

Diabetic Foot Services

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Objectives

1. Background
2. Foot Screening
3. First line management ulceration
4. Management infection
5. Charcot Foot
6. Painful neuropathy

The 10 Foot Commandments

1. I am thy foot forever. Take good care of me, for thou shalt have no foot other than me
2. Thou shalt regularly debride me, when I develop callosities and ulcers
3. Thou shalt fit me with casts and insoles to offload my high pressure areas
4. Thou shalt carefully look for early signs of infection in me and treat it aggressively
5. Thou shalt diagnose ischaemia without delay and revascularise me
6. Thou shalt educate all patients how to examine me and take care of me
7. Thou shalt carefully inspect the shoes that I have to wear and encourage the use of appropriate footwear
8. Thou shalt continuously aim to achieve tighter blood glucose control for me
9. Thou shalt not commit amputation on me, unless there is a compelling reason
10. Thou shalt not covet thy neighbour's amputation rates, but try to improve yours

Mortality

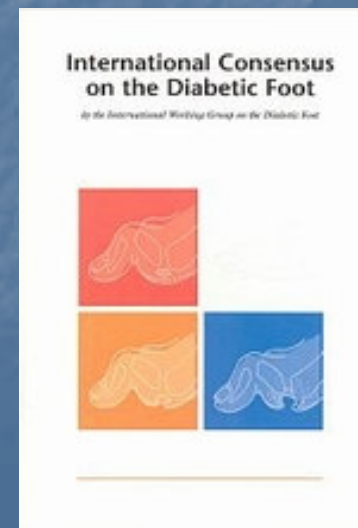
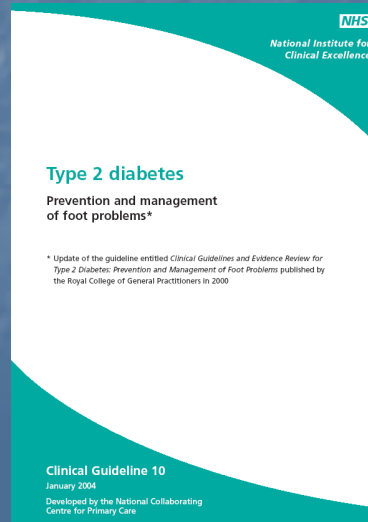
- 1 year mortality following foot ulceration 17%
- 5 year mortality 50% (3x higher than breast Ca 17%, equivalent to colon Ca)

Extent of the Problem

- Globally 4 million people develop foot ulceration
- 15%-25% of healthcare resources taken up in treatment of diabetic foot
- Foot ulceration is the leading cause of diabetes related hospital admissions
- People with diabetes are 25 times more likely to lose a leg than people without diabetes
- 70% Amputations are a result of diabetic foot ulceration
- Proper care can reduce amputation rates by 49%-85%
- Every 30 seconds a leg is lost due to diabetes

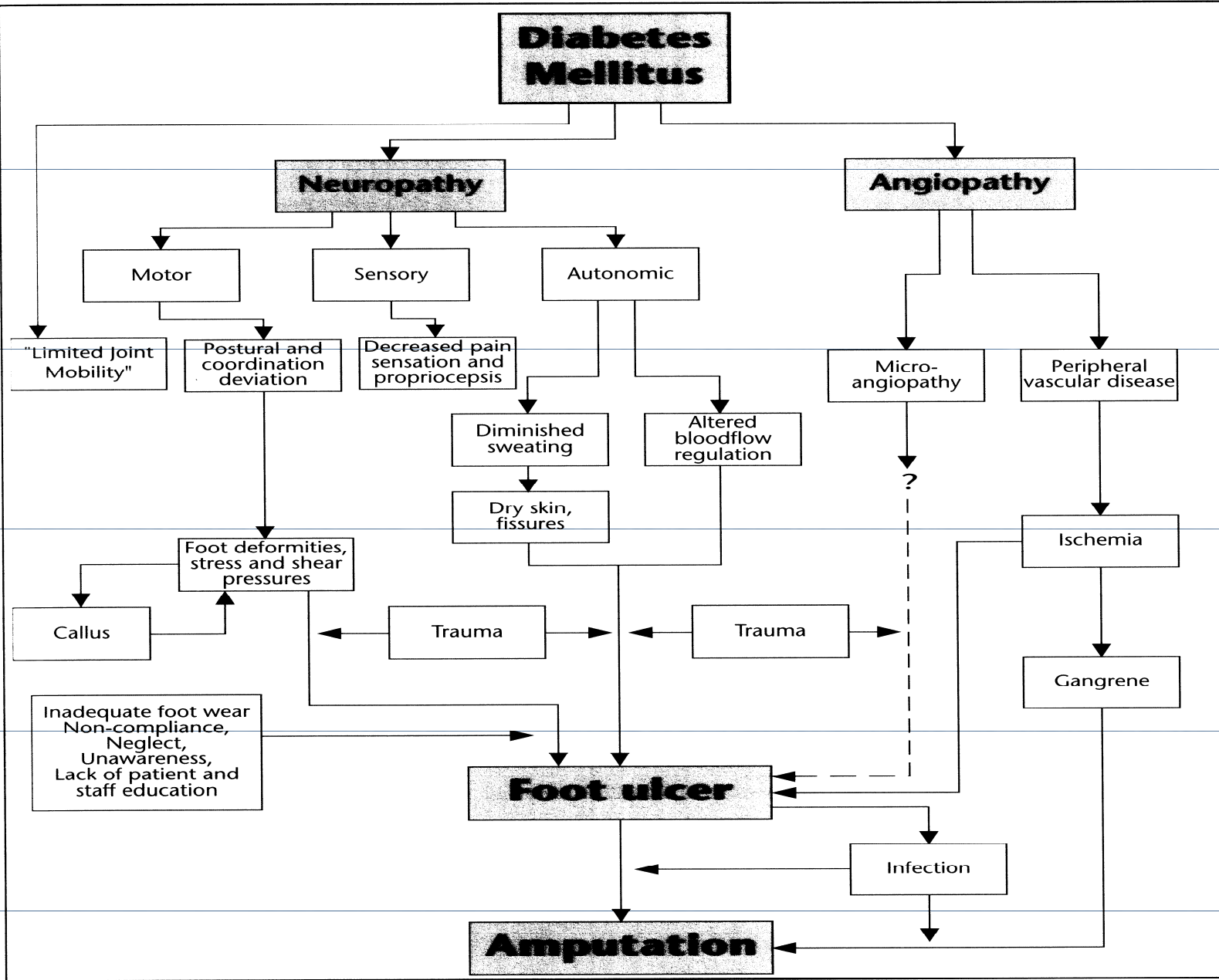
Guidelines

- International Consensus on the Diabetic Foot 1999
- NSF 2002
- NICE 2004
- National Minimum Skills Framework 2006
- Putting Feet First 2009



Risk Factors for Foot Ulceration

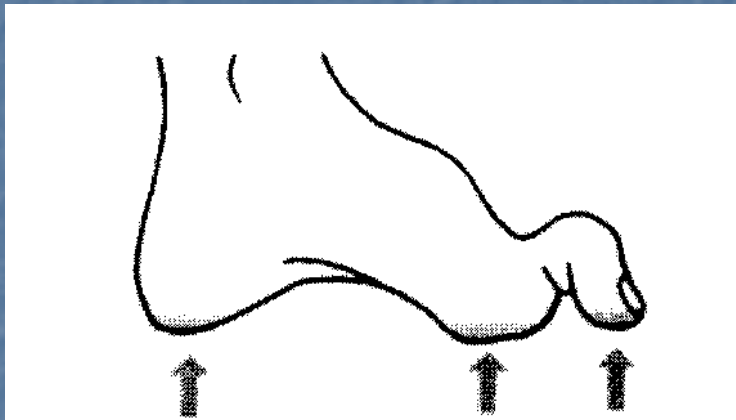
- Previous amputation
- Past foot ulcer history
- Peripheral neuropathy
- Foot deformity
- Peripheral arterial disease
- Visual impairment
- Diabetic nephropathy (dialysis patients)
- Poor glycaemic control
- Smoking



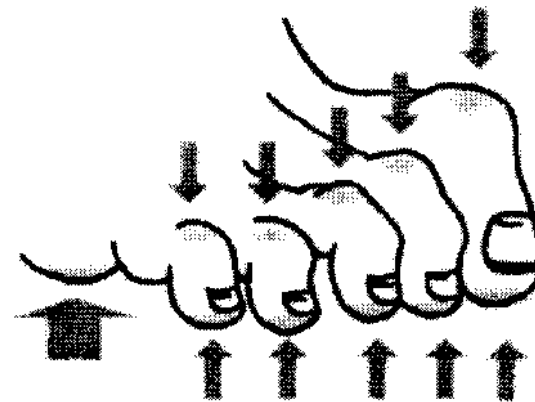
Sensory Neuropathy



Motor Neuropathy



Interdigital pressure





Autonomic Neuropathy



Diabetes & Atherosclerosis

- Develop PAD at a younger age
- Affects men and women equally
- Associated with hyperlipidaemia
- Progression is more rapid
- Many parts of the artery develop disease
- Occurs in the distal arterial tree

Peripheral Arterial Disease

- Constitute 5-6% population

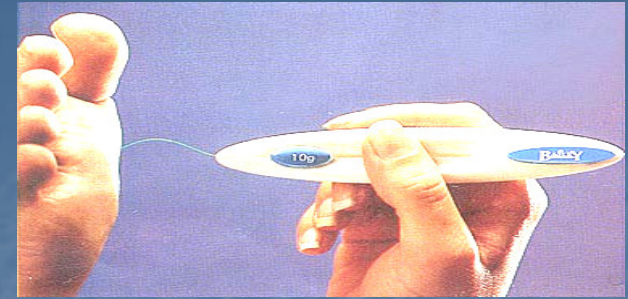
HOWEVER

- 15-17% population diagnosed with Intermittent Claudication
- 30-50% population arterial surgery leg
- 60-70% population distal bypass grafts
- 50-60% major amputations

Managing the Risks

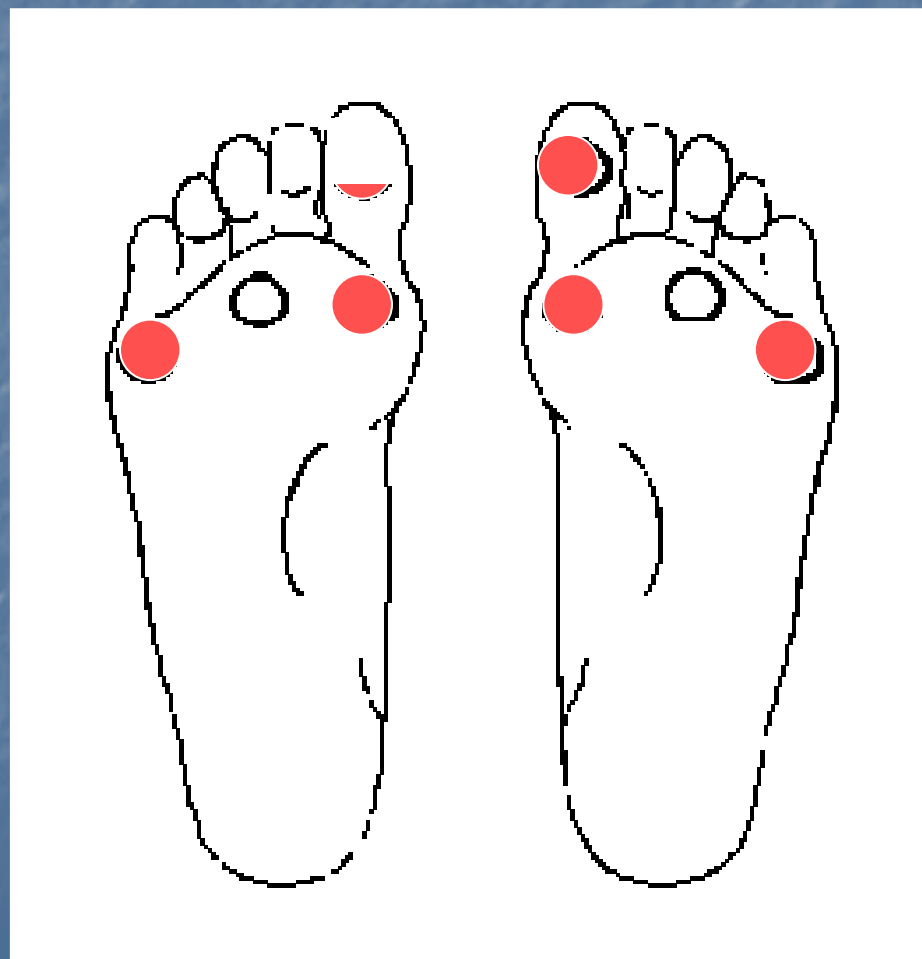


Monofilament



- Apply to the patients hand
- Patient must not be able to see if and where the examiner applies the filament
- Perpendicular skin surface
- Sufficient force to cause the filament to bend buckle
- Approx 2 seconds
- Do not apply to callus
- Do not make sliding or repetitive movements
- Ask if the patient feels pressure and which foot
- Repeat 3 applications per site with one sham

Protective pain sensation is present at each site if the patient answers correctly two out of three applications



Technique - Vibration



- 128Hz
- Should first be applied to patients wrist
- Patient must not be able to see if and where the tuning fork is applied
- Bony part on the dorsal side of the distal phalanx of the hallux
- Perpendicular with constant pressure
- If patient unable to sense vibration at the big toe the test is repeated more proximally (malleolus, tibial tuberositas)

Vascular Assessment

- General observations - colour, skin tone skin quality, temperature of feet, any lesions, thick nails
- Pulses palpable
- History from patient
- ABPI
- Vascular imaging

Low Risk

Normal Sensation & Palpable Foot Pulses

- Intervention

To improve knowledge, encourage beneficial self-care and minimise inadvertent self harm.

Agree management plan that includes education

At Increased Risk

Neuropathy or absent foot pulses or other risk factor

- Intervention

Regular review 3-6 monthly by a member of the foot protection team

- inspect feet

- review need vascular assessment

- evaluate footwear

- enhance footcare education

Nail Pathologies



Skin pathologies



Heel fissures before
debridement



and after debridement



High Risk

Neuropathy or absent foot pulses + deformity or skin changes or previous ulcer

- Intervention

Frequent review 1-3 months by foot protection team

- inspect patients feet

- review need for vascular assessment

- evaluate provision of and provide appropriate

- intensified footcare education

- specialist footwear and insoles

- skin and nail care

Foot Ulceration



1st Line Treatment Diabetic Foot Ulceration

- Dressings Choice
- Infection
- Simple off-loading
- Patient Advice
- Diabetes Control

Understanding the Role of the Multidisciplinary Team?

- Mechanical
- Vascular
- Wound
- Microbiological
- Metabolic
- Education
- Podiatry
- Primary Care GPs/Nurses
- Endocrinology Drs/Nurses
- Microbiology
- Radiology
- Vascular surgery
- Orthopaedic Surgery
- Orthotist

Management Options

- Sharp debridement
- Management of infection
- Pressure relief
- Admissions
- Footwear
- X Ray
- Medical Foot Clinic
- Vascular Foot Clinic
- Orthopaedic Foot Clinic
- Dedicated inpatient ward rounds
- F-Scan pressure analysis
- Health education

Wound Assessment

Ulceration

- Duration
- Location
- Size
- Depth



Exudate

- Colour
- Texture
- Quantity

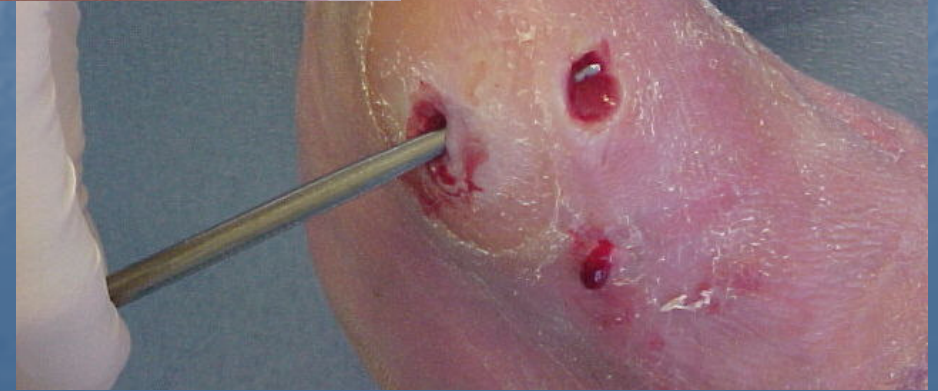
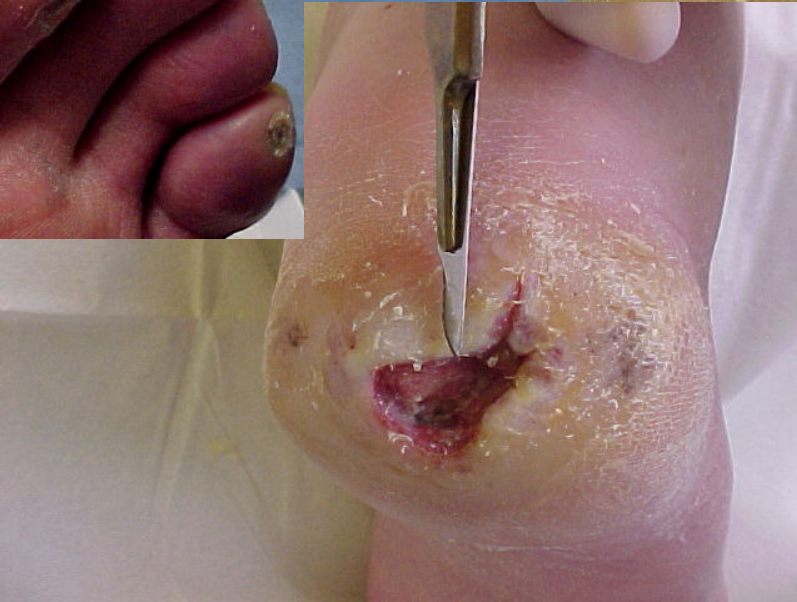
Odour

Inflammation

Sharp Debridement – debridement of the hyperkeratotic rim and ulcer base to bleeding

- Remove necrotic tissue
- Reduce undermining edges
- Assess extent of ulcer
- Provide tissue sample
- Reduce chance of infection
- Fast effective, cheap
- Avoids maceration





Dressing choice

Silver

Hydrogels

It is not what you put on the wound BUT what you take OFF

Hydrocolloids

Honey

Inadine or
Cadexmor Iodine

Foams

Total Contact Cast



- TCC is the recognised gold standard treatment for diabetic foot ulceration caused by neuropathy or acute charcot
- The cast is designed to take pressure away from the ulcer on the foot and distribute it up the leg



Pressure Relief





MED-SURG™ SHOE



WOUND CARE SHOE SYSTEM



GENTLE STEP™ SHOE



HEELWEDGE™ SHOE



ORTHOWEDGE™ SHOE



PRAFO



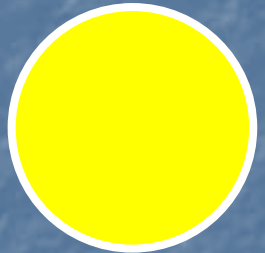
Advanced Wound care



Microbial complexity

Microbial burden

Clinical risk



1

2

3

4

Severity
Depth
Necrosis
Prior Rx



Mild Infection

Moderate Infection



Borderline Admission



Admission

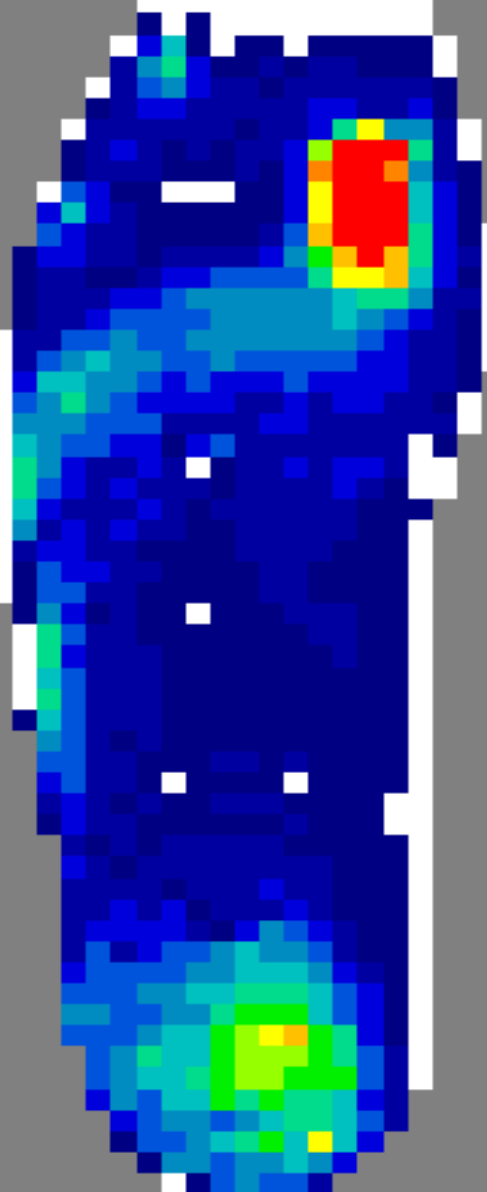


Unique Foot Anatomy



F-scan

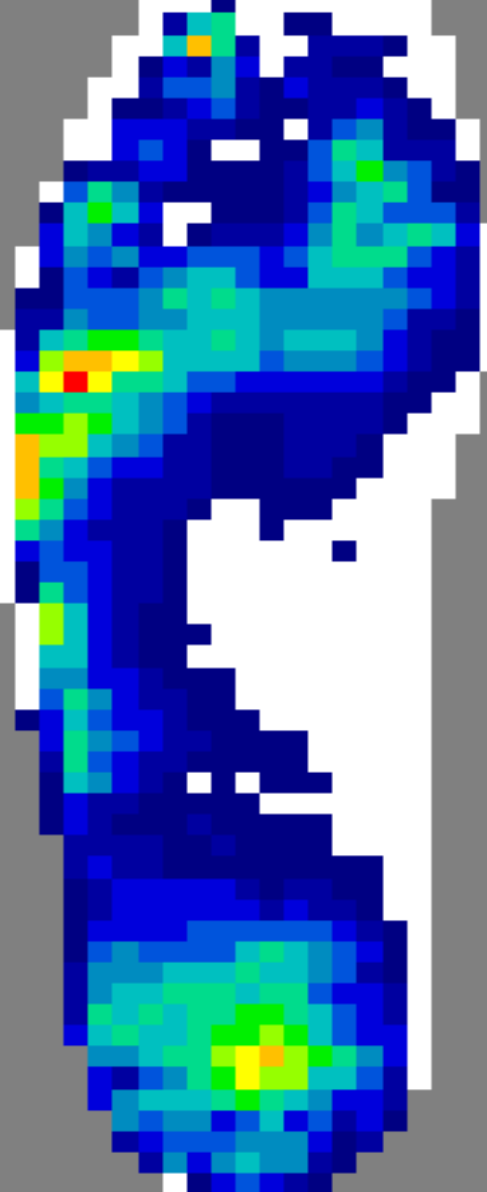
in-shoe with orthotic



eva and forefoot extension



eva with hallux shaft



The hot foot

- Male
- Type 1 - 1968
- HbA1c 8.9%
- Retinopathy
- Hot foot 3 weeks
- 6 degree difference
- Three courses antibiotics
- Pain – needed co-codamol



CHARCOT FOOT

Definition:

A relatively painless, progressive & destructive arthropathy in a single or multiple joints due to underlying neuropathy

CHARCOT FOOT

- It is poorly understood and frequently overlooked
- Seen in 0.3% - 0.5% diabetics
- Prevalence varies from 0.08 – 7.5%
- We see 3% among diabetic foot cases
- Your eyes don't see what the brain does not know

Pathogenesis

- Peripheral neuropathy
- Selective sympathetic neuropathy
- Disruption pre-capillary sphincters
- High throughput foot
- Disruption of bone surface regulation
- Trauma
- Renal failure

Diagnosis

- Very difficult to diagnose
- Foot more than 2 degrees warmer than contralateral foot
- X-ray
- MRI
- Bone scan
- Clinical suspicion

Differential Diagnosis

- Cellulitis
- DVT
- Phlebitis
- Oedema
- Gout
- Osteomyelitis

Stabilisation Phase

- No longer red, hot or swollen
- Foot may be deformed – rocker bottom
- Chronically unstable foot

Management

ACUTE

- Casting
- Pneumatic walkers
- CROW
- Rest
- Crutches

CHRONIC

- Footwear
- Orthosis
- Corrective Surgery
- Health Education
- Palliative podiatry

Chronic Foot Deformity Associated with Charcot



Every year formally ask about neuropathic

If present

- discuss cause and prognosis
- agree appropriate therapeutic options and the review understanding at each clinic contact
- be alert to psychological consequences and offer support

Offer tricyclic drug, starting at low doses; titrate as tolerated
Discuss timing for most benefit
Advise that this is a trial of therapy

Uncontrolled

Offer trial of cheapest (at maximum dose) of duloxetine, gabapentin or pre-gablin
Stop if ineffective at maximally tolerated dose
Try another of the drugs if side effects limit dose titration

Uncontrolled

Consider trial of opiate analgesia

Uncontrolled

Discuss with person and seek assistance of local chronic pain management team if agreeable

Controlled

Consider reducing dosage/stopping
Therapy following discussion and
agreement with person concerned

Things to Watch Out For



Patient Health Education Leaflets



In partnership with



Diabetes



Putting feet first

Commissioning specialist services for the management and prevention of diabetic foot disease in hospitals

This report is supported by:

Association of British Clinical Diabetologists
Foot in Diabetes UK
Joint British Diabetes Societies Inpatient Working Group
National Diabetes Inpatient Specialist Nurse Group
Primary Care Diabetes Society
Scottish Diabetes Foot Action Group
Society of Chiropodists and Podiatrists
The Vascular Society of Great Britain and Ireland
Welsh Endocrine and Diabetes Society



- [Ewww ... Dachshund Eats Owner's Big Toe](#)

- 9:50 PM EDT, July 4, 2008

- ALTON, ILL. --A 56-year old woman says her miniature dachshund, Roscoe, gnawed off her right big toe while she was asleep.

Linda Floyd says she has no feeling in her toes because of nerve damage from diabetes.

She discovered the toe missing after waking from a nap Monday.

She called her daughter, who phoned 911.