dysfunction, supraspinatus tendonitis/tear, adhesive capsulitis (esp. diabetics)

Diagnoses not to be missed
• Cardiovascular: myocardial infarction, angina, dissecting aneurism, and pulmonary infarction
• Neoplasia: myeloma, metastasis, Pancoast tumour, mesothelioma,
• Infection: pleurisy, infectious endocarditis, osteomyelitis, and septic arthritis
• Vertebral fractures (osteoporosis)
• Pneumothorax

Often overlooked
• Polymyalgia Rheumatica (any female with bilateral shoulder girdle pain esp in morning, > 60 → Polymyalgia Rheumatica until proven otherwise)
• Angina
• DJD of AC joint
• GIT disorders (oesophageal – reflux/spasm)
• Spondyloarthropathies
• Fibromyalgia syndrome
• Chronic infection: TB, brucellosis
• Blood pressure
• Cardiorespiratory/abdo exam
• Neurological

Screen

Scan 1: Region with pain [comprehensive]

Scan 2: Other regions indicated by the screen [S.T.A.R.T]

Segmental definition
Referral indicated by:

- Persisting night pain with shoulder stiffness
- Persisting supraspinatus tendonitis (esp elderly), or other rotator cuff mm
- Persisting restriction of movement
- A confirmed/suspected posterior dislocation GH or AVN
- Children with shoulder joint instability
- Any swimmer’s shoulder that is refractory to changes to technique or training schedule
- Severe OA of the GH or AC

Clinical notes

- Capsular patterns: limitation of lateral rotation, abduction and medial rotation
- Tendonitis/Capsulitis/Bursitis – may last several months
- Consider weakness of the scapular stabilisers
6. **Elbow Pain**

**Sources of nociception**

- Bone (periostium): trauma; fracture; tumour; bone disease
- Joints/synovial membrane: DJD, inflammation, infection, and dislocation
- Ligaments: annular, collaterals
- Musculotendinous: muscle strain/sprain, spasm, imbalance, Tender Point, control, mm disease; tendon and tendon sheath injuries
- Neural: entrapment syndromes
- Somatic Referred: C-spine, wrist, and shoulder
- Somatic referred pain: to forearm and hand

**Diagnostic sieve**

<table>
<thead>
<tr>
<th>Functional</th>
<th>Inflammatory / Infectious</th>
<th>Neoplasia</th>
<th>Neural</th>
<th>Degenerative</th>
<th>Iatrogenic</th>
<th>Congenital</th>
<th>Autoimmune</th>
<th>Arterial</th>
<th>Trauma</th>
<th>Endocrine</th>
<th>Referred</th>
<th>pSychosocial</th>
</tr>
</thead>
<tbody>
<tr>
<td>joint dysfunction, medial and lateral epicondylitis, hypermobility syndrome</td>
<td>RA, Psoriatic Arthritis, Inflammatory OA, SLE, Progressive Systemic Sclerosis, Gout, CPPD, osteomyelitis, tenosynovitis, bursitis (olecranon, subtendinous olecranon, radio-ulna, bicipito-radial)</td>
<td>is rare; mets, benign, primaries</td>
<td>radicular pain, neuropathy, UMN and LMN, neural entrapment (ulnar, median, radial)</td>
<td>arthrosis, Neurotrophic arthropathy</td>
<td>adverse reaction to manual therapy, medication/surgical</td>
<td>Gunstock deformity, cubitis varus/valgus (or post-trauma)</td>
<td></td>
<td>PVD, AVN, Volkmann’s ischaemic contracture</td>
<td>pulled elbow (kidisease), fracture humerus, radius, ulna, Galeazzi’s, Monteggia’s</td>
<td>gout, CPPD, haemoglobinopathies, osteomalacia</td>
<td>see above</td>
<td>depression, anxiety, other psychiatric condition</td>
</tr>
</tbody>
</table>

**Describe the symptoms**

- Site, quality, intensity, depth, sensory/motor phenomena (SQIDS)?

**History of presenting complaint**

- Previous episodes, onset, pattern - 24hr behaviour, duration, offset?
- Establish step-by-step temporal profile of the cervical pain: Were there any antecedent or associated factors present eg emotional stress, physical stress, other medical condition.
Elbow Pain

Questions that should be asked in HPC
- Have you had any accidents or trauma?
- Have you or anyone in your family had RA?
- Is this a new or unusual pain, or is it chronic and recurring?
- Is there any night pain or pain that wakes the patient/prevents falling asleep?
- Do you experience pain or numbness in your hands or arms?
- Do you have any tingling in your arms? (myelopathy?)
- Is there an acute, severe onset (osteomyelitis)
- What do you think is the basis of your problem?

Aggravating Factors
- Uses of hand: writing, gripping, typing, leaning on hand, and turning a key

Relieving Factors
- Heat, massages, exercises, medications?

Previous Treatment
- Medical: medication, imaging (do they have their x-rays?), other
- Manual Therapy: osteopathy, physiotherapy, chiropractic, massage?

Associated Symptoms
- Ask specific questions to detect other symptoms that may be related to the presenting complaint: eg fever, recent illness, depression, bleeding, chronic cough, previous neoplasia?

General Health
- Weight loss/gain, fatigue, malaise, depression. Last time they saw their general practitioner?

Past Medical History
- Should ask about previous neoplasia

Psychosocial

Family medical history
- Should ask about neoplasia

Systems review
- Cardiorespiratory, gastrointestinal, urogenital, neurological, endocrine, musculoskeletal

What is the probability diagnosis?
- Lateral or medial epicondylitis; neurogenic pain
Diagnoses not to be missed

- Severe Infection (Osteomyelitis)
- Bone tumours

Often overlooked

- Neuropathy
- Arthritides
- Blood pressure
- Neurological/vascular exam of upper limb

Screen

Scan 1: Region with pain (comprehensive)

Scan 2: Other regions indicated by the screen (S.T.A.R.T)

Segmental definition

Referral indicated by:

- Myelopathy with persistent radiculopathy
- Unresolved nerve entrapment syndromes
- Possible fracture in kidisease
- Suspicion of infection

Clinical notes

- Capsular Pattern: greater limitation of flexion than extension; inferior radio-ulna joint: full range but pain at end range
- Thoracic Outlet Syndrome: Patients cannot fall asleep
- Carpal Tunnel Syndrome: Patients wake in the middle of the night
- Cervical spondylosis: Patient rises with pain and stiffness that lasts well into the day
7. Hand and Wrist Pain

Sources of nociception

• Bone (periostium): trauma; fracture; tumour; bone disease
• Joints/synovial membrane: DJD, inflammation, infection, and dislocation
• Capsule: strain/sprain, inflammation
• Ligaments: scapho-lunate, capitato 3rd metacarpal, collaterals
• Musculotendinous: muscle strain/sprain, spasm, imbalance, Tender Point, mm disease; tendon
• and tendon sheath injuries
• Neural: entrapment syndromes

• Somatic Referred: C-spine, elbow, and shoulder
• Somatic referred pain: to forearm and elbow

Diagnostic sieve

<table>
<thead>
<tr>
<th>Source</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td>SD of joint, dropped lunate, reflex sympathetic dystrophy of the hand, tenosynovitis eg de Quervain’s, Dupuytren’s contracture</td>
</tr>
<tr>
<td>Inflammatory / Infectious</td>
<td>RA, Psoriatic Arthritis, Inflammatory OA, SLE, PSS, Gout, CPPD, osteomyelitis</td>
</tr>
<tr>
<td>Neoplasia</td>
<td>mets, enchondroma, osteosarcoma, GCT,</td>
</tr>
<tr>
<td>Neural</td>
<td>radicular pain, neuropathy, UMN and LMN, neural entrapment</td>
</tr>
<tr>
<td></td>
<td>(median – carpal tunnel, radial – supinator, median – pronator teres, ulnar – flexor carpi ulnaris)</td>
</tr>
<tr>
<td>Degenerative</td>
<td>Arthrosis, Neurotrophic arthropathy</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>adverse reaction to manual therapy, medication/surgical</td>
</tr>
<tr>
<td>Congenital</td>
<td></td>
</tr>
<tr>
<td>Autoimmune</td>
<td></td>
</tr>
<tr>
<td>Arterial</td>
<td>PVD AVN (Keinboch’s lunate, scaphoid), Volkmann’s ischaemic contracture</td>
</tr>
<tr>
<td>Trauma</td>
<td>Colle’s, Smiths, Galaezzi, Monteggia’s fracture, avulsion fracture, dislocation, ligament sprain, muscle strain, tendonitis (overuse)</td>
</tr>
<tr>
<td>Endocrine // Metabolic // Nutrition</td>
<td>gout, CPPD, haemoglobinopathies, osteomalacia</td>
</tr>
<tr>
<td>Referred</td>
<td>Somatic referred (see above see above</td>
</tr>
<tr>
<td>pSychosocial</td>
<td>depression, anxiety, other psychiatric condition</td>
</tr>
</tbody>
</table>

Describe the symptoms

• Site, quality, intensity, depth, sensory/motor phenomena [SQIDS]?

History of presenting complaint

• Previous episodes, onset, pattern - 24hr behaviour, duration, offset?
• Establish step-by-step temporal profile of the cervical pain: Were there any antecedent or associated factors present eg emotional stress, physical stress [exercise, trauma], other medical condition eg Hypertension, throat infection, sinus infection, ear, eye or tooth infection, head trauma [whiplash], medication [new or withdrawal]
Questions that should be asked

- Have you had any accidents or trauma?
- Have you or anyone in your family had RA?
- Is this a new or unusual pain, or is it chronic and recurring?
- Is there any night pain or pain that wakes the patient/prevents falling asleep?
- Do you experience pain or numbness in your handisease or arms?
- Do you have any tingling in your arms? (myelopathy)
- Is there an acute, severe onset? (osteomyelitis)?
- What do you think is the basis of your problem?

Aggravating Factors

- Uses of hand: writing, gripping, typing, leaning on hand, and turning a key

Relieving Factors

- Heat, massages, exercises, medications?

Previous Treatment

- Medical: medication, imaging (do they have their x-rays?), other
- Manual Therapy: osteopathy, physiotherapy, chiropractic, massage?

Associated Symptoms

- Ask specific questions to detect other symptoms that may be related to the presenting complaint: eg fever, recent illness, depression, bleeding, chronic cough, previous neoplasia?

General Health

- Weight loss/gain, fatigue, malaise, depression. Last time they saw their general practitioner?

Past Medical History

- Should ask about previous neoplasia

Psychosocial

Family Medical History

- Should ask about neoplasia

Systems review

- Cardiorespiratory, gastrointestinal, urogenital, neurological, endocrine, musculoskeletal

What is the probability diagnosis?

- Carpal tunnel syndrome, inflammation due to arthritis, sprain/strain
Diagnoses not to be missed

- Severe Infection [Osteomyelitis]
- Bone tumours, Pancoast tumours
- Scaphoid fracture – multiple radiographs may be necessary

Often overlooked

- Neuropathy
- Arthritides
- Blood pressure
- Neurological/vascular exam of upper limb

Screen

Scan 1: Region with pain [comprehensive]

Scan 2: Other regions indicated by the screen (S.T.A.R.T)

Segmental definition

Referral indicated by:

- Disabling OA of carpometacarpal joint
- Myelopathy with persistent radiculopathy
- Unresolved nerve entrapment syndromes
- Possible fracture in children
- Suspicion of infection

Clinical notes

- Capsular patterns: inferior radio-ulna: full range pain at end of range; wrist: flexion or extension are equally limited; first carpo-metacarpal: full flexion more limited in abduction than extension; IP: more limited in flexion than extension
8. *Thoracic Pain*

**Sources of nociception**

- Vertebrae: periosteum
- Muscle: sprain, spasm, muscle imbalance, trigger points, control
- Fascia: Dorsal fascia - compartment syndrome?
- Dura mater, Epidural plexus
- Ligaments: intertransverse, lig flavum, supraspinous, PLL, ALL, interspinous,
- Costovertebral joints:
- Z-joints:
- Discogenic: discitis, torsion injuries, internal disc disruption

- Somatic Referred From: lower cervical segments, trigger points, psychogenic
- Visceral Referred: cardiac pain, aneurism, pulmonary embolus (rare), pleural pain,
  pneumothorax, oesophageal, gall bladder, stomach, duodenum, pancreas, herpes zoster

- Somatic referred pain (commonest): widespread pain due to pressure on dura or in
  distribution of posterior rami, costal nerves, cervicals, upper limb
- Radicular pain: specific nerve root

**Diagnostic sieve**

<table>
<thead>
<tr>
<th>Functional</th>
<th>z-joint dysfunction, costovertebral joint, ligamentous sprains, postural pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammatory / Infectious</td>
<td>Ankylosing spondylitis, osteomyelitis, TB</td>
</tr>
<tr>
<td>Neoplasia</td>
<td>many varieties – metastatic disease or myeloma more common</td>
</tr>
<tr>
<td>Neural</td>
<td>Dura, DRG</td>
</tr>
<tr>
<td>Degenerative</td>
<td>Spondylosis, Scheurmann’s disease, Z-joint arthrosis</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>adverse reaction to manual therapy, medication/surgical</td>
</tr>
<tr>
<td>Congenital</td>
<td></td>
</tr>
<tr>
<td>Autoimmune</td>
<td>spondyloarthropathy</td>
</tr>
<tr>
<td>Arterial</td>
<td></td>
</tr>
<tr>
<td>Trauma</td>
<td>fracture, path fracture, fracture-dislocation, lig/muscular strain</td>
</tr>
<tr>
<td>Endocrine // Metabolic // Nutrition</td>
<td>DISH, Sheurmann’s, AVN, osteoporosis, osteomalica, Paget’s etc</td>
</tr>
<tr>
<td>Referred</td>
<td>Visceral and somatic referred (see above see above</td>
</tr>
<tr>
<td>pSychosocial</td>
<td>depression, anxiety, other psychiatric condition</td>
</tr>
</tbody>
</table>

**Describe the symptoms**

- Site, quality, intensity, depth, sensory/motor phenomena (SQIDS)?

**History of presenting complaint**

- Previous episodes, onset, pattern - 24hr behaviour, duration, offset?
- Establish step-by-step temporal profile of headache: Were there any antecedent or
  associated factors present eg emotional stress, physical stress (eg exercise), other
  medical condition, esp visceral (cardiac, GIT – eg ulcers, respiratory – eg asthma)
Questions that should be asked

• Is the patient experiencing a new or unusual pain, or is it chronic and recurring?
• Presence of night pain, pain that wakes the patient or prevents falling asleep?
• Is there any leg stiffness or bowel/bladder disturbance [myelopathy]?
• Is there any other associated stiffness?
• Was there a flexion/extension injury/car accident [for upper thoracic pain]?
• Is it a once in a lifetime event [CNS infection]?
• Is there any shortness of breath, anterior chest pain, dizziness etc?
• Is there a history of neoplasia?
• Any relatives suffer same symptoms?
• What do you think is the basis of your problem?

Aggravating Factors

• Trunk rotation, coughing, sneezing, inhalation, reversing car

Relieving Factors

• Relaxation, meditation, heat, massages, exercises, medications, position, avoidance of certain behaviours

Previous Treatment

• Medical: medication, imaging [do they have their x-rays, CT, MRI?], other
• Manual Therapy: osteopathy, physiotherapy, chiropractic, massage?

Associated Symptoms

• Ask specific questions to detect other symptoms that may be related to the presenting complaint: eg fever, recent illness, depression, bleeding, chronic cough, previous neoplasia?

General Health

• Weight loss/gain, fatigue, malaise, depression. Last time they saw their general practitioner?

Past Medical History

• Should ask about previous neoplasia
• History of chicken pox

Psychosocial

Family Medical History

• Should ask about neoplasia

Systems review

• Cardiorespiratory, gastrointestinal, urogenital, neurological, endocrine, musculoskeletal
What is the probability diagnosis?

- Musculo-ligamentous strain
- Vertebral dysfunction

Diagnoses not to be missed

- Cardiovascular: myocardial infarction, angina, dissecting aneurism, pulmonary infarction
- Neoplasia: myeloma, metastasis, Pancoast tumour, mesothelioma
- Infection: pleurisy, infectious endocarditis, osteomyelitis
- Vertebral fractures (osteoporosis)
- Pneumothorax

Often overlooked

- Angina
- GIT disorders (oesophageal – reflux/spasm)
- Herpes zoster
- Spondyloarthropathies
- FMS
- PMR
- Chronic infection: TB, brucellosis

Physical examination

- Blood pressure
- Cardiorespiratory/abdo exam
- Neurological

Screen

Scan 1: Region with pain (comprehensive)

Scan 2: Other regions indicated by the screen (S.T.A.R.T)

Segmental definition

Referral indicated by:

- Evidence or suspicion of neoplasia, infection
- Suspicion of cardiac or gastrointestinal referred pain
- Significant idiopathic adolescent scoliosis

Clinical notes

- The older patient with chest pain should be considered as having cardiac pain
- The thoracic spine is the commonest site for metastatic disease
- Thoracolumbar kyphosis with recurrent thoracic pain in young patient _ Scheuermanns
- Always x-ray the thoracic spine following trauma [esp MVA], because wedge fracture T4/8 often overlooked
- Herpes zoster in the older person in the thoracic spine
9. **Low Back Pain**

**Sources of nociception**
- Vertebrae: periosteum
- Muscle: sprain, spasm, muscle imbalance, trigger points, control
- Fascia: Dorsal fascia - compartment syndrome?
- Dura mater, Epidural plexus
- Ligaments: intertransverse, lig flavum, supraspinous, PLL, ALL, interspinous, iliolumbar, SIJ
- Z-joints
- Discogenic: discitis, torsion injuries, internal disc disruption

- Somatic Referred From: hip, knee, intrathecal haemorrhage, tumour or abscess, meningitis, trigger points

- Visceral Referred: kidney, pancreas, ovaries, ureter, cervix/vagina

- Somatic referred pain (commonest): widespread pain due to pressure on dura or in distribution of posterior rami, lumbar-sacral plexus, buttock, lower limb, groin, abdomen

- Radicular pain: specific nerve root

**Diagnostic sieve**

<table>
<thead>
<tr>
<th>Category</th>
<th>Possible Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td>Z-joint dysfunction/somatic dysfunction, coccydynia, hypermobility, ligamentous sprains, postural LBP</td>
</tr>
<tr>
<td>Inflammatory / Infectious</td>
<td>Ankylosing spondylitis, RA, osteomyelitis, TB, pyogenic osteitis of the spine</td>
</tr>
<tr>
<td>Neoplasia</td>
<td>Multiple myeloma, metastatic disease, primary bone tumors</td>
</tr>
<tr>
<td>Neural</td>
<td>: Dura, DRG</td>
</tr>
<tr>
<td>Degenerative</td>
<td>Spondylosis, and spondylolisthesis (L4-5), Z-joint arthrosis, spondylosis = IVD degeneration, IDD, IVD prolapse</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>Adverse reaction to manual therapy, medication/surgical</td>
</tr>
<tr>
<td>Congenital</td>
<td></td>
</tr>
<tr>
<td>Autoimmune</td>
<td>Spondyloarthropathy</td>
</tr>
<tr>
<td>Arterial</td>
<td></td>
</tr>
<tr>
<td>Trauma</td>
<td>Fracture, path fracture, fracture-dislocation, spondylolisthesis (L5-S1) and spondylolisthesis, lig/muscular strain</td>
</tr>
<tr>
<td>Endocrine // Metabolic // Nutrition</td>
<td>DISH, Scheurmann’s, AVN, osteoporosis, osteomalacia, Paget’s etc</td>
</tr>
<tr>
<td>Referred</td>
<td>Visceral and somatic referred (see above see above)</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>Depression, anxiety, other psychiatric condition</td>
</tr>
</tbody>
</table>

**Describe the symptoms**
- Site, quality, intensity, depth, sensory/motor phenomena (SQIDS)?
- TRIAGE: Serious spinal pathology; nerve root involvement; or simple backache
History of presenting complaint

- Previous episodes (new or old?), onset, duration, pattern – 24 hr behaviour, duration
- Establish a sequential temporal profile of the LBP
- TRIAGE [Serious spinal pathology, nerve root; ‘simple back ache’]

Questions that should be asked

- Accidents/trauma
- What effect does coughing, sneezing or straining have on the pain?
- History of psoriasis, diarrhoea, penile discharge, eye trouble or severe pain in your joints?
- Do you have any urinary symptoms?
- Do you have any numbness or tingling in your saddle area?
- Do you have any weakness, stiffness or numbness in your legs?
- Do you have any night pain, or Weight loss?
- Have you had any feelings of depression or hopelessness in the last 3 months?

General health

- Weight loss/gain, fatigue, malaise, depression. Last time they saw their general practitioner?
- RA - any family history?
- Drug hx - any anticoagulants/steroidisease? >6 months steroidisease or other medications
- Neurological signs or symptoms - saddle signs, change in bladder or bowel habit, gait disturbances, leg stiffness [myelopathy]

Aggravating Factors

- Lumbar: sitting, driving, standing/walking lifting/stooping
- SIJ: one leg standing, turning over in bed, getting out of bed, walking

Relieving Factors:

- Heat/cold, massage, exercise

Previous treatment:

- Medical: medication, imaging and diagnostic tests
- Manual Therapy: osteopathy, physiotherapy, chiropractic, massage?

Associated Symptoms

- Ask specific questions to detect other symptoms that may be related to the presenting complaint: eg fever, recent illness, depression, bleeding, chronic cough, previous neoplasia?

What is the probability diagnosis?

- Non-specific low back pain

Diagnoses not to be missed

- Spondylarthopathies [Anky Spon/Psoriatic/Inflamm bowel], SIJ, Spondylolisthesis,
- Claudication - vascular/neurogenic, Prostatitis, Endometriosis, Tumour
Masqueraders

- depression, diabetes, drug history, anaemia, thyroid disease, UTI, visceral disease, peptic ulcer vascular AAA/abdominal arterial disease, CA colon/rectum, CA pancreas (retroperitoneal disease), testicular CA

Physical examination

- Blood pressure
- Abdominal exam
- LL neuro/vascular?

Screen

Scan 1: Region with pain [Comprehensive]

Scan 2: Other regions indicated by the screen (S.T.A.R.T)

Segmental definition

Referral indicated by:

- Nerve root pain if not resolved within 4 weeks
- Onset of pain under 20 or over 50
- Non-mechanical pain
- Thoracic pain
- Past history of carcinoma, steroidise or HIV
- Unwell, Weight loss
- Widespread neurological signs
- Structural deformity
- Sphincter disturbance
- Gait disturbance
- Saddle anaesthesia

Diagnoses not to be missed

- Spondylarthopathies (Anky Spon/Psoriatic/Inflamm bowel), SIJ, Spondylolisthesis,
- Claudication – vascular/neurogenic, Prostatitis, Endometriosis, Tumour
10. Hip Pain

Sources of nociception
(Hip pain is felt mainly in the groin and in the front or inner side of the thigh. Pain in the hip can be misleading, for often it is referred from the spine or pelvis).

- Pelvis/Femur: periosteum
- Muscle: sprain, spasm, trigger points
- Fascia/Tendon: ITB pain; gluteus medius tendinitis
- Ligaments
- Bursa: trochanteric/ischial

- Somatic Referred From: SIJ, Z-joints and disc, knee, intrapelvic mass: tumour or abscess, trigger points
- Visceral Referred: inguinal hernia or pelvic visceral disease
- Somatic referred pain: knee, ankle, SIJ, lower lumbar

Diagnostic sieve

<table>
<thead>
<tr>
<th>Functional</th>
<th>hypermobility, ligamentous sprains, postural LBP, Snapping Hip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammatory / Infectious</td>
<td>AS, RA, septic arthritis, transient synovitis, bursitis: trochanteric/psoas/ischial</td>
</tr>
<tr>
<td>Neoplasia</td>
<td>mets, primary's (osteosarcomas, chondrosarcoma)</td>
</tr>
<tr>
<td>Neural</td>
<td>meralgia paraesthetica, hip pocket nerve [sciatic], obturator eg pelvic inflammation/mass</td>
</tr>
<tr>
<td>Degenerative</td>
<td>Arthrosis</td>
</tr>
<tr>
<td>Iatrogenic</td>
<td>adverse reaction to manual therapy, medication/surgical</td>
</tr>
<tr>
<td>Congenital</td>
<td>Dysplasia of hip, congenital dislocation</td>
</tr>
<tr>
<td>Autoimmune</td>
<td>Seronegative arthritis</td>
</tr>
<tr>
<td>Arterial</td>
<td>AVN (Perthe’s)</td>
</tr>
<tr>
<td>Trauma</td>
<td>fracture, path fracture (NOF), fracture-dislocation, SFCE, lig/muscular strain, contusion, labral tears or loose bodies may cause associated pain into the groin and anterior thigh.</td>
</tr>
<tr>
<td>Endocrine // Metabolic // Nutrition</td>
<td>osteoporosis, osteomalacia, Paget's etc</td>
</tr>
<tr>
<td>Referred</td>
<td>Visceral and somatic referred (see above see above)</td>
</tr>
<tr>
<td>pSychosocial</td>
<td>depression, anxiety, other psychiatric condition fear of OA causing disablement</td>
</tr>
</tbody>
</table>

Describe the symptoms

- Site, quality, intensity, depth, sensory/motor phenomena [SQIDS]?

HPC

- Previous episodes [new or old?], onset, duration, pattern – 24 hr behaviour, offset
- Establish a sequential temporal profile of the pain
Questions that should be asked

- Does the pain come on after walking and stop after you rest?
- Is there any stiffness, especially when you wake in the morning?
- Do you get any back pain?
- Do your movements feel free?
- Do you have a similar ache around your shoulders (PMR)?
- Have you had an injury, such as a fall?
- Pelvic/lower abdominal surgery, urogenital problems, IUD’s, pregnancy

Aggravating Factors

- OA by walking, squat, side lying with painful hip uppermost, stairs; bursitis causes pain at night; tendonitis pain after activity

Relieving Factors

- Heat/cold, massage, exercise, medication, rest

Previous treatment:

- Medical: medication, imaging and diagnostic tests
- Manual Therapy: osteopathy, physiotherapy, chiropractic, massage?

Associated Symptoms

- Ask specific questions to detect other symptoms that may be related to the presenting complaint: eg fever, recent illness, depression, bleeding, chronic cough, previous neoplasia?

General Health

- Weight loss/gain, fatigue, malaise, depression. Last time they saw their general practitioner?

Past Medical History

- Should ask about previous neoplasia

Psychosocial

Family Medical History

- Should ask about neoplasia

Systems review

- Cardiorespiratory, gastrointestinal, urogenital, neurological, endocrine, musculoskeletal

What is the probability diagnosis?

- Traumatic muscular strains, referred pain from spine, DJD of hip joint
- 0-2 Congenital dislocation
- 2-5 Tuberculosis arthritis; transient synovitis,
• 5-10 Perthes’ disease; transient synovitis, septic arthritis
• 10-20 Slipped upper femoral epiphysis, septic arthritis
• 20-50 OA [primary OA; or secondary to trauma]
• 50-100 OA, trochanteric bursitis or gluteus medius tendinitis

Diagnoses not to be missed
• Claudication - vascular/neurogenic, Tumour, Septic infections, Prostatitis,
• Spondylarthopathies [AS/Psoriatic Arthritis/IBD], SIJ, Spondylolisthesis, AVN, slipped femoral
• epiphysis + other childhood disorders esp with LIMP
• Often Overlooked: PMR, stress fracture, subcapital/sacral fracture, AVN, SIJ, herniae, bursitis

Physical examination
• Blood pressure
• Abdominal exam
• LL neuro/vascular if indicated

Screen

Scan 1: Region with pain + regions that refer pain (eg back, SIJ, knee)

Scan 2: Other regions indicated by the screen (S.T.A.R.T)

Segmental definition

Referral indicated by:
• Hot/swollen: joint aspiration
• Suspicion of childhood disorders
• Undiagnosed pain, especially night pain
• Fractures or suspicions of fractures
• Patients with claudication
• Patients with OA that do not respond to conservative medicine
• Any mass or lump

Clinical notes
• Capsular pattern: gross limitation of flexion, abduction and medial rotation; sligthypertension limitation of extension, lateral rotation normal.
• OA: affects IR, ext & abduction first
• Dysplasia of the hip – pain in the hip, unilaterally, but often occurring later in other.
• Complain of pain in extreme ranges of motion, esp. Flexion and abduction.
• Following injury: shortened & externally rotated fractured NOF; internal rotation posterior dislocation
• Night pain adds up to inflammation, bursitis, tumour
Hip Pain

- Snapping in and around hip – slipping of the psoas tendon over the lessor trochantor or anterior acetabulum, or the iliofemoral ligament may be riding over the femoral head.
- Tight iliotibial band or gluteus maximus tendon riding over the greater trochanter of the femur.

Pain of vertebral origin.

- Thoracolumbar syndrome → L1/2: pain over iliac crest, lateral hip, groin and SIJ
- SIJ → posterolateral buttock pain
- L4/5/S1 → referred to lateral buttock, lateral thigh
### 11. Knee Pain

**Sources of nociception**

- **Bone:** periosteum
- **Joints:** patellofemoral, tibiofemoral, superior tib/fib
- **Muscle:** sprain, spasm, muscle imbalance, trigger points, control
- **Fascia:** ITB pain
- **Ligaments:** (ACL, PCL, coronary’s, collaterals, transverse)
- **Menisci:** medial/lateral
- **Bursa:**
- **Nerve trunks**

- **Somatic Referred From:** SIJ, Z-joints and disc, hip, intrapelvic mass, trigger points
- **Somatic referred pain:** hip, ankle. Usually indicate a loose body or a radial tear of the lateral meniscus

### Diagnostic sieve

<table>
<thead>
<tr>
<th>Category</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Functional</strong></td>
<td>patellofemoral dysfunction, recurrent dislocation; hypermobility.</td>
</tr>
<tr>
<td><strong>Inflammatory / Infectious</strong></td>
<td>AS, RA, Reiter’s, acute septic arthritis, transient synovitis, TB arthritis, bursitis [pre-patellar, infrapatellar, pes anserinus, semimemb, biceps], bakers cyst, quadriceps tendonitis.</td>
</tr>
<tr>
<td><strong>Neoplasia</strong></td>
<td>mets, primaries [osteosarcomas, chondroma, fibrosarcoma, GCT, osteochondroma, osteoid osteoma]</td>
</tr>
<tr>
<td><strong>Neural</strong></td>
<td>entrapment (common peroneal)</td>
</tr>
<tr>
<td><strong>Degenerative</strong></td>
<td>Arthritis, OA, loose bodies, osteophytes</td>
</tr>
<tr>
<td><strong>Iatrogenic</strong></td>
<td>adverse reaction to manual therapy, medication/surgical</td>
</tr>
<tr>
<td><strong>Congenital</strong></td>
<td>Dysplasia of hip, congenital dislocation, bi/tri partite patella, ?meniscal cyst, genu varum/valgus/recurvatum</td>
</tr>
<tr>
<td><strong>Autoimmune</strong></td>
<td>AS, Reiter’s</td>
</tr>
<tr>
<td><strong>Arterial</strong></td>
<td>SONK, haemophilic arthropathy, Osteochondritis dissecans, Osgood-Schlatter’s</td>
</tr>
<tr>
<td><strong>Trauma</strong></td>
<td>fracture, Salter-Harris fracture, path fracture , compression fracture, fracture-dislocation, lig/muscular strain, meniscal tear, haemarthrosis, damage to fat pad disease, Osgood-Schlatter’s disease, traumatic synovitis, Osteochondritis dissecans, loose bodies</td>
</tr>
<tr>
<td><strong>Endocrine // Metabolic // Nutrition</strong></td>
<td>osteoporosis, osteomalacia, Paget’s etc</td>
</tr>
<tr>
<td><strong>Referred</strong></td>
<td>Visceral and somatic referred (see above see above)</td>
</tr>
<tr>
<td><strong>pSychosocial</strong></td>
<td>depression, anxiety, other psychiatric condition</td>
</tr>
</tbody>
</table>
Describe the symptoms

- Site, quality, intensity, depth, sensory/motor phenomena [SQIDS]?

HPC

- Previous episodes [new or old?], onset, duration, 24-hr behaviour, duration, offset
- Establish a sequential temporal profile of the pain

Questions that should be asked

Related to an injury

- Was there an accident – what was the mechanism of injury? Was there a direct blow or twist?
- Did you feel a pop or a click when you injured your knee? [ruptured ACL?]
- Did your knee feel wobbly or unsteady?
- Did the knee feel as if the bones separated momentarily?
- How soon after the injury did the pain develop?
- How soon after the injury did you notice the swelling? [60 mins _ haemarthrosis/6-24hrs _ synovial effusion/ days _ typical of bursitis eg ‘house maids disease’]
- Has the knee been injured before – have you have any knee surgery?
- Were you able to walk after the injury or did you have to be carried off the field/court etc

No history of injury

- Does the pain come on after walking, jogging or other activity?
- How much kneeling do you do?
- Does your knee lock or catch? [torn meniscus/ACL, loose body, avulsed tibial spine, dislocated patella]
- Does the knee give way? [loose body, instability]
- Does swelling develop in the knee? [chronic _ intra-articular path eg OCD, OA, arthritides, pat-fem pain]
- On movement is there any grating, clicking or popping? [tracking dysfunction, loose body, idiopathic]
- Does the pain come on at rest and is there morning stiffness?
- Do certain activities or positions have an increase or decrease effect on pain?
- Is gait normal? [Check shoes]

Aggravating Factors

- Squat, twisting, walking, stairs, “movie-goers-knee” patellofemoral pain

Relieving Factors

- Heat/cold, massage, exercise, medication, rest

Previous treatment:

- Medical: medication, imaging and diagnostic tests
- Manual Therapy: osteopathy, physiotherapy, chiropractic, massage?
Knee Pain

**Associated Symptoms**
Ask specific questions to detect other symptoms that may be related to the presenting complaint: eg fever, recent illness, depression, bleeding, chronic cough, previous neoplasia?

**General Health**
Weight loss/gain, fatigue, malaise, depression. Last time they saw their general practitioner?

**Past Medical History**
Should ask about previous neoplasia

**Psychosocial**

**Family Medical History**
Should ask about neoplasia

**Systems review**
- Cardiorespiratory, gastrointestinal, urogenital, neurological, endocrine, musculoskeletal

**What is the probability diagnosis?**
- Ligament strains and sprains, traumatic synovitis, OA, patellofemoral syndrome, prepatellar bursitis

**Diagnoses not to be missed**
- Cruciate ligament tear, DVT, phlebothrombitis, neoplasia, septic arthritis, RA, fracture

**Masqueraders:**
- Bursitis around the infrapatellar fat pad can mimic Osgood-Schlatter’s disease

**Physical examination**
- Blood pressure
- LL neuro/vascular if indicated

**Screen**

**Scan 1: Region with pain (comprehensive)**

**Scan 2: Other regions indicated by the screen (S.T.A.R.T)**

**Segmental definition**

**Referral indicated by:**
- After acute injuries with locking, haemarthrosis, instability; clinical evidence of torn cruciates, menisci or 3° tear of lateral ligaments; undiagnosed acute/chronic knee pain; recurrent patella sub/luxation; suspected septic arthritis; troublesome loose bodies.
Clinical notes

- Capsular pattern: limitation flx, abd, MR; slight limitation of ext; LR normal.
- A rapid onset of painful knee swelling in minutes – hours → haemarthrosis
- Swelling over 1-2 days → traumatic synovitis
- Acute spontaneous inflammation of the knee → systemic condition eg RA, gout, CPPD, spondyloarthritis
- Osgood-Schlatter's in a boy 10-14 with knee pain
- Knee pain of spinal origin.
- Always think of an osteoid osteoma in a young boy with severe bone pain that responds to aspirin
- Pt presents with pop or crack followed by immediate effusion → ACL tear until proven otherwise
- Haemarthrosis following injury → ACL tear until proven otherwise

Diagnosing Meniscal Injuries (Dx can be made if 3/5 signs are present)

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee pain during and after activity</td>
<td>Localised tenderness over joint line</td>
</tr>
<tr>
<td>Locking</td>
<td>Pain on hyperextension of knee</td>
</tr>
<tr>
<td>Effusion</td>
<td>Pain on hyperflexion of knee</td>
</tr>
<tr>
<td></td>
<td>Pain on rotation of lower leg</td>
</tr>
<tr>
<td></td>
<td>Weakened or atrophied quadriceps</td>
</tr>
</tbody>
</table>

Clinical Notes

- Capsular pattern: limitation flx, abd, MR; slight limitation of ext; LR normal.
- A rapid onset of painful knee swelling in minutes/hours → haemarthrosis
- Swelling over 1-2 days → traumatic synovitis
- Acute spontaneous inflammation of the knee → systemic condition eg RA, gout, CPPD, spondyloarthritis
- Osgood-Schlatter's in children and young athletes (typically 10-15yoa) with knee pain
- Knee pain of spinal origin
- Always think of an osteoid osteoma in a young boy with severe ('bone') pain that responds to aspirin
- Pt presents with pop or crack followed by immediate effusion → ACL tear until proven otherwise
- Haemarthrosis following injury → ACL tear until proven otherwise
Ankle & Foot Pain

12. Ankle and Foot Pain

Sources of nociception

- Bone (periostium): trauma; fracture; tumour; bone disease
- Joints/synovial membrane: DJD, inflammation, infection, dislocation
- Capsule: strain/sprain, inflammation
- Ligaments: medial (deltoid) and lateral collateral, spring, long and short plantar,
- Musculotendinous strain/sprain; spasm, imbalance, Tender Point, control, mm disease, plantar fascitis
- Neural: entrapment syndromes referred

- Somatic Referred: L4, L5, S1, knee, calf shins
- Visceral Referred:

Diagnostic sieve

| Functional | SD of joint, dropped navicular, cuboid, anterior talus, calcaneal spurs, Halux valgus, loose body, ingrown toe nail, Sudeck’s atrophy (reflex sympathetic dystrophy of the foot) |
| Inflammatory / Infectious | RA, Gout, Reiters, TB |
| Neoplasia | mets, osteosarcoma, enchondroma, osteochondroma |
| Neural | radicular pain, neuropathy, UMN and LMN, neural entrapment (Mortons / Tarsal Tunnel) |
| Degenerative | Arthrosis |
| Iatrogenic | adverse reaction to manual therapy, medication/surgical |
| Congenital | tarsal coalition, agenesis, talipes equinovarus, talipes calcaneovalgus, in toeing, pes planus/cavus, talar beak, os trigonum, |
| Autoimmune | |
| Arterial | PVD AVN (Freibergs (osteochoondritis 2nd or 3rd Met) Kohlers (navicular) Severs’ (calcaneus), Oedema |
| Trauma | Potts fracture, avulsion fracture, Stress fracture and March fracture dislocation, ligament sprain, muscle strain, other soft tissue injury, degeneration, peri-tendonitis |
| Endocrine // Metabolic // Nutrition | Diabetic foot, gout, CPPD |
| Referred | Visceral and somatic referred (see above see above |
| pSychosocial | depression, anxiety, other psychiatric condition |

Describe the symptoms

- Site, quality, intensity, depth, sensory/motor phenomena (SQIDS)?

History of presenting complaint

- Onset, previous episodes, pattern - 24hr behaviour, duration, offset?
Questions that should be asked in HPC

• Does the pain arise from a local condition or is it part of a generalised disease?
• Is there a history of psoriasis, chronic diarrhoea, colitis, urethritis or conjunctivitis?
• Is there pain in any other joints?
• Is the pain associated with footwear?
• [What is the type of pain _ see clinical notes for pain/Dx correlations]
• Have you had any accidents (inversion-eversion) or trauma to your ankle?
• Was the foot pointing down or up at the time of the injury?
• Is this a new or unusual pain, or is it chronic and recurring?
• Is there any night pain or pain that wakes the patient/prevents falling asleep?
• Do you experience pain or numbness in your legs?
• Do you have any tingling or burning in your legs? [myelopathy or neuropathy]?
• Is there an acute, severe onset [osteomyelitis]?
• What do you think is the basis of your problem?

Aggravating Factors
• Walking, running, jumping, footwear, turning direction

Relieving Factors
• Heat, massages, exercises, medications?

Previous Treatment
• Medical: medication, imaging [do they have their x-rays?], other
• Manual Therapy: osteopathy, physiotherapy, chiropractic, massage?

Associated Symptoms
• Ask specific questions to detect other symptoms that may be related to the presenting complaint: eg fever, recent illness, depression, bleeding, chronic cough, previous neoplasia?

General Health
• Weight loss/gain, fatigue, malaise, depression. Last time they saw their general practitioner?

PAST MEDICAL HISTORY
• Should ask about previous neoplasia

Psychosocial

Family medical history
• Should ask about neoplasia

Systems review
• Cardiorespiratory, gastrointestinal, urogenital, neurological, endocrine, musculoskeletal
What is the probability diagnosis?

- Acute/chronic foot strain, sprained ankle, OA, plantar fasciitis, achilles tendinitis,

Diagnoses not to be missed

- Vascular insufficiency, neoplasia, severe infections, RA, peripheral neuropathy, RSD, ruptured Achilles tendon/tibialis posterior tendon.

Often overlooked

- Foreign body, gout, nerve entrapment (mortons, tarsal tunnel, deep peroneal), chilblains, stress fracture, spondyloarthopathies, osteochondritis
- Blood pressure
- Neurological/vascular exam of lower limb

Screen

Scan 1: Region with pain (comprehensive)

Scan 2: Other regions indicated by the screen (S.T.A.R.T)

Segmental definition

Referral indicated by:

- X-ray in all severe ankle injuries → If in doubt about the Dx → X-ray
- Children rarely sprain ligament → all joint injuries causing pain in children need to be x-rayed

Clinical notes

- Capsular Patterns: Tib-fib: pain when joint is stressed;
- Ankle joint: greater limitation in plantar flexion than dorsiflexion
- Talo-calcaneal: limitation of inversion
- Mid-tarsal: limitation of dorsiflexion, plantarflexion, adduction and medial rotation, abduction and lateral rotation are full range
- 1st MTP: greater limitation of extension then extension
- Other toes: variable; tend to get fixed in extension with the IP's flexed
List of Abbreviations

AAA: Abdominal Aortic Aneurysm
ACL: Anterior cruciate ligament
ALL: Anterior longitudinal ligament
AMI: Acute myocardial infarction
AnkySpon: Ankylosing Spondylitis
AS: Ankylosing Spondylitis
AVN: Avascular necrosis
BP: Blood pressure
BPPV: Benign paroxysmal positional nystagmus
CVD: Cardiovascular disease
CA: Cancer
CNS: Central nervous system
CPPD: Calcium Pyrophosphate Dihydrate
CVS: Cardiovascular system
Deposition Disease
DJD: Degenerative joint disease
DRG: Dorsal root ganglion
Ds: Disease
DVT: Deep Vein Thrombosis
FMS: Fibromyalgia syndrome
GCT: Giant Cell Tumour
GIT: Gastrointestinal tract
HPC: History of presenting complaint
Hx: History
IBD: Inflammatory Bowel Disease
ITB: Iliotibial Band
IVD: Intervertebral disc
IVF: Intervertebral foramen
LMN: Lower Motor Neuron
LL: Lower limb
Mets: Metastasis
MVA: Motor Vehicle Accident
NOF: Neck of femur
OA/AA: Occipito-Atlanto/Anteroatlantoaxial
OA: Osteoarthritis/Osteoarthrosis
OCD: Osteochondritis Dissecans
PCL: Posterior cruciate ligament
PLL: Posterior longitudinal ligament
PMR: Polymyalgia Rheumatica
PSS: Progressive Systemic Sclerosis
RA: Rheumatoid arthritis
SFCE: Slipped Femoral Capital Epiphysis
StS: Supraspinatus, Infraspinatus, Teres
SLE: Systemic Lupus Erythematosus
TIA: Transient ischaemic attack
TB: Tuberculosis
UMN: Upper Motor Neuron
UTI: Urinary Tract Infection
TMJ: Temporomandibular joint
VBI: Vertebrobasilar insufficiency
z-joint: Zygaphophyseal joint
Are these issues important to you?

Too much to do and not enough time?

Continuing Professional Development (CPD) typically involves time away from family, friends and business. HealthProfessionalCPD gives you control over when and where you complete your CPD.

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