Pressure Sores

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PRESSURE SORES

- General
  - History
  - Incidence and location
  - Classification
  - Aetiology and treatment
  - Surgery

- Specific problems in the foot
TERMINOLOGY

- Pressure sore
- Bedsore
- Decubitus ulcer
- “Distortion sore”-1980 Scales
HISTORY

- 1593 Fabricus
  - Nerve severance and loss of blood supply
- 1749 Quesnay
  - Distinguished between pressure and other diseases
- 1853 Brown-Sequard
  - Identified pressure and moisture
HISTORY

- 1873 Paget
  - “…sloughing and mortification” caused by pressure

- 1879 Charcot
  - Release of neurotrophic factor

- 1940 Munro
  - Autonomic disturbance causing decreased peripheral reflexes
POST-WAR HISTORY

- 1938 Davis
  - Flap replacement of scar epithelium
- 1945 Lamon and Alexander
  - Surgical closure with antibiotic coverage
- 1958 Comarr and Bors
  - 46% complications following ischiectomy
- 1971 Ger
  - Transposed adjacent muscle flaps + SSG
INCIDENCE

- 1971 Petersen and Bittman
  - 3% with sores

- 1978 Stapleton (Worthing study)
  - 6% of whom half >70 years

- 1977 Jordan and Nicol
  - 9.4% in an elderly population

- 1979 Woodbine
  - 95% in at risk population
  - 24% on an orthopaedic ward
LOCATION OF SORES

- 28% Ischium
- 27% Sacrum
- 12% Trochanter
- 13% Heel
- 7% Malleoli
- 3% Foot
CLASSIFICATION

- 1955 Guttman
- 1975 Shea
- 1979 Daniels
- 1980 Forrest
- 1981 Barton and Barton
  - Type 1 and 2 pressure sores
Type 1 pressure sore

- Due to pressure alone
  - Prolonged unconsciousness
  - Enforced immobility
  - Paraplegia
  - MS, Parkinson's
  - CVA, arthritis
  - Heavy sedation
Type 2 pressure sore

- Due to local endothelial cell damage
  - Dehydration
  - Burns
  - Recent surgery
  - Bacteraemia, general infections
  - Hypoxia
  - Atherosclerosis
PREDISPOSING FACTORS

- Intrinsic factors
  - Body Type
  - Vascular considerations and anaemia
  - Mobility
  - Neurological disease
  - Nutritional status
  - Incontinence
  - Infection
  - Age and concurrent illness
PREDISPOSING FACTORS

- Extrinsic factors
  - Skin hygiene
  - Patient handling
  - Drugs
  - Patient support system
RISK ASSESSMENT

- 1962 Norton
- 1973 Gosnell
- 1980 Goldstone and Roberts
- 1983 Waterlow
Norton Scale

- A. Physical condition 1-4
- B. Mental condition 1-4
- C. Activity 1-4
- D. Mobility 1-4
- E. Incontinent 1-4
GENERAL MANAGEMENT

- Relieve pressure
  - "You can put anything you like on a pressure sore, except the patient!"

- Treat predisposing factors
  - Oedema
  - Diabetes
  - Anaemia
  - Dehydration
  - Nutrition
WOUND MANAGEMENT

- Temperature
- pH
- Sodium and glucose levels
- Oxygen
- Moisture
WOUND MANAGEMENT

- Movement
- Debridement
  - Surgical, chemical or enzymatic
- Infection
  - Mechanical cleansing
  - Antibiotics-topical v systemic
- The dressing
ALTERNATIVE TREATMENTS

- Insulin therapy
- Oxygen therapy
- Sugar or honey
- Topical agents
- Infrared, ultraviolet and ultrasound
- Maggots
- SURGERY!
PRINCIPLES OF SURGERY

- Complete excision of ulcer
- Resection of underlying bony prominence
- Resurface defect with healthy tissue
- Design flaps to be as large as possible
- Obtain additional padding by use of muscle flaps
TIMING OF SURGERY

- General condition of the patient has stabilised
- Ulcer shows signs of improvement
  - Clearance of all necrotic tissue
  - Appearance of healthy granulation tissue
  - Decrease in size of ulcer
    - Less undermining
    - Advancing epithelial margins
GENERAL PRINCIPLES

- Preoperative preparation of patient
- Anaesthesia
- Operating theatre
- Postoperative care
  - Nursing position
  - Nutrition and excretion
  - Education
SURGICAL CLOSURE

- Primary closure
- Split skin grafts
- Transposition flaps
  - Simple
  - Tubed pedicle
- Rotation flaps
SURGICAL CLOSURE

- Myocutaneous flaps
  - Local
  - Free tissue transfer
- Composite graft
  - Muscle graft + split skin graft
  - Muscle graft + local island flap
PROBLEMS IN THE FOOT

- Specialised skin for weight-bearing
- Little bulk in local tissues
- Shape
- Sensation
- Use of local island flaps + muscle graft