Pathways of Care in Foot and Ankle Surgery

Background

To help inform the commissioning process for quality orthopaedic foot and ankle surgical services the Scientific Committee of the British Orthopaedic Foot and Ankle Society (BOFAS) has produced clinical pathways for some of our most frequently seen clinical conditions.
Prior to referral for consideration for surgery patients should have had a consultation and assessment by their general practitioner. This will provide the surgeon with appropriate information regarding current medication and past medical history. It will also allow assessment by the GP regarding the appropriateness of a referral to secondary care.
Surgical treatment for foot and ankle problems is NOT indicated for cosmesis alone. Rather, the usual problems will be pain, disability and/or deformity that threatens the integrity of the skin.

Surgery has much to offer those cases that cannot be accommodated in appropriate footwear.

Once referred to the foot and ankle surgery service the clinical pathway follows the standard model of care for patients in surgical specialties:

Clinical history
Clinical examination by a subspecialty trained surgeon
Appropriate investigation if necessary, to inform treatment
Comprehensive non-operative care where appropriate
Surgical treatment for patients who have failed non-operative treatments

We have produced clinical pathways for patients with:

Hallux Valgus
Heel pain
Lesser toe deformity
Ankle pain
Lumps and Bumps

They are bests read in conjunction with the ‘Blue Book’ on Elective Forefoot Surgery: A Guide to Good Practice’ BOA 2010. This document provides more detail regarding standards of clinical care and the resources that are required to provide it.

Mr S A Henderson, Chairman Scientific Committee, BOFAS
Ms P E Allen, Secretary
Mr M Solan
Mr M Hennessy
Mr M B Davies Mr W Harries

Surgery for Hallux Valgus (Bunions)

Deformity of the big toe results in pain, difficulty with shoe fitting and secondary effects (most commonly affecting the second toe) due to overload of the rest of the foot. Modern surgical techniques provide effective and reproducible outcomes. Risk of complication is small. Non-operative treatments are of limited value. Surgery for cosmetic reasons is not advisable.

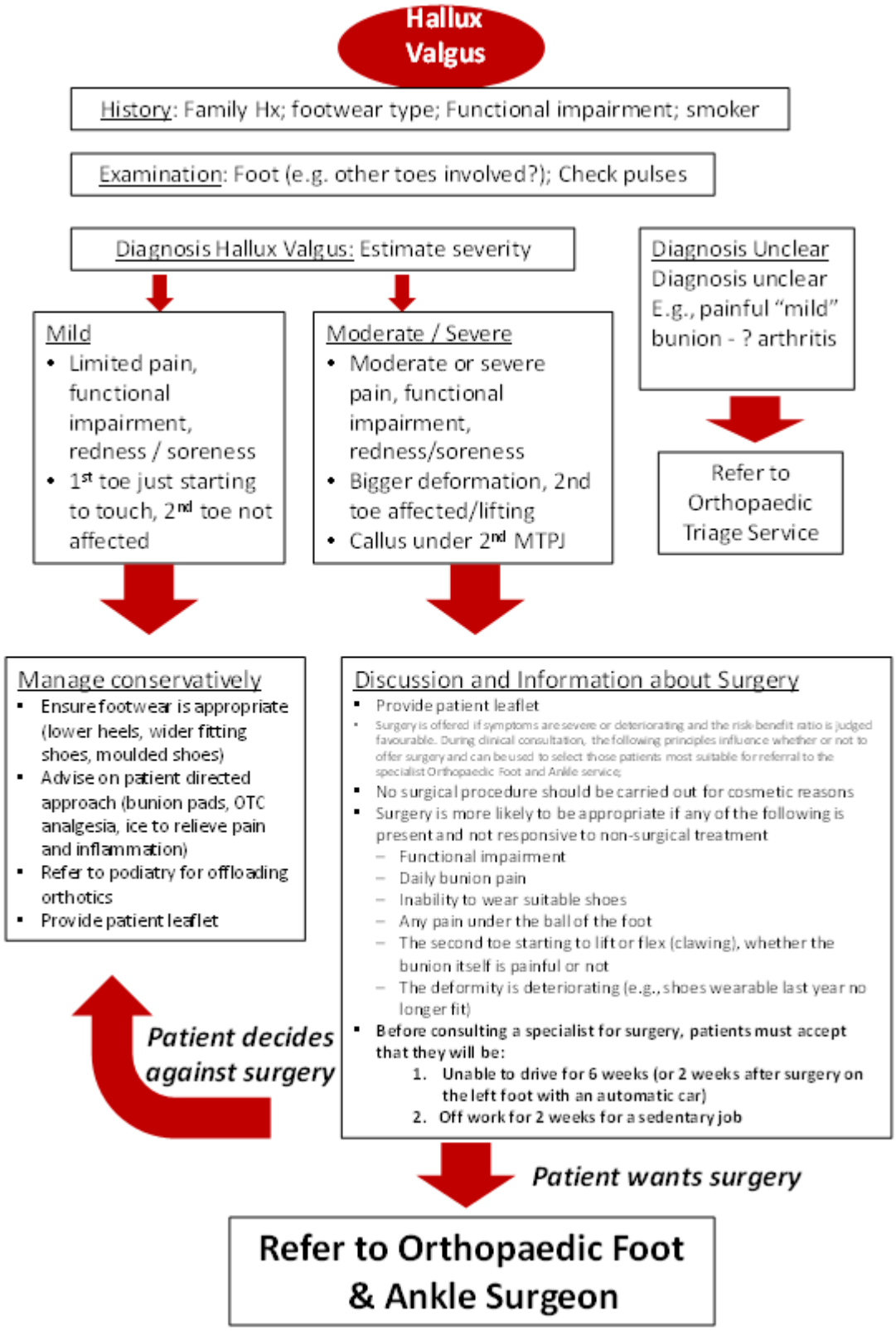
• Hallux valgus: Surgical treatment of	Hallux valgus is a common foot condition which can broad range of symptoms, from the purely cosmetic and disability. Some feet deteriorate over time. Surg successful in the earlier stages but prophylactic or c justified, even with the lower risks and higher succes techniques. Several types of operation are available particular clinical circumstances. Surgery is offered or deteriorating and the risk-benefit ratio is judged fa consultation, the following principles influence wheth surgery and can be used to select those patients mo the specialist orthopaedic foot and ankle service; • No surgical procedure should be carried out for co • Surgery is more likely to be appropriate if any of th and not responsive to non-surgical treatment; ◦ functional impairment ◦ daily bunion pain ◦ inability to wear suitable shoes ◦ any pain under the ball of the foot ◦ the second toe starting to lift or flex (clawing), whe painful or not ◦ the deformity is deteriorating (eg shoes wearable • Before consulting a specialist for surgery, patients

	will be unable to drive for 6 weeks (or 2 weeks foot with an automatic car) and will be off wor sedentary job.
• Hallux valgus: Minimal access surgery for	• Minimal access surgery for hallux valgus is not rou 332 and XXXX PCT NICE sub-committee rec surgery should be carried out only as part of a audit programme.

In 2010 the BOA produced a Blue Book of guidance in relation to foot surgery. This document has helped to set national standards.

BOFAS recommend that where surgery of any type is performed by a podiatrist, then this clinical activity should be within a team led by a Consultant Orthopaedic Foot and Ankle Surgeon.

Primary Care Guide to Referral for Hallux Valgus:



Secondary Care – what happens?

Imaging:
Weight bearing x-rays of the foot.

Surgery:
One or more osteotomies of the first ray are usually undertaken and held with internal fixation devices.
Intraoperative or early postoperative imaging is required to confirm the correction achieved with surgery and the position of internal fixation devices.
Most surgical cases can be managed as day cases or 24 hour stay.
Many cases will be provided with local anaesthetic regional blocks for postoperative pain relief.

Postoperative Care:
Appointment after 2 weeks to change dressings and at about 6 weeks with x-rays to confirm healing of osteotomies.
Physiotherapy.

Heel pain: Achilles Tendinopathy & Plantar Fasciitis

Heel Pain

Many people suffer with pain in the heel. For the vast majority of patients the symptoms are self-limiting or resolve with simple self-treatment. More stubborn cases (no improvement after 3 months) benefit from evidence-based treatments such as eccentric calf stretching under physiotherapy guidance. There is very little evidence to support the use of many other treatments that are often used empirically. The most recalcitrant cases (symptoms for over 6 months) should be referred to secondary care for assessment.

Primary Care

History

Gradual onset of heel pain, with stiffness on rising in the morning is typical of both Achilles and plantar heel pain.
Atypical symptoms, such as night pain, should prompt referral.

Examination

Achilles tendinopathy usually affects the main body of the tendon, a few centimetres above the heel. There is thickening and tenderness. Less frequently the tenderness is low down, at the insertion on the back of the heel bone. There is often associated swelling and bursitis.
Plantar heel pain has tenderness that is most severe at the medial calcaneal tuberosity, just proximal to the arch of the foot.

Imaging

This is not required. In particular there is no merit in an X-ray to look for a heel spur. The association (if there even is one) between presence of a heel spur and symptoms of plantar fasciitis is not important. Heel spurs are not removed any more. The finding of a spur has no bearing upon treatment.

Treatment

Three step treatment plan, determined by the duration of symptoms:

First 3 Months

Information sheet (in conjunction with secondary care)
Information about calf stretches (Achilles pain and plantar fasciitis) and plantar fascia stretches.

3 – 6 months
Refer to physiotherapy for formal stretching program

More than 6 months (and failed physiotherapy treatments)
Referral to Foot and Ankle Surgeon for further assessment

Heel Pain (Achilles or Plantar fasciitis)

History
- Treatments tried so far
- Early morning pain / stiffness
- Footwear type
- Functional impairment

Examination
- Foot (sitting, standing and walking) for abnormalities including flat foot, high arch and tight Achilles tendon. Bilateral?
- Palpate inferior medial and medial aspect of the heel (tenderness to plantar region is key feature)
- Pulses

Achilles or Plantar fasciitis diagnosis is clear

Diagnosis is unclear

1. Advice & Treatment (< 3 months of symptoms)
- **Reassure that condition usually improves spontaneously**
- **Provide Pat. Leaflet which gives an overview of condition and provides instructions for doing calf stretches. Ask patient to return in 3 months if condition has not improved from doing stretches (stretches resolve the issue in 80% of cases)**
- Advice regarding
  - OTC arch supports and heel cushions
  - Shoes with good arch support, cushioned heels
  - Rest
  - Periodic application of ice

2. Physio Referral (3 – 6 months) of symptoms
This is needed in ~20% of cases
- Refer to physio or podiatry for eccentric calf stretching (+/- plantar fascia stretches (for ~ 3 months)
- Consider night splint

3. Hospital referral (> 6 months symptoms and failed physio) Approx 4% cases
To Orthopaedic Foot and Ankle Clinic if , over 6 months, the above has not resolved problem

Secondary Care – what happens?

Diagnosis
Assessment of the patient includes a full history including the duration of symptoms and treatments already prescribed the severity of symptoms (early morning pain & stiffness, post exercise), footwear and patients functional limitation.

Examination
Examination includes a full assessment of gait (e.g. early forefoot loading) and their foot shape (flat/cavus foot) together with the general alignment of the lower limbs. The soft tissue profile (tight hamstrings, Achilles) must be assessed. The site of tenderness (in the foot/ over the Achilles tendon or insertion) must be documented along with any swelling in Achilles and its position (insertional/non-insertional). An assessment of tibialis posterior function should also be performed. The pedal pulses and findings of sensory testing should be documented.

Investigation / Imaging
Imaging is required, firstly to confirm the clinical diagnosis and secondly to classify the exact nature and site of pathology. USS is extremely useful for this. Sometimes therapeutic interventions can be performed under USS guidance at the same time. USS is best performed by an experienced musculoskeletal radiologist. MRI is the investigation of choice in cases where the diagnosis is in doubt. Plain weight-bearing radiographs should be obtained to complement the MRI.

Treatment
Non-operative treatments for non-insertional tendinopathy of the Achilles tendon include a variety of injection techniques (dry needling, injection prolotherapy, brisement) and newer injection adjuvants including autologous blood products.
Shockwave is another emerging technology.

Surgery
Surgery has little place in the management of plantar fasciitis as the vast majority will settle with conservative treatment.

There may be a role for gastrocnemius recession in a small minority of patients who have a tight soft tissue profile and resistant pain.

Operations for recalcitrant Achilles tendinopathy (main body) include stripping of the paratenon, decompression and debridement of the tendon. For insertional tendinopathy it is essential to determine the extent to which bursitis is contributing. Excision of calcaneal exostosis, endoscopic debridement of the retrocalcaneal space and debridement of the distal tendon are operations that are required for cases of insertional tendinopathy.

Occasionally complex reconstruction of the Achilles tendon may be required, for example by flexor hallucis longus tendon transfer.

After surgery, patients require an appropriate period of immobilisation in a plaster cast and then rehabilitation under the care of a physiotherapist.

LESSER TOE SURGERY

The terms claw toe, hammer toe and mallet toe are used to describe deformities of the lesser toes. There is commonly an associated big toe problem (hallux valgus or hallux rigidus). Symptoms may affect the toe itself (tip pain, callosities at joint, rubbing on shoes) or the ball of the foot where the toe meets the metatarsal. Aching discomfort in the ball of the foot is commonly misdiagnosed as a Morton's neuroma, when it is really pain from the mtp joint.

Primary Care

History
Diabetes or other neuropathy mean the patient is at risk of ulceration and infection. Smoker?

Examination
Is there an asymptomatic big toe problem too?
Pulses and sensation

Investigation
None

Management
Advice sheet (in association with secondary care)
Podiatry referral for toe sleeves or orthotics, and shoes with deep toe-box to accommodate deformity and stop rubbing.

Referral for Surgery
When non-operative treatments have failed.
Patients with associated asymptomatic hallux valgus must understand that this will probably need correcting (6 weeks without driving – see Hallux Valgus pathway) to afford enough room for the second toe to be straightened into.

Lesser Toe problems

History
- Treatments tried so far
- Footwear type
- Functional impairment
- Extra risk of ulceration / infection eg diabetes

Examination
- Foot (sitting, standing and walking) for abnormalities including flat foot, high arch and tight Achilles tendon. Bilateral?
- Associated big toe stiffness or hallux valgus? (asymptomatic)
- Pulses

Minor symptoms

Severe Symptoms

Advice & Initial Treatment
Avoid narrow or slip-on shoes (tight over toes)
Chiropody and skin care
Podiatry referral for toe sleeves
Appliance department for extra deep or wide shoes

Hospital referral – consider corrective surgery.
This may involve surgery for the big toe if there is no room into which to straighten the 2nd
Likely not able to drive for 6 weeks

Secondary Care – what happens?

Assessment

A full history including the adequacy of non-operative treatments already tried and examination (pulses, sensation, associated first ray pathology).
Weight-bearing radiographs before any specialist imaging.

Conservative care:

Where not adequately provided before, orthotics and specialist footwear (extra wide and extra deep toe box) may be tried. Occasionally patients with biomechanical soft tissue imbalance will benefit from referral to specialist physiotherapy.

Surgery

The principles of lesser toe surgery are to maintain toe alignment or correct alignment when there is deformity. Dislocation/Subluxation of MTPJs should also be addressed. Toe contact should be maximised with the ground in order to distribute forefoot load evenly.

Postoperative Care

1 Most surgery will be performed on a day case or overnight stay basis.
2 Patients are discharged only when they are deemed safe in their postoperative environment and when any pain is adequately controlled.
3 Usually there would be 2 or 3 postoperative clinic visits before discharge back to the GP.

Ankle Pain

Patients with ankle pain may have had a precipitating recent injury that has failed to improve, or a gradual onset of symptoms without a discrete injury.

1.The "ankle sprain that does not heal"

There are many different causes of persisting symptoms after ankle injury. The vast majority are amenable to treatment.

Primary Care

History

Most commonly an Inversion injury. Were baseline x-rays taken in A&E? Previous injuries to the same ankle? Pain, swelling, insecurity or a combination?

Examination

Swelling, ***Calf squeeze test to check Achilles tendon is intact***

Investigation

Consider X-ray if none taken in A&E (According to Ottawa guidelines)

Physiotherapy is useful for many cases that seem slow to settle. If symptoms persist for more than 3 months then referral to secondary care for assessment, weight-bearing radiographs and further investigation (if required) is recommended.

Management

Physiotherapy referral.
Local pathways to facilitate onward referral to Foot and Ankle Orthopaedic Surgery (rather than back to GP) if not responding to physiotherapy.

Secondary Care – what happens?

Presentation:

Highly variable.
Many indications: Ankle pain, swelling, instability, stiffness, dysfunction

Diagnosis:

Clinical, with supplementary imaging. Because osteochondral lesions of

the talar dome are usually not detectable on plain x-rays, an MRI scan is commonly required as part of the assessment.

Preoperative scoring:
- MOXFQ *(Dawson et al 2006)*
- Consider SAFAS *(sports athletic F&A score)*

Surgery
Many cases are amenable to treatment, for example by ankle arthroscopy
Cases with structural instability may require surgical stabilisation.

2.Insidious ankle pain

Ankle Arthritis is less common than that of the hip and the knee, but the effects upon a patient's quality of life have been shown to be just as severe.
There may be a history of fracture of the ankle, of repeated ankle sprains or of proximal (eg tibial) fracture mal-union.
Arthritis in the neighbouring joints of the hind foot and tendon pathology (tibialis posterior tendinopathy) should be considered in cases of insidious onset of "ankle" pain.
The ankle is often involved in inflammatory arthritis too.

Primary Care

History
Pain, swelling and stiffness. History of previous trauma?
Difficulty walking over rough ground is suggestive of pathology in one of the neighbouring joints of the hind foot.
Smoker?

Examination
Stiffness when squatting into a skiing position. Swelling, crepitus.
Pulses, sensation and skin quality are relevant when considering surgical referral.

Investigation
X-rays that are not taken with the patient bearing weight are of limited diagnostic use. To avoid duplication of x-rays imaging is best reserved for those patients who are referred to secondary care.

Management
Advice includes: analgesia, weight loss, activity modification and walking aids.
Consider: Physiotherapy; Ankle support brace

Referral
Where first-line treatments are insufficient then further assessment to ensure accurate diagnosis is recommended.

- If gradual onset and diagnosis is unclear then refer to Orthopaedic Foot and Ankle Clinic.

- If secondary to recent injury
  - Refer to physio
  - if patient has a collapsed arch, podiatry is also beneficial

- If issue not resolved after trial of these measures refer to Orthopaedic Foot and Ankle Clinic

Secondary Care – what happens?

Presentation:
Pain, swelling and disability are the indications for operative intervention. Occasionally, painless deformity may require surgery to aid accommodative footwear.

Initial diagnosis:
Plain radiographs (weight bearing AP and lateral), occasionally supplemented with CT and or MRI. Complex imaging to be ordered by treating consultant for purposes of preoperative planning.

Conservative Care:
Many patients will get significant temporary and long term relief of symptoms from a comprehensive package of individually tailored conservative care. This may include further targeted physiotherapy, orthotics and footwear adjustments, use of AFO splints and appropriate analgesia. Failure of a good package of conservative care to reduce or alleviate symptoms should result in consideration of surgical management.

Surgery
A variety of surgical techniques may be required to adequately treat the complex range of patients and presentations of ankle arthritis. These include – Ankle debridement and stabilisation, Arthrodesis (arthroscopic and open), intramedullary nailing of hind foot and ankle arthroplasty.

Rehabilitation
Most patients will require a number of outpatient review appointments (3 – 6) often with x ray and input from a number of Allied Health Professionals:
Plaster room with technicians
Nursing for wound care
Access to physiotherapy and hydrotherapy
Access to orthotist

Data collection
National Joint Registry practitioners are essential for registering cases of ankle arthroplasty.
PROMs
Validated post-operative clinical scoring

Lumps, bumps and Ganglia

The Foot and Ankle are just as likely to develop a benign or malignant lump as any other part of the body.

All soft tissue lumps should be assessed carefully, and management is determined by the physical characteristics of the lump.

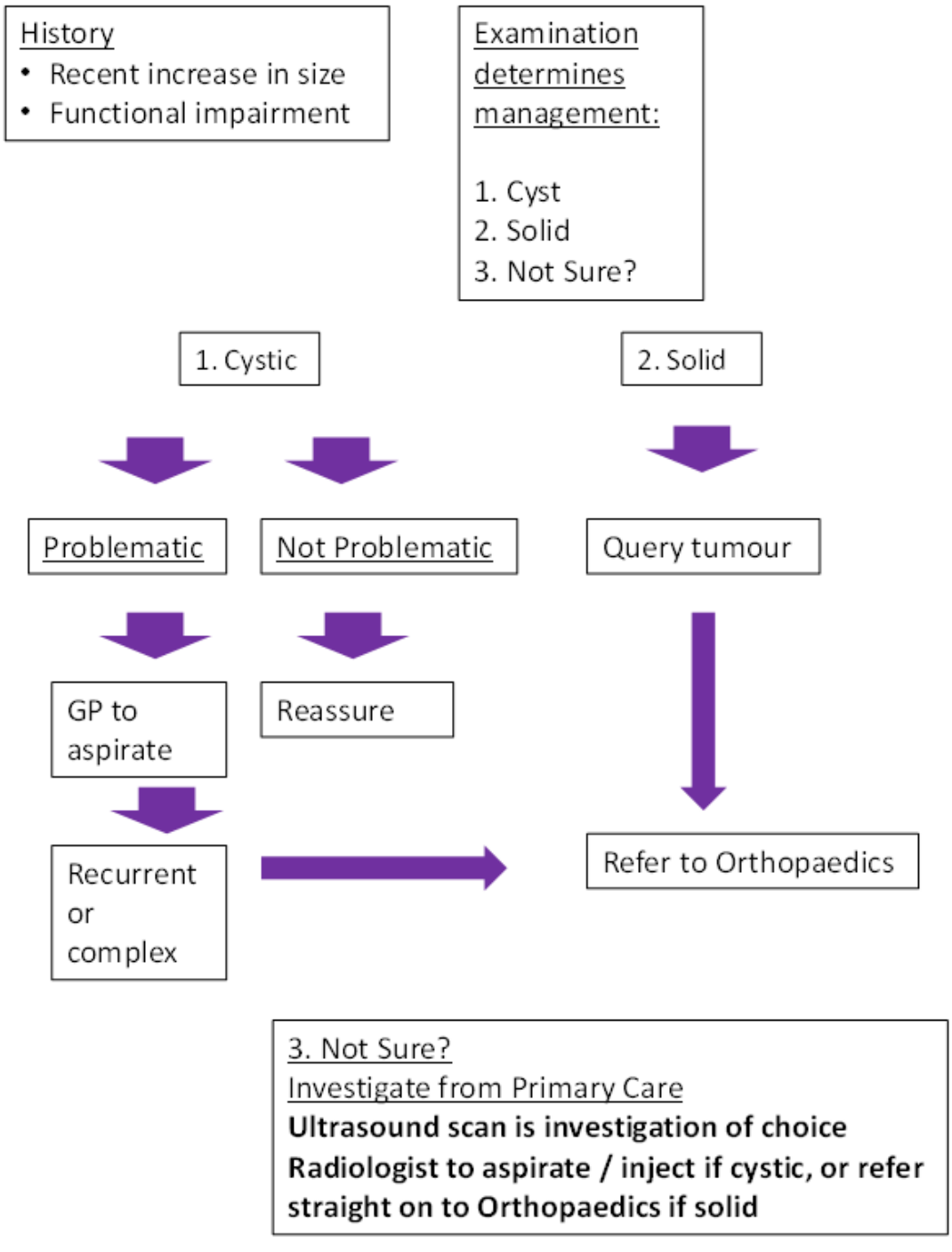
A small cystic lump is likely to be a ganglion and if it is problematic may be treated by aspiration/injection.

If it recurs orthopaedic referral is recommended.

A solid lump is a malignant tumour until proven otherwise. Referral is recommended.

In cases of uncertainty it is appropriate to refer to the Ultrasound department. It is useful to have a protocol whereby the radiologist will treat a cyst by aspiration / injection, or refer a solid lump straight on to Orthopaedics (rather than back to the GP).

Lumps & Bumps


History
• Recent increase in size
• Functional impairment
Examination determines management:
1. Cyst
2. Solid
3. Not Sure?
1. Cystic
2. Solid
Problematic
Not Problematic
Query tumour
GP to aspirate
Reassure
Recurrent or complex
Refer to Orthopaedics
3. Not Sure?
Investigate from Primary Care
Ultrasound scan is investigation of choice
Radiologist to aspirate / inject if cystic, or refer straight on to Orthopaedics if solid