

## CASE 12 Calfpain

---

### INFORMATION FOR THE DOCTOR

|                                  |   |
|----------------------------------|---|
| <b>Name</b>                      | James Prentiss  |
| <b>Age</b>                       | 25  |
| <b>Social and family history</b> | Unmarried, no children  |
| <b>Past medical history</b>      | <ul style="list-style-type: none"> <li>• Patella tendinopathy 2 years ago</li> <li>• Thoracic back pain (mechanical) 3 years ago</li> <li>• Seborrhoeic dermatitis 8 years ago</li> </ul> |

The medical record of his **last medical entry** two weeks ago reads:

*“Patient discharged from fracture clinic. Was training with bobsleigh team in Hamburg 10 weeks ago when fell heavily while getting into bobsleigh. Sustained an undisplaced fracture of his R 4<sup>th</sup> MT. Fracture clinic removed aircast boot after 6 weeks and advised patient to mobilise in supportive boots for a month. Comes today for fit-note. Engineer and feels ready to move out of office-based work in repair bay work – can kneel and work at heights – note issued.”*

|                           |                                |
|---------------------------|--------------------------------|
| <b>Current medication</b> | Ibuprofen 400mg TDS, as needed |
| <b>Clinical values</b>    |                                |
| BP                        | 134/84                         |
| Weight                    | 100kg                          |
| Height                    | 180cm                          |
| BMI                       | 30.7                           |

## INFORMATION FOR THE PATIENT

You are James Prentiss, a 29-year-old engineer, who has come to discuss the problems you experience with your right foot and calf. You fractured your R 4<sup>th</sup> MT 10 weeks ago in bobsleigh training; had a CT in Germany; were placed in a plaster cast that was cut down the middle; put on blood thinning injections and sent home. In your local hospital, they X-rayed you; stopped the injections and changed you into an aircast boot. The fracture clinic doctor undertook telephone follow-up at 5 weeks and told you to remove the aircast boot and wear Hi-Tec type boots for 4 weeks.

Two weeks ago, when you changed from wearing boots to wearing shoes and trainers, you developed pain over the top of your right foot, stretching from the area of the fracture over the top of the foot. Four weeks ago, you also developed right calf swelling, so much so that you have worn rugby skins to compress the swelling. If you don't wear rugby skins, you can press on the calf swelling and it leaves an indentation. The physiotherapist noticed this a week ago. She thought you may need to return to the fracture clinic to check that the fracture has healed properly.

You think that the MT fracture has not healed properly and would like to be referred back to fracture clinic for an X-ray. Your opening statement is *"I'm really bothered by this foot pain"*.

### **Information to reveal if asked**

General information about yourself:

- You are an engineer at the local branch of a train maintenance company.
- You sustained your injury during high level bobsleigh training. You are trying to get into the national team.

Further details about your condition:

- If specifically asked about the foot pain, it is a dull ache (2/10) that gets worse at the end of the day (4/10). You were much better in boots but when you switched to shoes, the pain increased and despite taking paracetamol and ibuprofen, it has persisted. It is worse if you stand for long periods. Your physiotherapist has not started you on a run/walk programme as yet, so you don't know how running would impact the pain.
- If asked about the swelling, it has been there since the plaster cast was removed and the airboot fitted. You were sent home from Hamburg on Fragmin injections but the fracture clinic doctor told you to stop the injections when he removed the plaster and put you in an aircast boot. You thought the initial swelling was because you were unable to keep your foot up during the flight home. Now you think that because you don't exercise the R calf as much, you have not been able to get rid of the

swelling. You wonder if the calf muscle is torn and swollen.

- You do not have any chest pain or shortness of breath.
- You are usually fit and healthy.

Your ideas:

- You think that you may have done too much too soon and perhaps you inadvertently re-injured the healing fracture.
- You had a very nasty fall and think that you trapped the R foot under the bobsleigh and twisted, so you may have torn the calf muscle, hence the swelling.

Your concerns:

- You are worried that you have problems with fracture healing. If you don't get back to running soon, you will miss this winter's training.

Your expectations:

- You expect to be referred back to fracture clinic or at least, get an X-ray of the R foot.

### **Medical history**

Physically, you are in good general health, and do not have heartburn, ulcers or bleeding problems.

### **Social history**

You are training hard to compete at bobsleigh. You watch what you eat. You do not smoke. You occasionally drink alcohol when not in active training.

### **Information to reveal if examined**

Show a picture: <http://www.gponline.com/red-flag-symptoms-swollen-calf/haematology/article/1013798>

Only the R lateral calf near the fibula head is tender.

The R leg is swollen to mid thigh.

The R calf is 5cm larger than the left.

There is pitting oedema of the R calf.

## SUGGESTED APPROACH TO THE CONSULTATION

### Targeted history taking:

- Take a detailed history of James's symptoms:
  - calf pain: onset, intensity, aggravating and relieving factors, radiation, associated symptoms
  - calf swelling
- Explore James's ideas about why the pain may have suddenly intensified and why the swelling has been so extensive.
- He stated his concerns at the outset. Explore his fears about a delayed return to competitive bobsleigh.
- Explore his expectations – how does he want the foot pain investigated?
- Explore the calf swelling in greater detail – take a good history to assess the likelihood of DVT or PE.

### Targeted examination:

- Perform an examination of the foot and calf for tenderness, swelling, change in skin colour and temperature, and range of movement of foot.
- Use the examination findings to complete a Wells' score.

### Clinical management:

- Complete a Wells' score:

| Clinical feature   | Points           | Patient score |
|--|------------------|---------------|
| Active cancer (treatment ongoing, within 6 months, or palliative)  | 1                |               |
| Paralysis, paresis or recent plaster immobilisation of the lower extremities                                     | 1                | 1             |
| Recently bedridden for 3 days or more or major surgery within 12 weeks requiring general or regional anaesthesia | 1                |               |
| Localised tenderness along the distribution of the deep venous system  | 1                |               |
| Entire leg swollen   | 1                | 1             |
| Calf swelling at least 3 cm larger than asymptomatic side  | 1                | 1             |
| Pitting oedema confined to the symptomatic leg   | 1                | 1             |
| Collateral superficial veins (non-varicose)  | 1                |               |
| Previously documented DVT  | 1                |               |
| An alternative diagnosis is at least as likely as DVT  | -2               | -2            |
| <b>Clinical probability simplified score</b>   |                  |               |
| DVT <i>likely</i>  | 2 points or more | 2             |
| DVT <i>unlikely</i>  | 1 point or less  |               |

- Discuss a possible diagnosis of DVT as an explanation of calf swelling and possible delayed union or foot bio-mechanical issues as an explanation for the R foot pain.

- Discuss the treatment options – James needs to have an ultrasound scan within 4 hours if possible. You need to contact the DVT clinic to arrange this. If the scan is delayed by more than 4 hours, you need to organise a blood test for d-dimers and prescribe rivaroxaban 15mg BD until the scan appointment.
- Address James's ideas: that an X-ray is needed. The foot pain may be due to delayed fracture healing so you will arrange follow-up in fracture clinic. Until then, he could return to wearing boots if this was more comfortable than shoes.
- Address the patient's concerns about returning to competitive sport. *"I think we need the results of the DVT scan and the foot X-ray before we can discuss the effect on your sport. What do you think?"*
- Address the patient's expectations: refer to DVT clinic and arrange for fracture clinic follow-up.
- Confirm his understanding of DVT and provide sufficient information about the condition, its investigation and treatment options – consider a patient information leaflet.
- Arrange suitable follow-up after his appointments at DVT and fracture clinic.

### **Interpersonal skills:**

This case tests the doctor's ability to explore a presenting problem more deeply, eliciting the presence of 'red flags' resulting in the diagnosis of a lower limb complication, namely DVT. It also tests the doctor's ability to prioritise treatment agendas: referral to DVT clinic takes precedence. The doctor's interpersonal skills are demonstrated in negotiating agendas and arranging suitable follow-up to address issues that had to be parked today.

Good communication with the patient:

- encourages the patient to explore his symptoms through the skilful use of open questions: *"I'm really interested in this calf swelling – tell me more. What do you think is causing it?"*
- makes statements to widen the patient's agenda: *"Based on your history and examination findings, your Wells' score shows a high likelihood of DVT – a clot in the leg veins. What is your understanding of a clot in the leg? Do you know anyone who had treatment for this?"*
- builds trust through reflective listening: *"It sounds like there are issues here about returning to competitive sport. Let's get the results from DVT clinic and fracture clinic, then meet again to discuss a plan going forward. How does that sound?"*
- encourages reflection: *"Look, you came in thinking you might need a foot X-*

---

*ray and here I am sending you for an urgent DVT scan. How do you feel about this?"*

Poor communication with the patient:

- addresses the patient's agenda only and does not explore the calf swelling (the red flag).
- fails to discuss what a DVT is and explain why urgent diagnosis and treatment is needed. Without this information, the patient is not empowered to amend their concerns and expectations.
- is prescriptive in his or her management: *"You need a scan. Never mind about your foot and this bobsleigh competition – that's the least of your worries."*

## BACKGROUND KNOWLEDGE REQUIRED FOR THIS CASE

### **NICE guidelines (2012)(CG 144)**

Venous thromboembolic diseases: the management of venous thromboembolic diseases and the role of thrombophilia testing. <http://www.nice.org.uk/guidance/cg144/chapter/guidance>

### **Relevant literature**

For a DVT clinic protocol, see <http://oxford-haematology.org.uk/sites/default/files/Outpatient%20DVT%20protocols.pdf>

The following patients may need referral to alternative services, such as specialised obstetric/haematology or medical teams:

- Pregnancy
- Suspected upper limb DVT
- In-patients (unless investigation complete and being discharged)
- Unable to transfer from chair to chair by self
- Primary diagnosis of pulmonary embolism
- >180kg
- Active bleeding
- Known to be at increased risk of bleeding,
  - e.g. active peptic ulceration
  - liver disease (PT >18 secs)
  - renal insufficiency: creatinine >200µmol/L with unknown eGFR or
  - eGFR <20mL/min/1.73m<sup>2</sup> (eGFR calculator at [www.renal.org/egfrcalc](http://www.renal.org/egfrcalc))
  - uncontrolled hypertension (>200/110mmHg)
  - recent (<1/12) eye or CNS surgery
  - recent (<1/12) haemorrhagic stroke