Spire Healthcare

Foot and Ankle during COVID-19: Virtual Examination and Red Flags

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Stanmore Foot and Ankle Specialists

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15	Brigham And Women's Hospital	**Department of Orthopaedic Surgery**	Boston, MA	United States

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Relevant to you!

- Foot and Ankle Virtual Consultations
  - How to perform
  - What NOT to miss
- Common lockdown conditions to be aware of
- Steroid Injections
- Keeping Patients Safe.

- www.matthewwelck.com
- www.stanmorefoot.co.uk
  - Slides all on website.
  - 45 mins then stop for questions
- Interactive & Anonymous!

Virtual Consultations: Our practice

Likely to persist in some capacity.

Main barrier is physical examination, rapport, doctor-patient relationships

+: Convenient for Patient, cheaper

Sometimes screening tool to allow pre consult investigation

We see most patients F2F for initial consult: examination e.g stability, flexibility, strength.

Some follow ups are now virtual

Post ops we see… unless injection etc.

F&A Virtual Consultations – how to

Article

AMERICAN ORTHOPAEDIC FOOT & ANKLE SOCIETY®

Foot & Ankle International®
1–10

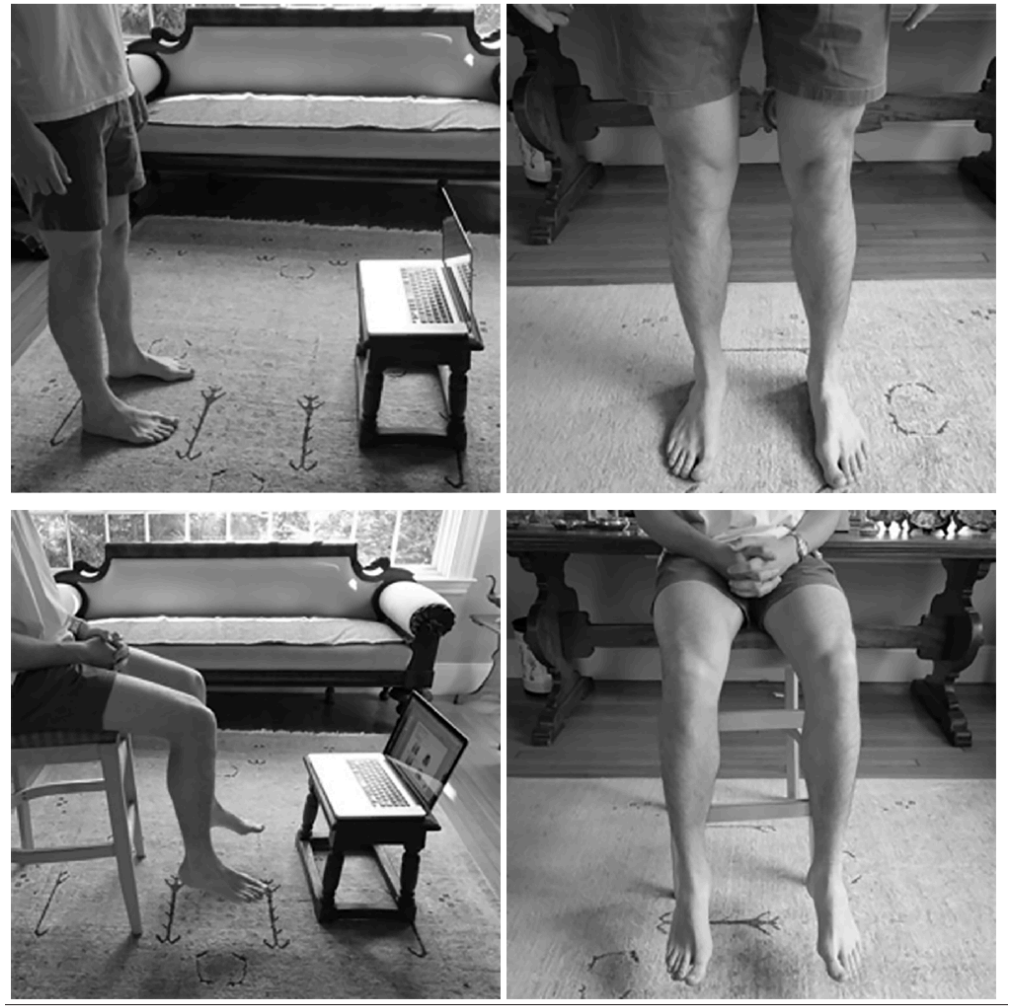
DOI: 10.1177/1071100720941020
journals.sagepub.com/home/fai

The Virtual Foot and Ankle Physical Examination VIDEO

Stephanie K. Eble, BA[1], Oliver B. Hansen, BA[1], Scott J. Ellis, MD[1], and Mark C. Drakos, MD[1]

Comprehensive technique for virtual foot and ankle examination with documentation checklist. Mainly for F&A surgeon but some useful tips

On website



- Palpation: One finger to point, draw on before.
- Movement: Actively or Passively with helper.
- Strength: Hard. Tiptoes 4/5 power PF, heels 4/5 DF, Family member.

Table 1. Patient Guidelines for Appropriate Dress and Instructions for Setting up the Camera.

For patients (intended to be provided *before* the telehealth visit)

Recommended Devices: A portable laptop or tablet is preferable for use during the telehealth visit, as it is stable and the camera can be easily tilted as needed. A mobile phone can also be used, though it may be difficult to position properly unless a family member or friend is available to hold the phone in position.

Patient Clothing: Both ankles and knees should be exposed. Wear gym shorts that end at least 3 inches above the knee. Shoes and socks off.

Examination Space: 10 to 15 feet of open space should be available to allow you to move for gait analysis.

Lighting: The brightest area in the room should be behind the camera, not facing it.

Patient Position: Begin seated and with your camera at eye level. During the physical examination you will be asked to reposition yourself and your camera as described below, based on the body part being examined.

Camera Repositioning (when instructed to do so during the examination):

Standing: Camera should be placed at shin level with knees to feet visible on the video. You will need 10 feet of space to walk. The camera should also be movable to give an overhead view of the feet.

Seated: Sitting on a stool/high chair with feet not touching the floor. The camera should be placed on a table at shin level with knees to feet visible on the video.

Please test out the positioning and camera images prior to the visit. The required distance and angle of the camera position will vary with the type of device.

Table 2. Foot and Ankle Virtual Examination Template, Including a List of Each Examination to Be Performed, a Checklist for Medical Record Documentation, and Corresponding Verbal Instructions for Clinicians to Provide to Patients During the Virtual Examination.

Examination	Documentation	Verbal Instructions for Patient
Vital signs (provided on patient intake form if possible)		
Height and weight	☐ Height: _____ ☐ Weight: _____	
Temperature	☐ Temp: _____ ☐ Location: _____	
Heart rate (HR)	☐ HR: _____	
Blood pressure (BP)	☐ BP: _____/_____	
Gait		
Standard walking (heel to toe)	☐ Antalgic ☐ Coxalgic ☐ Trendelenberg ☐ Flexed knee ☐ Stiff knee ☐ Varus thrust ☐ Valgus thrust	"Walk directly away from the camera for at least four steps. Turn around and walk directly back toward the camera for at least four steps. Make sure you are in view of the camera while walking."
Toe walking	☐ Adequate calf/Achilles strength ☐ Weakened calf/Achilles	"Walk directly away from the camera on your tip toes for at least four steps. Turn around and walk back towards the camera on your tip toes."
Heel walking	☐ Adequate ankle dorsiflexion strength ☐ Weak ankle dorsiflexion strength	"Walk directly away from the camera on your heels for at least four steps. Then walk back towards the camera on your heels while staying in view of the camera throughout."
Inspection/palpation		
Hindfoot alignment (posterior view)	☐ Neutral ☐ Mild varus ☐ Severe varus ☐ Mild valgus ☐ Severe valgus	"Stand facing away from the camera so that the doctor can see the back of your legs and heels, from your feet to your knees."
AP foot alignment (from above)	☐ Neutral ☐ Mild abduction ☐ Severe abduction ☐ Mild adduction ☐ Severe adduction	"Stand and hold the camera over your feet so that the doctor can see your ankles and feet from above."
Tenderness	☐ Locate area of concern	"Point with one finger to the area of maximal tenderness while positioning the camera so that the doctor can see that area."
Skin integrity	☐ Dorsal surface integrity ☐ Plantar surface integrity	"While sitting, raise your foot so that the doctor can see the bottom surface. Then place your foot down and position the camera so that the top surface is visible."
Range of motion		
Dorsiflexion and plantarflexion	Active ROM ☐ Normal ROM ☐ Limited ROM ☐ Motion painful Passive ROM ☐ Normal ROM ☐ Limited ROM ☐ Motion painful	"While seated, position the camera so that the doctor can see the side of your foot. The foot being examined should be the one closest to the camera. Bend your knee to a 90-degree angle. First, using your own muscle power, bend your foot as far towards your shin as possible with your toes pointing up, then point your toes as far towards the ground as possible. Now manually manipulate the foot through the same motion, either yourself or with assistance from a family member or friend."
Gastroc tightness (compare to bent knee PF and DF above)	☐ Normal tightness ☐ Mild tightness ☐ Severe tightness	"Remain seated and perform the same motion as before, but with your knee straight. You may need to reposition the camera for the doctor to see your foot and ankle."
Inversion and eversion	Active ROM ☐ Normal ROM ☐ Limited ROM ☐ Motion painful Passive ROM ☐ Normal ROM ☐ Limited ROM ☐ Motion painful	"Sit with the camera facing the front of your feet and ankles. First, using your own muscle power and trying to keep your toes facing forwards, rotate your foot as far inwards as possible, then as far outwards as possible. Now manually manipulate the foot through the same motion, either yourself or with assistance from a family member or friend."
Strength tests (assisted by an examiner)		"To complete the following tests, you will need someone to help provide resistance as you complete the described motions. This will give us a sense of your strength. Position the camera for each exercise so that the doctor can see your feet and ankles."
Ankle dorsiflexion strength	Remote Examiner ☐ Unable ☐ Very weak ☐ Somewhat weak ☐ Symmetric	"The examiner will place his/her hands on the top of each foot. The examiner will resist as you attempt to bend your ankles up such that your toes point toward your face, as if you are easing off of the gas pedal. The examiner will test both ankles at the same time and describe the strength as 'very weak,' 'somewhat weak,' or "same as other side.""
Ankle plantarflexion strength	Remote Examiner ☐ Unable ☐ Very weak ☐ Somewhat weak ☐ Symmetric	"The examiner will place his/her hands on the bottom of each foot. The examiner will resist as you attempt to press your feet down, as if you are pressing down on the gas pedal. The examiner will test both legs at the same time and will describe the strength as 'very weak,' 'somewhat weak,' or "same as other side.""
Big toe strength	Remote Examiner ☐ Unable ☐ Very weak ☐ Somewhat weak ☐ Symmetric	"The examiner will place his/her hands on the top of each big toe. The examiner will resist as you attempt to point your big toes toward your face. The examiner will test both big toes at the same time and will describe the strength as 'very weak,' 'somewhat weak,' or "same as other side.""
Eversion strength	Remote Examiner ☐ Unable ☐ Very weak ☐ Somewhat weak ☐ Symmetric	"The examiner will place his/her hands on the outside border of each foot. Resist the examiner as he/she pushes on the outside border of each foot. The examiner will test both legs at the same time and will describe the strength as 'very weak,' 'somewhat weak,' or "same as other side.""
Inversion strength	Remote Examiner ☐ Unable ☐ Very weak ☐ Somewhat weak ☐ Symmetric	"The examiner will place his/her hands on the inside border of each foot. Resist the examiner as he/she pushes on the inside border of each foot. The examiner will test both legs at the same time and will describe the strength as 'very weak,' 'somewhat weak,' or "same as other side.""
Circulation		
Foot perfusion (visual)	☐ Adequate perfusion visually ☐ Inadequate perfusion visually	"While seated, turn your foot so that the doctor can see the bottom surface. Then face the top surface of your foot to the camera."
Foot perfusion (temperature)	☐ Symmetric ☐ Cooler ☐ Hotter	"Does your foot feel the same temperature on both sides?"
Capillary refill	☐ <2 seconds ☐ >2 seconds	"Position the camera so that your doctor can see your toes. Press the soft pad of your big toe or toenail until it turns white. Then, release your thumb and allow it to pink back up. How long did it take to pink back up?"

A useful examination template.

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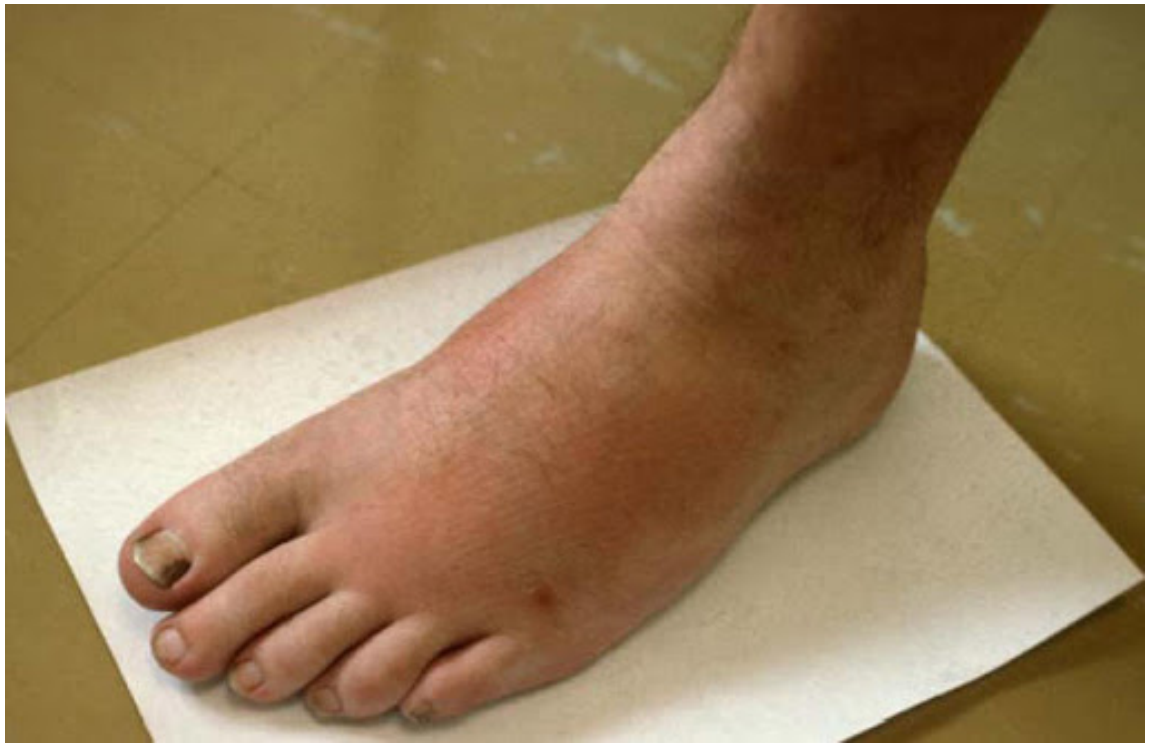
What not to Miss!

Case 1. POLL

- 44 year old male. IVDU
  - Sudden onset, red, hot, painful joint.
  - Difficulty WB
  - Systemic flu like symptoms.
  - On examination joint appears red and swollen, warm to the touch.
  - The patient resists movement and the joint is very irritable to small active and passive movement.



- WHAT IS THE DIAGNOSIS? HOW WOUND YOU MANAGE?

Septic arthritis of the ankle

- SEPTIC ARTHRITIS
- URGENT REFERRAL A&E

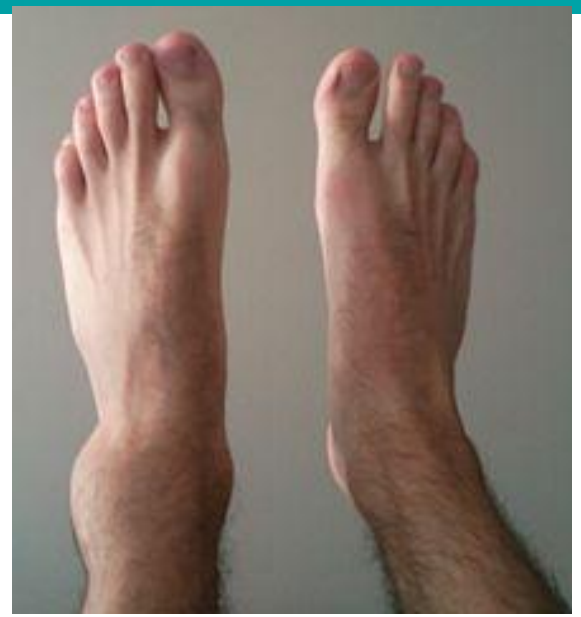
Key points.

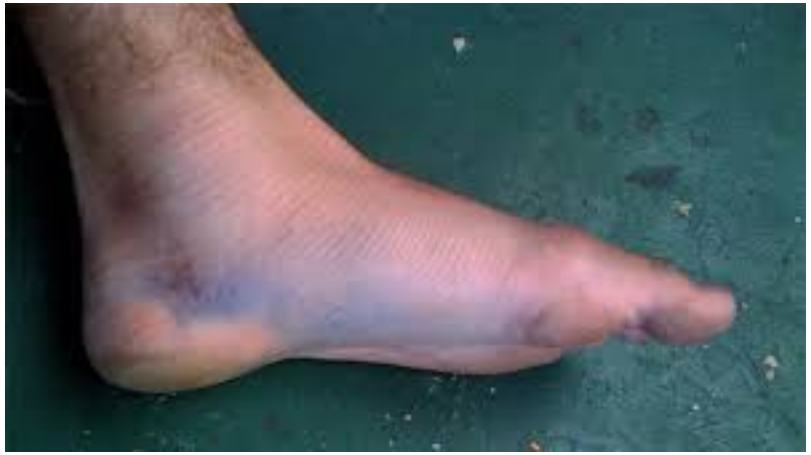
- Immuno compromise. DM, Alcoholism, Recent Injection, IVDU
- History of potential inocculation (primary septic arthritis rare: Hx medical injections/surgery).
- Worsening/progressive symptoms. Pain is present and does not improve with rest
- Timescale: rapid progression. (cf. inflammatory arthritis, better with splintage RICE, slower onset, less progressive)
- Treatment: Urgent washout. IV antibiotics.

Case 2

- Sunday night 44 yr M slipped on wet leaves, injuring her ankle.
- 18 yr old daughter rushed to his aid fell downstairs twisting her foot
- They got home went to bed
- Father woke up with ankle swollen++ Difficulty weight bearing
- Daughter swollen foot ++. Difficulty weight bearing
- Examination: father Swollen ankle very tender to touch laterally and medially
- Difficult WB sideways movement very painful
- Daughter very painful to walk, grossly swollen foot bruising along sole.

- Q. A. DAD: DIAGNOSIS, MANAGEMENT B. DAUGHTER: DIAGNOSIS, MANAGEMENT

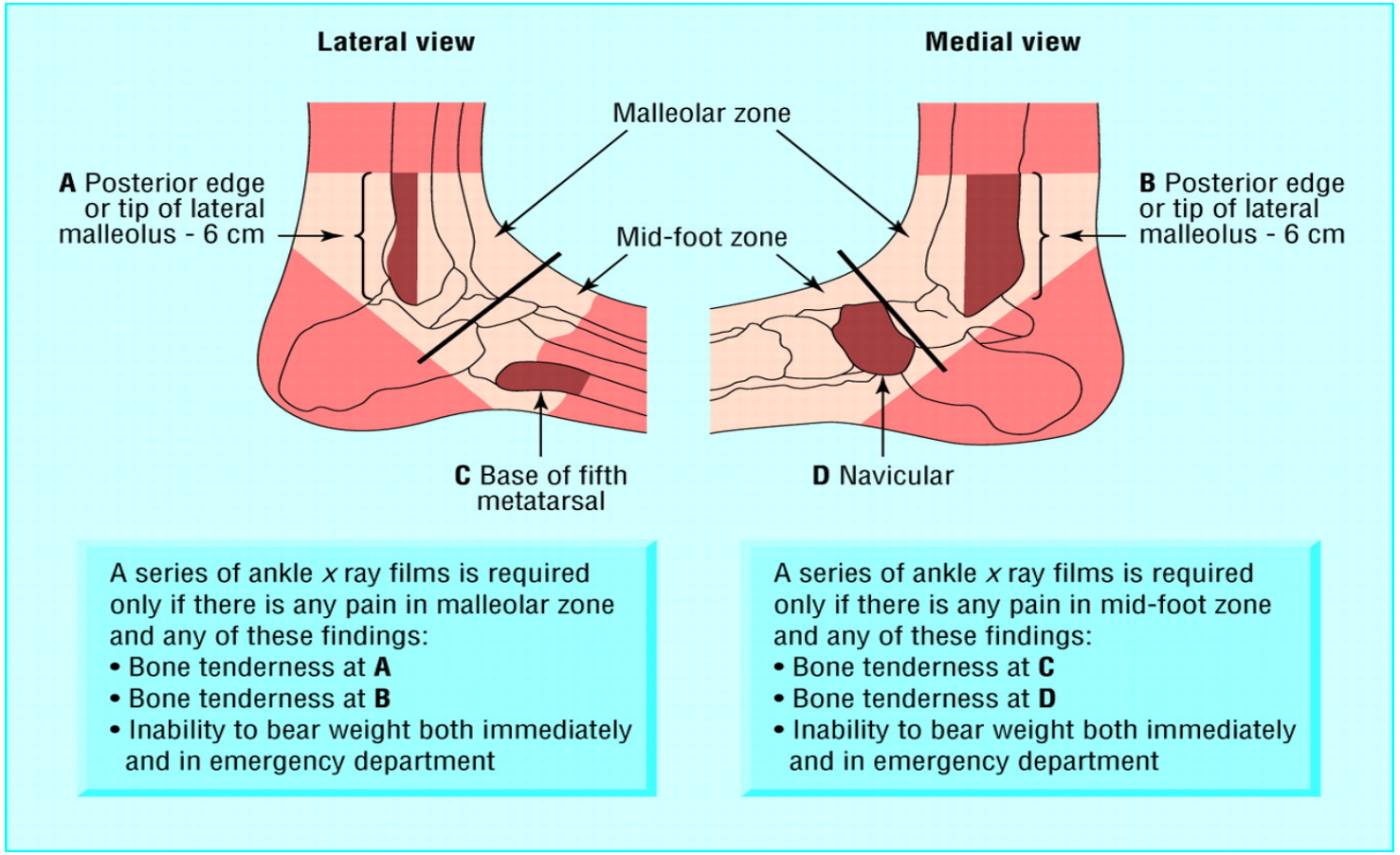


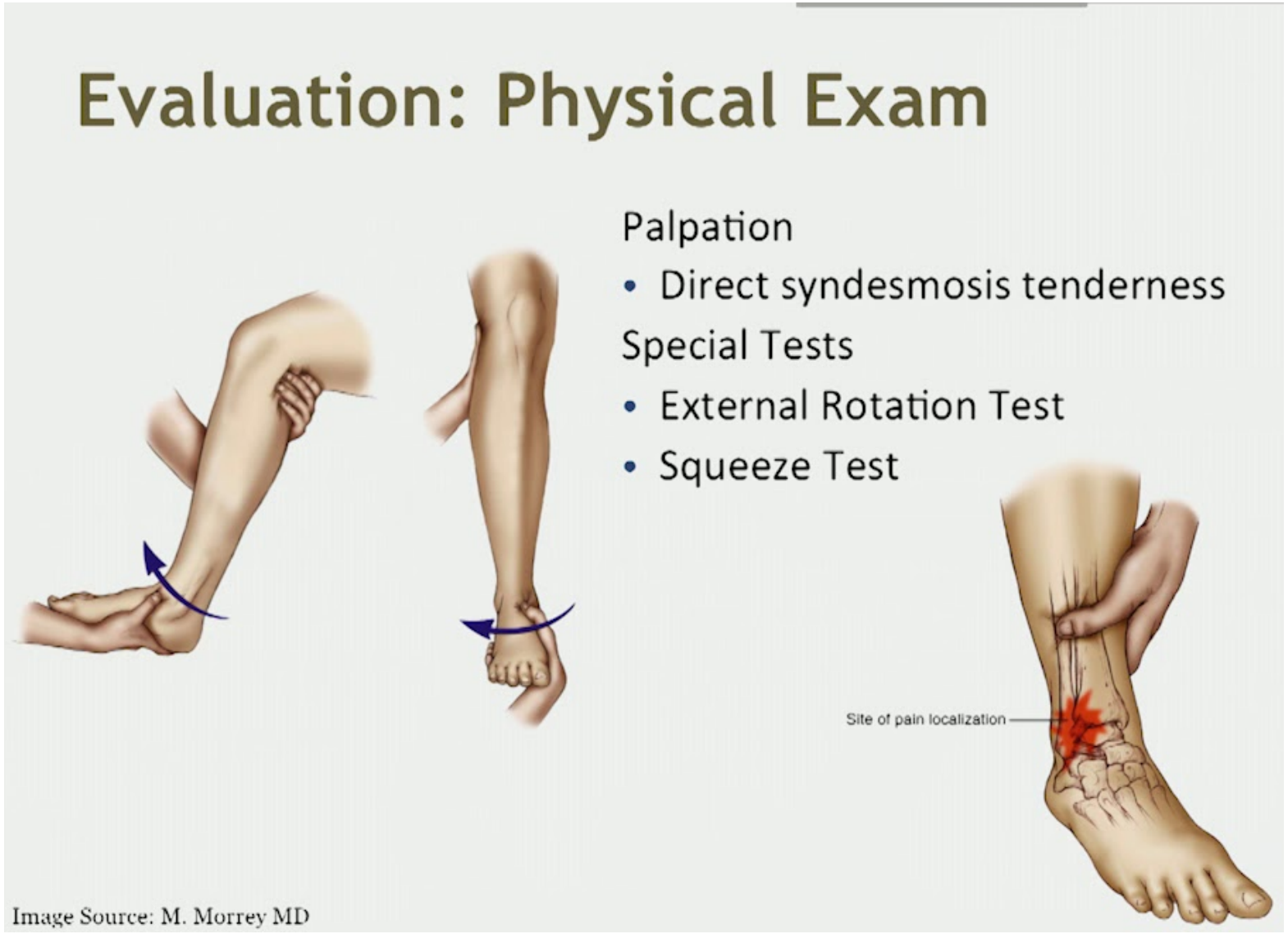


Fractures and Dislocations

- **Father**… Possible fractured ankle
- As struggling to weight bear, Hx of trauma, swelling,
- Tender ++ over lateral malleolus and medial.
- Diagnosis: Possible fracture
- Management URGENT REFERRAL: xray ankle.

- **Daughter** …Severe foot swelling,
- difficulty weight bearing, history of trauma.
- . Plantar bruising. Examination tenderness ++ midfoot.
- Lisfranc midfoot dislocation
- Urgent referral FOOT xray.





Ligamentous Injury that may need referral.

Lateral ligaments tend to require 2 weeks rest, ideally in boot/brace, RICE.

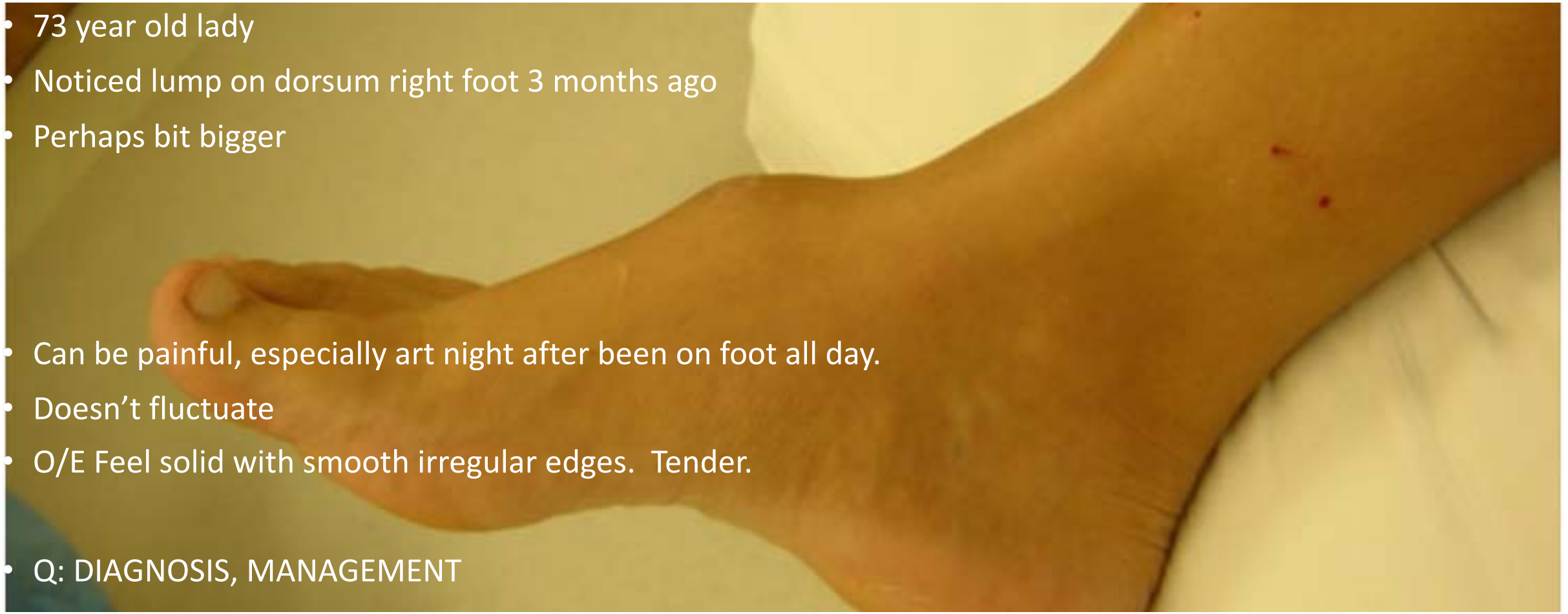
begin physio at 2 weeks

Swelling localized to the foot should prompt referral.

Medial Tenderness should prompt referral.

Anterior tenderness should prompt referral

Case 3



- 73 year old lady
- Noticed lump on dorsum right foot 3 months ago
- Perhaps bit bigger

- Can be painful, especially art night after been on foot all day.
- Doesn't fluctuate
- O/E Feel solid with smooth irregular edges. Tender.

- Q: DIAGNOSIS, MANAGEMENT

- A POTENTIAL TUMOUR. B 2WW REFERRAL TO SURGEON OR SARCOMA SERVICE.

- PMH Ca. Prostate, Breast, Kidney
- Weight loss
- Night pain
- Deep intense pain
- Mass- recent patient.
- Lymphadenopathy.

- Ganglion: by far most common. Soft. Compressible. Flutuate. Smooth. No deep pain.

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Case 4

38 yr male.

Playing tennis

Hx: Felt like his partner had hit him at the back of the ankle unable to play on.

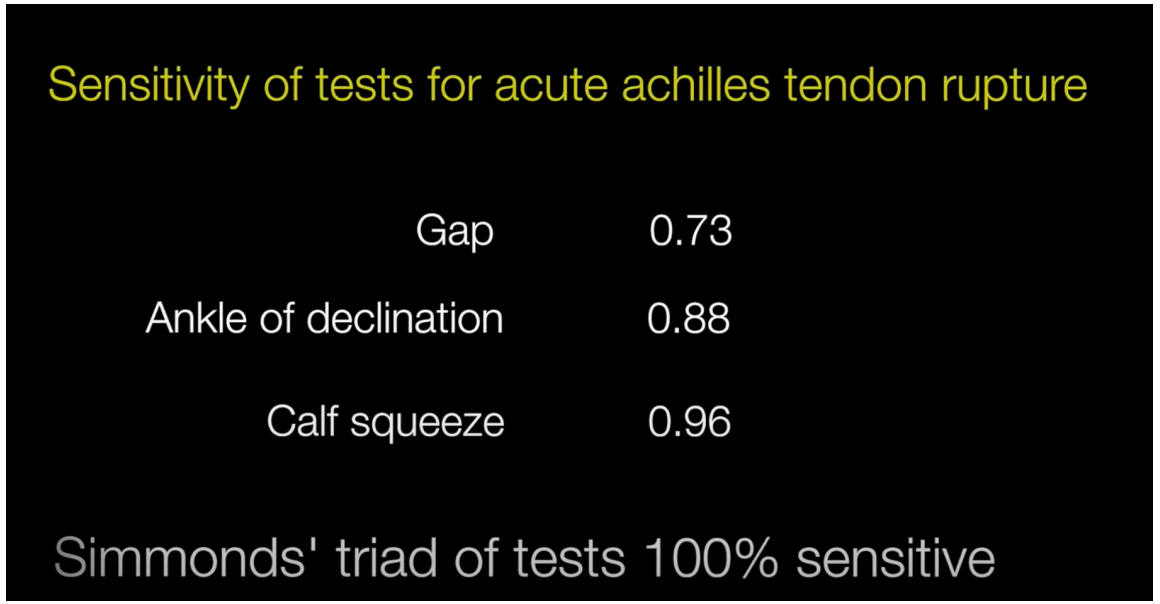
Swelling, initially severe pain but settled rapidly

Presents limping, swollen ankle

What is the diagnosis.

TA rupture

- Hx: audible snap, ‘been kicked’. May settle.
- O/E: unable to SLHR
- Chronic more difficult as calf squeeze may be normal.

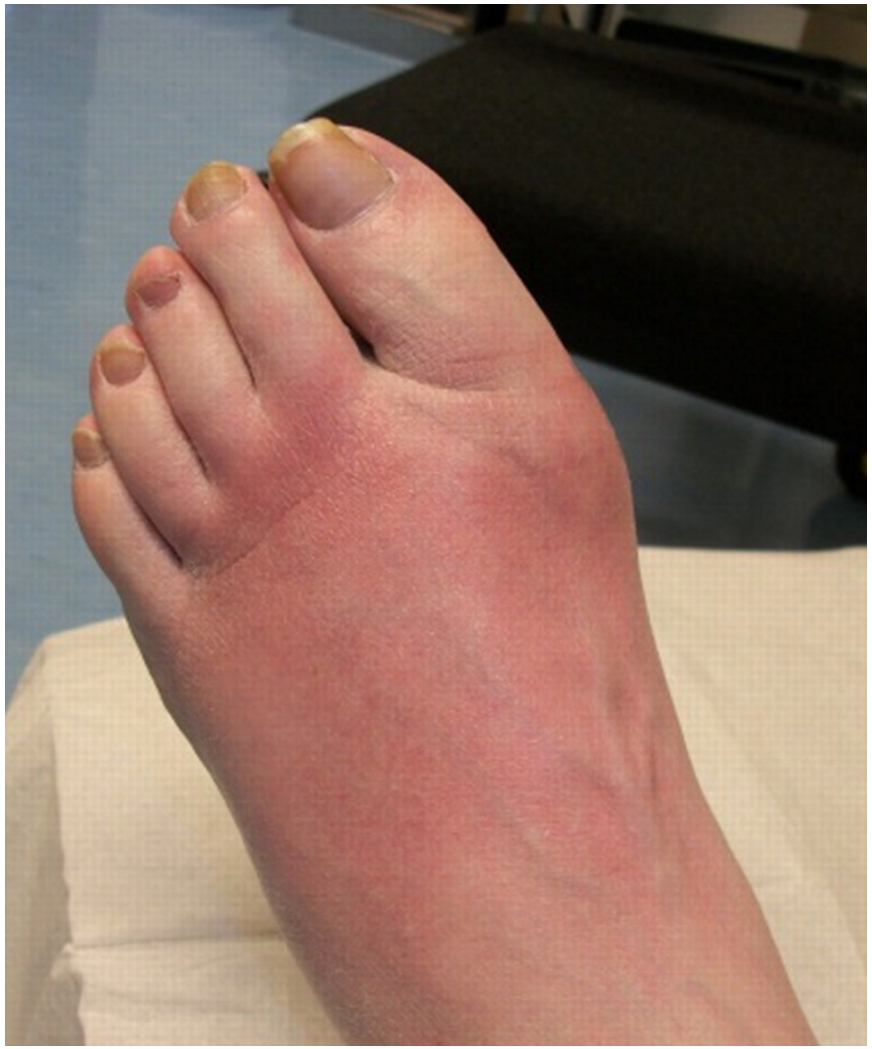


Delay in Rx can cause significant complications, inability to return to sport…

Case 5

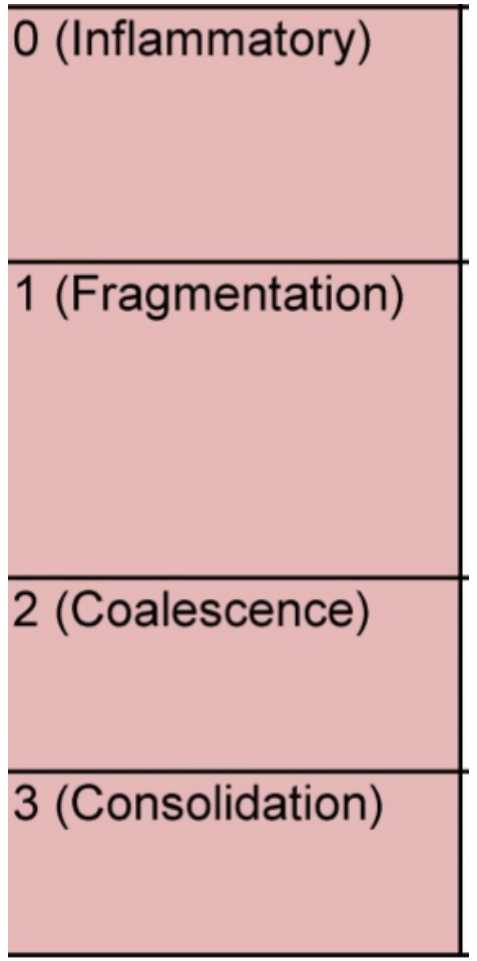
- 48 yr old male.
- Poorly controlled diabetes type 2 takes Insulin.
- Investigated for retinopathy and developed numbness in feet in stocking distribution.
- Presents with a 10 day history of a red,warm, painful, swollen foot.
- Patient says swelling better in the morning.
- No history of trauma, no penetrating injuries or ulcers.
- Examination. In pain foot swollen and erythematous, feels warmer than rt foot.

- What is the most likely Diagnosis



Charcot Foot/ DFU.

- Multiple Medico-legal cases
- DM, reduced sensation
- May be a history of innocuous or unnoticed trauma.
- Deformity
- Swelling
- Increased heat
- No skin break or lesion
- Redness resolves with elevation.
- Can lead to severe deformity, ulceration, OM, ultimately amputation.
- CHARCOT FOOT CAN BE PAINFUL!



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Frequent Lockdown Conditions

Metatarsal Stress Fractures

- Metatarsal Stress Fracture >10
- https://www.youtube.com/watch?v=woB9YpRpUQk

COVID-19 Lockdown

- More sedentary people are walking every day
- More active are outdoor running every day
- Increasing incidence of metatarsal stress fractures.
- No trauma!

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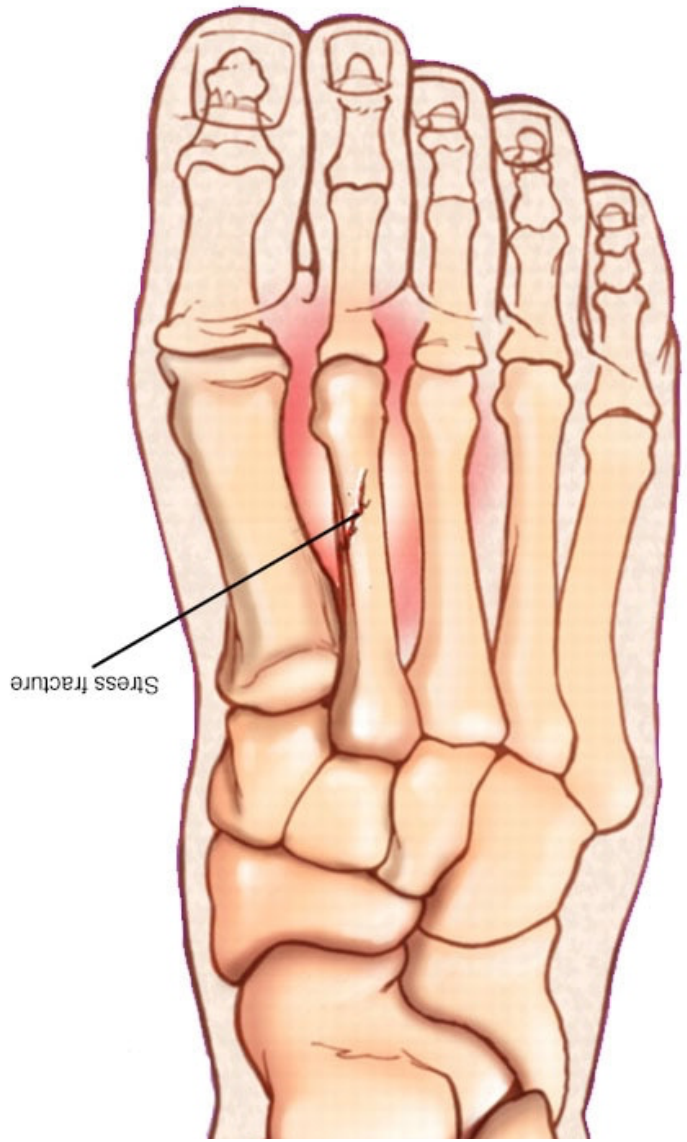


What they are?

Aka ‘March fractures’

Cracks in metatarsal bones due to increased stress

2/3 > 4/5.

Shaft/neck > Base.

Why they happen…

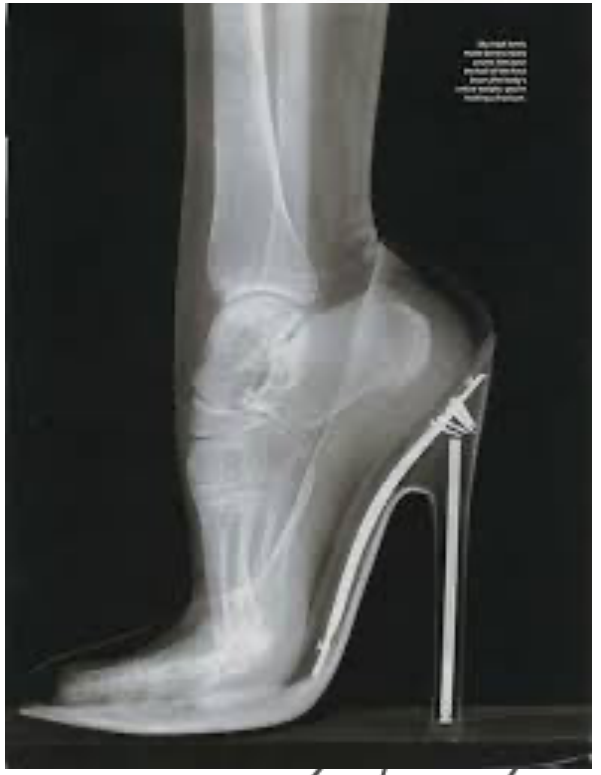
1

Bone damage with not enough time to heal

- Bone fatigue:
  - Normal bone with excess demand on it and not enough time to repair. *
- Bone Insufficiency:
  - Normal demand on weakened bone

Who they affect…

- High impact athletes
  - runners. Jumpers, dancers
- Unaccustomed exercise
  - Maybe simple increase in frequency/distance , old/changed footwear (barefoot).
- High heels
- Low bone density
- Female Athletic triad
  - Athletes +
  - Hormonal imbalance, nutritional imbalance (eg Vit D), low bone density.



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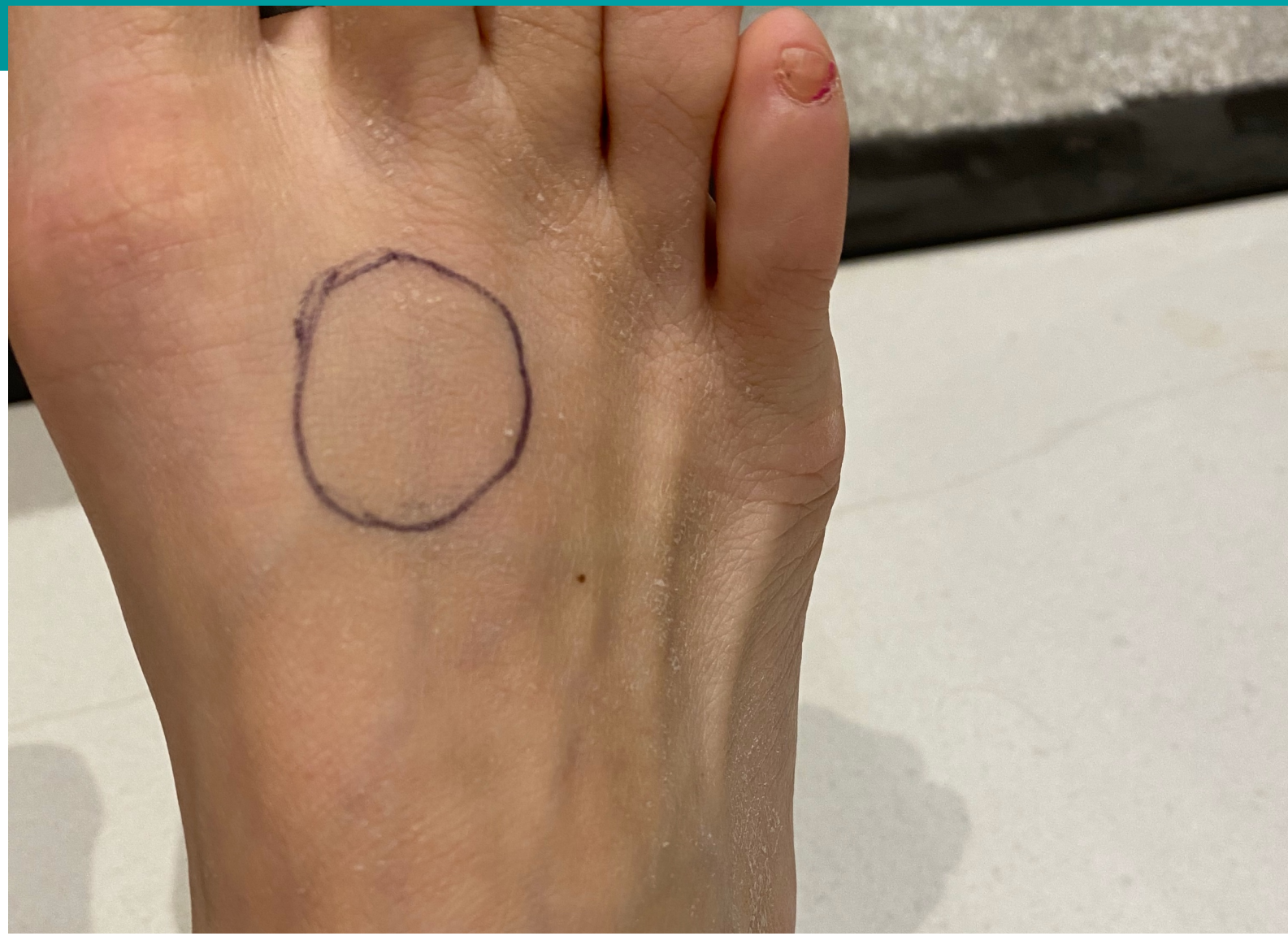
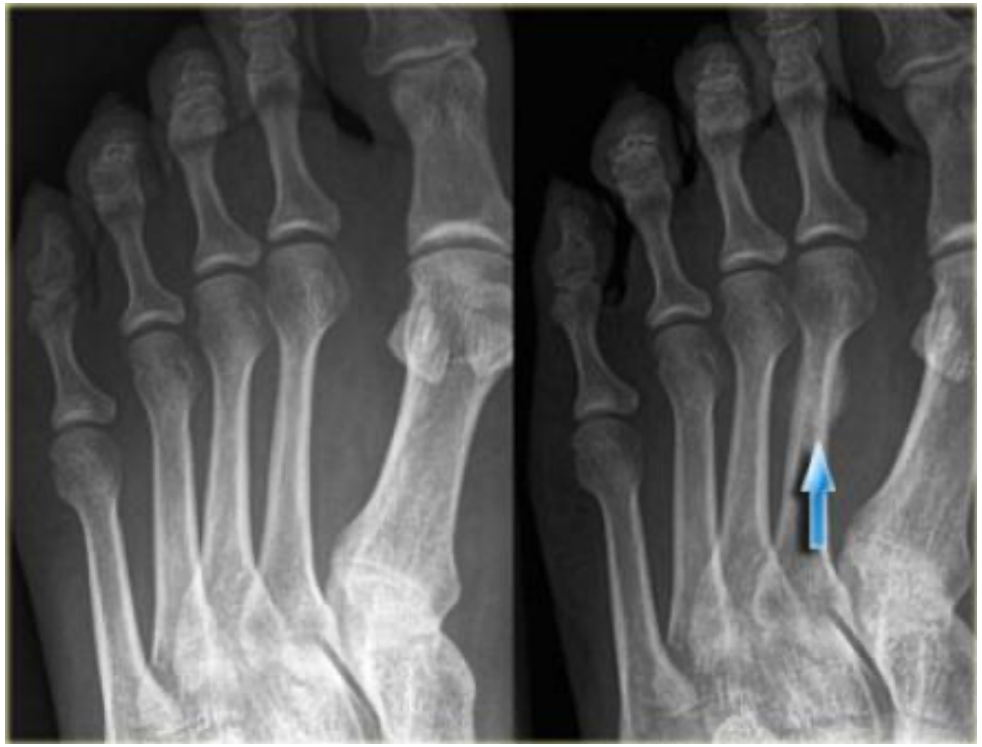
Presentation

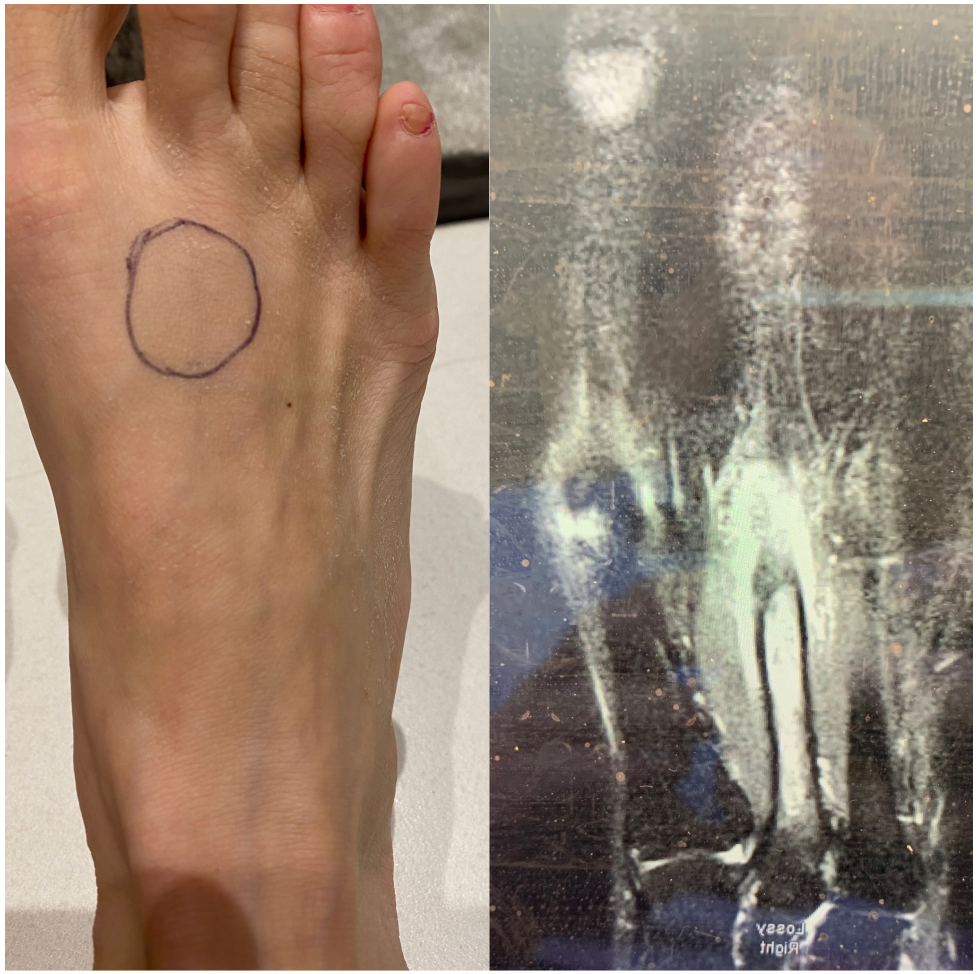
- Pain at top or bottom of foot on WB
- Painful to press
- Swelling



Investigation

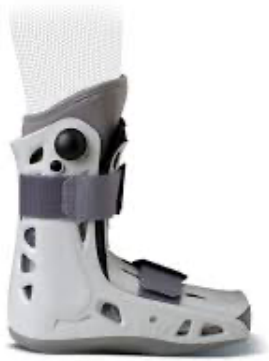
- XR often normal for first few weeks
- CT – can still be negative
- **MRI**
- **Bone scan**



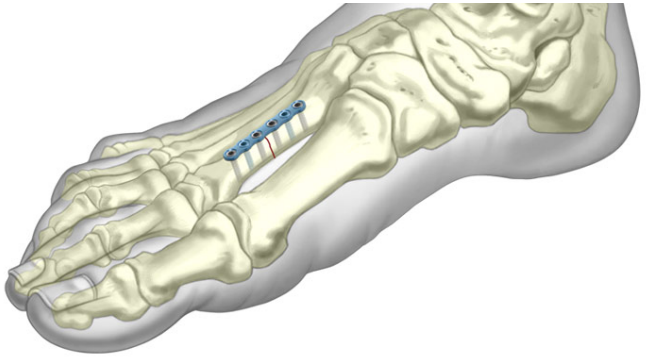


Treatment

- Reduce WB. Initial NWB
- Rigid shoe/Boot WBAT upto 6 weeks



- Surgery
  - For resistant fractures (metatarsal base/ navicular)
  - Drilling, bone graft, plates/screws.



Other Frequent Conditions

Achilles Tendinopathy

- Insertional and Non insertional

Achilles Ruptures

Ankle, Hindfoot, Midfoot, Forefoot OA

- Increased walking, less physiotherapy,

Sprains

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Steroid Injections

Steroid Injections

- Scientific evidence is relatively non specific, based on Suppression of adrenal axis, which last varying times depending on steroid
- Increased risk appears to be 1:1000
- Current Guidelines from societies vary, most conclude use with caution and only when alternative therapies failed.
- New experience that maybe steroids suppress the cytokine storm causing the more severe symptoms of COVID.
- World Evidence: Australian societies have not stopped steroid intra-articular administration

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Management of patients with musculoskeletal and rheumatic conditions who:

- are on corticosteroids
- require initiation of oral/IV corticosteroids
- require a corticosteroid injection

- “Only consider a steroid injection if a patient has:

  - High levels of pain and disability,
  - Failed first-line measures.
  - Persistent symptoms will have a significant negative effect on their health and wellbeing.
  - After obtaining informed consent.”

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How we are keeping Patients Safe

URGENCY OF OP

Category - Royal College of Surgeons Guidance	Priority Status	Priority Option on ICE request form
Category 2	High Priority (surgery within 4 weeks)	Urgent (ideally surgery within 4 weeks)
Category 3	Medium Priority (surgery within 3 months)	Soonest (ideally surgery within 3 months)
Category 4	Low Priority (surgery can be delayed for more than 3 months) *if unable to date earlier*	Routine (surgery can be delayed for more than 3 months) *if unable to date earlier*

RISK ASSESSMENT

Patient risk factors

Consultants should clearly document the patient risk factor/s (low/moderate/high) and the rationale for this risk rating on the booking form and in the OPD patients notes.

Any patients with **one or more high risk indicators** or **two or more moderate risk indicators are managed as high risk.**
Patients with **one moderate risk indicator are managed as moderate risk.**

Moderate indicators of risk	High indicators of risk
People at moderate risk include people who: • are 70 or older • have a lung condition that's not severe (such as asthma, COPD, emphysema or bronchitis) • have heart disease (such as heart failure) • have diabetes • have chronic kidney disease • have liver disease (such as hepatitis) • have a condition affecting the brain or nerves (such as Parkinson's disease, motor neurone disease, multiple sclerosis or cerebral palsy) • have a condition that means they have a high risk of getting infections • are taking medicine that can affect the immune system (such as low doses of steroids) • are very obese (a BMI of 40 or above) • are pregnant – see advice about pregnancy and coronavirus	People at high risk include people who: • have had an organ transplant • are having chemotherapy or antibody treatment for cancer, including immunotherapy • having an intense course of radiotherapy (radical radiotherapy) for lung cancer • are having targeted cancer treatments that can affect the immune system (such as protein kinase inhibitors or PARP inhibitors) • have blood or bone marrow cancer (such as leukaemia, lymphoma or myeloma) • have had a bone marrow or stem cell transplant in the past 6 months, or are still taking immunosuppressant medicine • have been told by a doctor they have a severe lung condition (such as cystic fibrosis, severe asthma or severe COPD) • have a condition that means they have a very high risk of getting infections (such as SCID or sickle cell) • are taking medicine that makes them much more likely to get infections (such as high doses of steroids or immunosuppressant medicine) • have a serious heart condition and are pregnant

Protecting Patients

Green COVID-19 free pathways
Swabbing All staff and all inpatients
Isolation period before admission – 3,14 days. ?minimum 7.
Limit Visitors
OPA – staff and patient Temp checks, symptom checks, compulsory masks and hand gel all OPA
redesigned routes through hospital, social distancing reception, waiting areas.
Information Sheets
Reduced flow in scanning

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Information for patients undergoing surgery during the COVID-19 pandemic

It is natural to feel anxious before hospital treatment, but knowing what to expect can help.

With the NHS and private sector currently working together to respond to the COVID-19 pandemic, there are currently only certain types of surgical treatment that can go ahead. These include emergency and urgent operations and some non-urgent treatments depending on local circumstances.

Consent

Your surgeon will have discussed the risks of your proposed operation with you and any alternatives that may be available. This leaflet includes some information on the additional risks caused by COVID-19. It should be read together with the other patient information leaflets you have been given so you know about the possible side-effects and complications of this operation before you give your consent.

Additional risks relating to COVID-19

So far outcomes for patients after surgery with confirmed COVID-19 infection have not yet been fully investigated and the effects of COVID-19 on patients undergoing surgery are not fully known. However, there are a small number of reports that suggest undergoing surgery whilst infected with COVID-19 increases the risk of serious complications or death in the post-operative period. It does appear that having emergency surgery, major surgery or surgery for cancer increases these risks. Additionally, people over 60 years of age or from black, Asian and minority ethnic groups, men and those with other health conditions such as diabetes, obesity and hypertension appear to be at higher risk of developing complications from COVID-19. As with all surgical treatment, the chances of complications also depend on the exact type of operation you are having and other factors such as your general health. The specific risks for you if you were to develop a COVID-19 infection in the post-operative period will be discussed with you by your surgeon.

Steps we are taking to minimise the risk

We have taken a number of precautionary steps to minimise the risks to you by trying to ensure you do not have COVID-19 on admission, these include:

- Asking you (and other members of your household) to self-isolate for 14 days before your operation
- Asking you if you have self-isolated before, in line with Government guidance, due to symptoms that could be signs of COVID-19 such as a persistent cough, high temperature or a loss or changed sense of normal smell or taste (anosmia)

Spire Healthcare

3 day isolation

Isolation instructions for our patients before coming into hospital for surgery

In preparation for your hospital admission, you must carefully follow all of the below instructions for isolation. These instructions apply to you for 3 days immediately following your Covid-19 swab. Your procedure will only be able to go ahead in the following circumstances:

1. If you have fully isolated following the instructions below
2. If you (and your household members) have no Covid-19 symptoms
3. If your Covid-19 swab comes back as negative

If any of these three factors cannot be achieved, your surgery will be cancelled until we can be sure it is safe for everyone to proceed.

– Do not leave your house unless in an emergency or for medical treatment

– Do not go out for supplies and medicines, ensure these are delivered to your household

– Do travel to your hospital appointments/admission using your own private vehicle or with someone from your own household. Do not use public transport or taxis. If you do not have your own transport, please call the hospital for advice

– Do not have any visitors in your home or accommodation

– Do not meet with friends and family or attend any gatherings (eg weddings and religious services)

– Do strictly avoid contact with someone who is displaying symptoms of Covid-19 (these include high temperature and/or new continuous cough and/or loss of taste or smell)

– Do try to ensure that you stay 2 metres apart and socially distance yourself from household members at all times (eg eating separately, sleeping alone at night and ensuring cleaning of shared areas such as bathrooms)

Additional instructions

- Wash your hands more often with soap and water
- Avoid touching your eyes, nose and mouth with unwashed hands
- Cover any cough or sneeze with a tissue, then throw in a bin
- Clean and disinfect frequently touched objects and surfaces in your home
- Use separate household items such as towels, bedding and crockery
- If any household member becomes unwell during this the 14 days before your surgery you must report it to the hospital prior to coming in for your admission
- Wash your hands thoroughly after touching pets

Pre-operative Covid-19 testing

- As part of our admission process, you will need to be swabbed and you may require some additional tests ahead of your procedure. Your hospital team will further advise you of what is required

Contact Details : Mr N Cullen, Mr M Welck.

Thankyou

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