ON DIGITAL DRESSINGS

Just putting a dressing on a toe may seem to offer challenge enough. But placing a dressing that will retain for a predictable period, fulfil its intended purpose, do some good whilst it is in place and improve the toe by its presence can all be achieved routinely. What is needed is some insight, a little thought and a reliable system. The system detailed here has been developed and applied over a long period of intensive clinical practice - and it works!

All dressing materials used on feet should be hypoallergenic. The skin of feet is sensitive and dressings may need to be worn for days or weeks. Hypoallergenic dressing materials are spread with acrylic adhesive which will not interfere with wound healing or skin growth. The inert adhesive surfaces of hypoallergenic dressings can be applied directly to raw or open wound surfaces and healing will continue unaffected beneath. Hypoallergenic dressings do not cause plaster-rashes, as zinc oxide spread dressings used to do, and they will not leave black plaster-marks around them. Dressings can be placed over blisters and can be used to defend areas of dermatitis, eczema or psoriasis. The retention characteristics are good, and they remove readily when they have served their purpose. Adherence to the skin can be greatly enhanced by laying the dressings upon a thin layer of Compound Tincture of Benzoin (T Benz Co). Fleecy Web applied to the plantar surface protects against torsion and shearing forces that would otherwise be taken directly upon the skin – the dressing effectively shifting the friction plane and allowing shoe movement against the foot without distress of the skin and consequent production of callus.

Why would we wish to dress a toe?

Dressings may be defensive against pressure, friction or infection. To be able to effectively defend the toe we have to recognise the nature of the threat. Alternatively, we might wish to pursue some process upon the toe or even have cause to straighten the toe. In other words, we must identify exactly what we want the dressing to do.

So, we might wish to:

a) protect against pressure of stance and/or gait, or relieve against insufficient shoe room or protect from footwear design or decorative features
b) protect from bacterial invasion, or retain an antiseptic cream or preparation
c) encourage healing of a wound
d) protect a sensitive area

In addition, we might wish to:

e) straighten a flexibly retracted toe.

a) Protection of a digit from pressure

Excessive pressure may be applied to a digit as a result of:

- insufficient room in the shoe
- hallux abductovalgus
- toe retraction
- misaligned adjacent toes
- under/over-riding toes
- joint stiffness and gait abnormality

Where pressure falls upon a digit because there is insufficient room in the shoe, there is no long-term alternative but to change the shoe, since any dressing must further reduce the already insufficient room within the shoe. However, prominences that come under pressure can be protected by placing padding, not on, but *around* or proximally to the pressure zone. This may have to be several layers thick since it is

effectively raising the surrounding skin area above the height of the prominence. The padding will then take the pressure and distribute it over the surface adjacent to the prominence.

Over and under-riding toes may benefit from dressings only if there is sufficient height in the toe-box of the shoe. Hallux abductovalgus induces frontal plane pressure across the digits leading to pressure between bony adjacent interphalangeal joint prominences and heloma molle formation, and dressings can help here by spreading the pressure and diverting it to areas better able to take it. Silicone toe-spacers re-distribute pressure from one toe upon another. Toe retraction leads to apical lesions and dorsal HDs. Pressures that arise from joint stiffness and gait abnormality can also be reduced by well-designed dressings.

b) Protection of a digit from bacterial invasion

Dressings may carry or contain antiseptic products in cream or powder form such as povidine-iodene or dry powder silver spray. It is best if dressings applied to retain antiseptics are kept dry so far as possible so as not to dilute or wash away the antiseptic agent. It is a good idea to issue a post-operative instruction to the patient to 'keep the dressing dry for 48 hours'.

c) Encouragement of healing of a wound

Wounds heal best when clean and receiving an adequate and constant blood supply. Dressings might be applied in order to re-direct pressures that might otherwise reduce the blood supply to the toe or its part. Ensure that the dressing does not, itself, reduce the blood supply.

d) Protection of a sensitive area

Dressings may be applied directly to thin, exposed, damaged, and newly worked-upon areas to take the friction that would otherwise act upon the skin surface and cause pain. The dressing effectively becomes a temporary skin surface. If the skin is excessively thin, the dressing should not be laid upon Tinc Benz Co, but should instead be applied directly to untreated skin. Adhesion will be lost sooner, but the skin will not be damaged on loss or removal of the dressing.

e) Straightening of retracted toes

Retracted digits that are flexible at the joints can be straightened by the application of a mechanical couple to stretch the shortened tendons. This is a direct application of Davis's Law in which soft tissues are stretched unremittingly and grow until the tension is resolved. The technique does not extend to fixed retracted digits where joint arthropathy is the cause of the fixation.

Fleecy web strip is applied to the dorsum of the proximal phalanx so as to cause the toe-box of the shoe to depress the retracted toe. This alone will have a straightening effect, but can be augmented by applying further fleecy web strip beneath the apex of the retracted toe which must then extend towards the front end of the shoe.

The best digital dressings are applied longitudinally to a toe.

Dressings applied this way mean minimal material in the web-spaces, so the toes are not separated and the forefoot is made no wider than it need be. This keeps down any interdigital pressures. Fleecy web® (Cuxon & Gerrard) is cut into strips 1cm wide, and retained where necessary with Haplaband® thin EPB tape. If applied over a spread of Friars Balsam, the dressings will normally retain for 4-6 weeks and the tissue beneath will remain healthy beneath the dressing for this period. Minimal dressing material means less water retention and quicker drying when wetted.

Some specific examples of frequently applied digital dressings:

- **Apex of toe**
  A 1cm wide strip of brushed cotton *Fleecy Web® (Cuxon & Gerrard)* is draped over the Tinc Benz Co prepared digital apex, extending from the level of the eponychium on the dorsum to a point opposite on the plantar surface. Thin expanding plaster bandage *(Haplaband® - Cuxon & Gerrard)* is then used, un-stretched, around the digit to enclose the edges of the Fleecy Web® and form a 'Cossack's cap'

upon the distal phalanx. Applied correctly, this dressing will give considerable comfort and protection for up to four weeks - a welcome respite for arthritics with retracted lesser toes and apical lesions.

- A further development of this dressing requires application of the first strip of Fleecy Web, exactly as before. Take a second strip, but this time cut the strip longitudinally and apply it on top of the first layer, running the divided strip to each side of the lesion beneath. This pressure-relief further reduces pain and promotes healing. Many previously long-term and intractable apical lesions have been totally eradicated by this dressing.

- **Dorsal IPJs**
  A 1cm wide strip of brushed cotton Fleecy Web® is draped over the Tinc Benz Co prepared digital dorsum, to cover the prominent proximal or distal interphalangeal joint (or both IPJs) of the retracted toe, extending 0.5cm proximally and distally to the joint. Haplaband® is applied un-stretched, around the digit to cover the edges of the Fleecy Web®. This dressing will normally remain in-situ for up to six weeks, despite bathing and showering. The dressing becomes even more effective if two or three further layers of Fleecy Web® are built up over the proximal extension and incorporated beneath the Haplaband® retention.

- A dorsal lesion can be surrounded by a split strip in the manner described under apical lesions, above. The dressing will then be depressed by shoe contact, load falling on the proximal phalanx, off-loading the IPJ and preventing contact of the joint/lesion with the toe-box of the shoe.

- **Straightening of flexible retracted digits**
  A 1cm wide strip of brushed cotton Fleecy Web® is draped over the dorsal surface of the flexibly retracted digit, extending from the base of the toe, over the apex and terminating plantar to the distal IPJ. Apply two additional layers over the dorsal surface of the proximal phalanx. Similarly, apply two further layers beneath the terminal phalanx. Retain these build-ups with a tubular gauze over-dressing. When in the shoe, the proximal phalanx will be depressed by the toe-box and the distal phalanx will be raised by the shoe inner-sole, the mechanical couple stretching the shortened extensor and flexor tendons and straightening the toe. Improvement will be apparent after 4 weeks - the life-expectancy of the dressing. Sequential re-application produces good results. Note that this technique is contraindicated and cannot work where there is joint fixation.

ALLIANCE PROFESSIONAL DEVELOPMENT PROGRAMME

ON DIGITAL DRESSINGS

Answers should be submitted on A4 paper and should be of sufficient length to demonstrate full understanding of the topic. Single word answers are not permissible. Try to answer in one or two short paragraphs, not more than ¼ page per answer.

Q1. Why would you wish to apply a dressing to a digit, or digits?

Q2. What kind of dressings should we be applying?

Q3. Can a dressing be applied to an area of raw tissue?

Q4. Why are longitudinally applied dressings superior to those that wrap-around?

Q5. How is pressure relief built into a dressing?

Q6. Explain how pressure that falls upon the dorsal surface of a proximal IPJ can be relieved.

Q7. Why would we sometimes wish to 'shift the friction plane'?

Q8. What is the difference between fixed retraction and flexible retraction?

Q9. How might you relieve pressure that falls upon the apices of the lesser toes in fixed retraction?

Q10. What is meant by 'joint arthopathy'?

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