Guideline

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Amputee Care - The Use of Post-Operative Rigid Dressings for Trans-Tibial Amputees

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Summary The Guideline on the use of post-operative rigid dressings for trans-tibial amputees has been developed to advise the use of rigid dressings immediately post-operatively (within 20 minutes of completing surgery) in patients who have undergone a trans-tibial amputation.

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Applies to Area Health Services/Chief Executive Governed Statutory Health Corporation, Board Governed Statutory Health Corporations, Affiliated Health Organisations - Non Declared, Affiliated Health Organisations - Declared, Public Health System Support Division, Community Health Centres, Public Hospitals

Audience Clinical, surgical, allied health, nursing, administration

Distributed to Public Health System, Community Health Centres, Divisions of General Practice, Health Professional Associations and Related Organisations, NSW Department of Health, Public Hospitals, Private Hospitals and Day Procedure Centres, Tertiary Education Institutes

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Amputee care – The use of post-operative rigid dressings for trans-tibial amputees

The purpose of this guideline is to advise the use of rigid dressings immediately post operatively (within 20 minutes of completing surgery) in patients who have undergone a trans-tibial amputation.

The purpose of a rigid dressing, both removable and non-removable, are:

- To control oedema and thereby facilitate wound healing.
- To protect the residual limb from possible trauma.
- To allow shaping of the residual limb prior to prosthetic fitting.
- To assist with pain control.

The NSW Amputee Care Clinical Guidelines Reference Group (CGRG) discussed the merits of various post-operative dressing regimes for trans-tibial amputees and recommend the use of rigid dressings in place of alternative protocols.

The NSW Amputee Care CGRG recommended that a rigid dressing be applied to the amputated limb immediately post operatively. This type of dressing may be applied in two ways:

1. A rigid removable dressing (RRD) applied directly post operatively by an appropriately qualified person. This should ideally be a prosthetist but may be a physiotherapist, surgeon, a plaster technician or another person who has been trained specifically to fit RRDs in clients with trans-tibial amputations. The surgeon may wish for the RRD not to be removed for a nominated amount of time following surgery. The RRD finishes just below the patella and allows the knee to flex.

2. A plaster cast dressing, usually put on by the surgeon, that remains in place for approximately three days after surgery or until the surgeon wishes it to be removed. This plaster cast encompasses the knee and ceases mid-thigh. After it is removed this initial dressing is substituted by a rigid removable dressing (RRD).

An RRD allows frequent wound inspection and simulates the donning and doffing of a prosthesis.

Postoperative rigid dressings have been utilised effectively for a number of years in the United Kingdom, America and in parts of Australia, decreasing rehabilitation hospital stays (Baker et al, 1977[1]). Concerns raised regarding the difficulty of wound monitoring have been resolved by the replacement of the rigid non-removable dressing after approximately three days by the RRD. The use of RRDs immediately post surgery was so beneficial in Ballarat, Victoria, the amputee team do not propose to use alternative forms of postoperative dressings for their trans-tibial amputee clients.

[1] BAKER WH, BARNES RW, SCHUTT DG (1977). The healing of below-knee amputations. A comparison of soft and plaster dressings. *American Journal of Surgery* **133**, 716-718

A recent review of the available literature has shown that, while not conclusive, there are strong indications that RRDs may be the most effective form of post surgical dressing in trans-tibial amputee patients. The most current study by Deutschet al in 2005[2] compared standard soft dressings with an RRD in a randomised controlled trial. The study showed that wound-healing time was decreased by two weeks in subjects using RRDs and that RRDs may protect the new residual limb from trauma caused by falls. Other research indicated that the use of RRDs may reduce the time to fitting of a prosthesis (Hughes et al., 1998[3]), promote more rapid healing and are associated with a shorter duration of hospitalisation (Vigier et al., 1999[4]).

The NSW Department of Health will provide training to educate staff in the initial fitting of rigid dressings, removable and non-removable, through the NSW Artificial Limb Service.

Once fitted, the RRD should not be removed from the residual limb for longer than 10-minute periods. A delay in the reapplication of the RRD may result in an increase in the residual limb volume and create difficulties in reapplying the RRD. A sample information sheet on how to apply a client's RRD is attached. This information is for the client and any persons involved in that client's care.

To assist the NSW Department of Health in monitoring the use of RRDs, a data collection form has been created. This form should be completed for each lower limb amputee client, regardless of the post-operative dressing regime used. Completed forms should be sent to the Artificial Limb Service Manager, Calvary Hospital on a monthly basis.

Supplements:

Supplement 1 - Sample Patient Information Sheet 'How To Put On Your Rigid Removable Dressing'

Supplement 2 - Post-Operative Dressing Data Collection Form

[2] DEUTSCH A, ENGLISH RD, VERMEER TC, MURRAY PS, CONDOUS M (2005). Removable rigid dressings versus soft dressings: A randomised, controlled study with dysvascular, transtibial amputees. Awaiting publication.
[3] HUGHES S, SOLOMON N, WILSON S (1998). Use of a removable rigid dressing for transtibial amputees rehabilitation; A Greenwich Hospital experience. *Australian Journal of Physiotherapy*, **44(2)**, 135-137.
[4] VIGIER S, CASILLAS JM, DULIEU V, ROUHIER-MACER I, D'ATHIS P, DIDIER JP (1999). Healing of open stump wounds after vascular below-knee amputation: plaster cast socket with silicone sleeve versus elastic compression. *Archives of Physical Medicine & Rehabilitation*. **80(10)**, 1327-1330

Supplement 1 – Sample Client Information Sheet

HOW TO PUT ON YOUR REMOVABLE RIGID DRESSING (RRD)

General Description

One of the initial steps in preparing your residual limb for a prosthesis is with the use of a removable rigid dressing or RRD. An RRD is a cast that goes up to the kneecap and is custom made to the shape of the limb. The purposes of the RRD are to:

1) Reduce the amount of fluid or oedema in the limb
2) Keep the residual limb at a more consistent volume
3) "Shape" the residual limb so that it is a more ideal shape and size to fit into a prosthesis
4) Protect the limb from bumps or falls
5) Allow for easy access to the limb for inspection and cleaning.

Important Note:

*A delay in the reapplication of the RRD may result in an increase in limb volume. Please **do not** remove the RRD from the residual limb for longer than **10 minute** periods.*

Fitting:

1. Apply stump sock to the residual limb.
   It is important at this stage to remove all wrinkles in the sock.

2. Gently slide on cast.
   When sliding the cast on, note the location of the kneecap (this is marked on the cast). The application of talcum powder to the inside of the cast will assist with donning. If the cast is loose on the residual limb after donning, an extra stump sock may need to be applied.

3. Apply outer stockinette.
   Tightly pull the outer suspension stockinette over the cast to mid thigh level.

4. Snugly fit supracondylar cuff.
   Note the kneecap cut out in the supracondylar cuff, and fit the cuff immediately above the kneecap. Secure the elastic strap around the thigh. Ensure that no tension is applied to the elastic strap.

5. Secure the suspension stockinette.
   To secure the suspension stockinette, fold it backward over the cuff.

Wear the RRD at all times, day and night, except when you are bathing yourself or the limb is being inspected.

Remember to keep your leg straight when sitting or laying down. Do not let your leg hang downward when sitting. Do not sit with your knee bent.

Supplement 2

Post-Operative Dressing Data Collection Form For Lower Limb Amputees

Patient Date of Birth

……

Gender

□ Male □ Female

Hospital……

Surgeon – name and position ……

Level of amputation

□ Transfemoral □ Transtibial □ Through Knee □ Syme

Side of amputation

□ Right □ Left □ Bilateral

Reason for amputation

□ PVD □ DM □ Trauma □ Tumour □ Congenital

□ Other (please state) ……

Date of amputation ……

Surgical Technique used……

Type of post surgical protocol

Soft dressings □ compressive □ non-compressive

□ Rigid Removable Dressing □ Rigid non-Removable Dressing

□ Other (please state)……

Pain control type

□ PCA □ Nurse administered □ Combination

Did patient fall at all prior to discharge?

□ Yes □ No

Revision of amputation

□ Yes □ No

If Yes:

Cause……..

Level of new amputation……

Oedema

Day 3 - Circumference 5cm from distal end of residuum (cm) ……

- Circumference at same level on other limb (cm) ……..

Day 7 - Circumference 5cm from distal end of residuum (cm) ……

- Circumference at same level on other limb (cm) ……

Discharge - Circumference 5cm from distal end of residuum (cm) ……

- Circumference at same level on other limb (cm) ……

Date transferred to rehabilitation……

The completed data collection form is to be returned to:

The Manager
NSW Artificial Limb Service
Calvary Health Care Sydney
P O Box 261
Kogarah NSW 1485

Ph: (02) 9553 3078
Fax: (02) 9553 3021