

Prosthetic Foam Neck Collar



Description of splint: Prosthetic foam neck collar for use with neck scar contractures

Materials used/needed:

- * prosthetic foam medium
- * catalyst liquid
- * 6 tongue depressors
- * heavy duty scissors
- * Tegaderm
- * 3" Stockinette
- * medical tape
- * helper, for about 15 minutes
- * silicone elastomer base medium
- * 2 or 3 plastic cups
- * thin dressing (I used fine mesh gauze, but can use Vaseline gauze or Adaptic if open wounds)
- * 2" Betapile
- * 1" Velcro hook
- * sheet, blanket or disposable pad



Fabrication instructions: Assemble materials on a table with the surface protected (this is a messy process). Cover the mat with something you do not mind getting messy (sheet or disposable pad). Have patient lie on her back on a firm surface with neck slightly extended. She may need to position head slightly over the edge of the mat to achieve some stretch on the scars.



Cover any open wounds with a **THIN** dressing just to keep the foam from sticking to the wound. (This is where I use fine mesh gauze, Vaseline gauze, Xeroform or Adaptic, whichever is most appropriate to the wound. Fine mesh gauze or other fabric incorporates into the splint and provides added strength to the foam. The other dressings usually do not adhere to the foam medium.)



Make a mixture of 2/3 elastomer base and 1/3 prosthetic foam in a plastic cup. It works well to use an 8-10 ounce disposable cup. Position your helper seated at the patient's head and cupping her hands on either side of the neck to keep the liquid foam in place until it sets up. Add ½ to 1 teaspoon of catalyst to the mix and stir briskly to mix ingredients well. Pour the mixture onto the patient's neck, using tongue depressors to help it stay where you put it, as it will ooze out of the gaps between your helper's hands and the patient.



Within two or three minutes the material will be solid enough to stay unsupported while you mix a second batch in the same manner. Usually the second pour is necessary only in the front area of the neck where the foam is thin and on some outer edges, therefore may be a smaller batch. Once the second pour is completed and solidified, your helper is no longer needed. Remove the now solid glob of prosthetic foam and trim the edges with scissors or an electric knife, thinning the collar so it is of fairly equal thickness around the neck.



The trimming can be the most time-consuming part of the process, but crucial to getting a good fit with no pressure points caused by thicker areas. You will not modify the surface of the collar that touches the skin since this is a custom fit already. Assess the fit of the collar on the patient often as you trim it.



Now cover the entire surface of the foam with Tegaderm. This keeps the foam clean and allows the collar to be gently dabbed with a damp cloth for cleaning as necessary. I use large sheets about 8" x 10" when I have them, which is much easier than many small sheets.



The Tegaderm layer is never to be removed by the patient, though they will remove all else when cleaning it. Slide on a sleeve of 3" stockinette that is ~6 inches longer than the collar, folding the edges toward the front of the collar and taping the edges closed.



Place 2" Betapile strapping on the front of the collar and tape it on with 2 single-layer strips of medical tape around the circumference of the collar, then cover with a second stockinette sleeve. Add a 3" piece of Velcro hook to the end of the strap to attach around the neck of the patient.



When applying the collar it is crucial to pull the strap tightly around the neck to ensure a snug fit of the collar to the neck. If it is applied too loosely it will rub and may cause sore

spots. When applied snugly, the collar does not shift with movement and puts a desirable, constant pressure on the neck scars while maintaining skin integrity. It is advisable to place the collar's stockinette directly against the skin whenever possible, though a single layer of Xeroform, fine mesh gauze or Adaptic is used over open spots as necessary. Any dressings applied under the collar affect the precise fit that is needed to re-mold the shape of the neck scars. Instruct the patient to wear the collar about 23 hours a day. She/he may remove it for bathing and stretching only. The patient does need to sleep in it, as this is the worst time for burn scars to contract. Patients are to change the outer stockinette daily and will usually only need to change the inner stockinette every few days. You may have the patient wash the stockinette or use new ones every day.

Advantages: increase neck ROM, flatten and re-mold scars, prevent further neck contractures, improve posture, increased pt. focus on neck and stretching, maintain neutral or slightly extended neck position during sleep

Disadvantages: discomfort in wearing collar, some patients do not like the appearance, can cause sores if worn incorrectly

Indications: decreased ROM from burn scarring on neck and/or upper chest; large, deep burns on anterior or lateral neck that are becoming more rigid or thick or blanching when neck is placed in extension, lateral flexion or lateral rotation

Precautions/Contraindications: generally made when burns are at least partially healed but may be used with some spotty open areas, pt. must be conscious and able to indicate any problems with collar, must be compliant with collar use and in agreement to wear it, autografts should be well-adhered

Primary reference: Prevention and management of contractures in patients with burns of the neck. American Journal of Surgery 1975; 130:700-3.

Secondary reference: Modified Watusi splint: a simple and economical device. British Journal of Plastic Surgery 2002; 55: 270.

Presented by Beth Bale, OTA/L of UNC Hospitals NC Jaycee Burn Center.

This collar was first fabricated in our facility by Sydney J. Thornton, OTR/L, who taught me how to make it ten years ago. Sydney has been using this neck collar with our patients for two decades. My thanks go to Sydney for teaching me and allowing me to share her knowledge with others.