REHABILITATION

Specialty Splints for the Burned Upper Extremity

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Palmar Hand Burn Splint: Tips and Techniques for Splinting Management

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Tips and Techniques for Splinting Management

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STATION ROTATION

- Incidence and Etiology
- Relevant Hand Anatomy
- Types of Splints commonly used / indicated for a Palmer Based Hand Burn:
    1. Sandwich Hand Splint
    2. Dorsal Pan Splint
    3. Palmer Conforming Splint
    4. Slot –Through Splint
    5. Dorsal Splint with Individual Finger Sections

Palmer Hand Extension Splint

Material Used / Needed:

Scissors	Tape Measure
Marking Pen	Heating Pan
Utility Knife	Hole Punch
Adhesive 2" Velcro® Hook & Loop	Foam Padding

Silon-LTS® & low temperature thermoplastic material

Indications: Used to prevent palmer flexion contracture in the palm and also through the digits; to maintain a stretch position to the 1st web space.

Fabrication Instructions:

Make an outline of the patient's hand on a flat surface with the thumb fully abducted and fingers at maximal spread.

Make some key points on the outline: styloids of the wrist; MCP's; thumb. The distal portion should extend at least the length of the fingers and slightly more.

Transfer pattern to the LTS material and draw it directly onto the white paper backing of the material itself. Heat the pattern with the paper intact and cut to fit – when heated, remove the paper and transfer the material directly to the patients hand WITHOUT using a contact layer (works best forming directly on the patient's skin).

Mold the material to the patients hand or in the case of significant tightness use a "model hand" to maximize the stretch to the hand. Best to use the patients hand held in "maximal stretch" to allow for the greatest possible stretch to the joint

Bias the splint to address specific areas of interest: increase wrist extension; increase palmer abduction; increase MCP and or PIP extension. If the area extends over the volar wrist crease and/or forearm then, the splint can be made to extend 2/3 the forearm, however this splint also works well for a hand based splint. Palmer or Radial Abduction can be used as well based upon the needs of the patient and stretch.

Secure splint at forearm, wrist, fingers with Velcro hook and look. Use other securing means depending on the patent requirements (i.e. an ace wrap or gauze bandage can be used to prevent children from removing the splint easily).

Additional modifications to address specific contracture development with this design:

1. **PIP Flexion Contractures** – once a base pattern is formed, cut slots (~1" in length) on both sides of the PIP joint through the material with a utility knife or hole punch on either side of the digit marked. Lace a piece of Velcro® loop through the material and affix Velcro® hook (~1" in length) on each side of the slits on the volar(underside) of the splint. This attachment can be used to increase the stretch over a specific joint while the rest of the palm is held within the splint. Adjust the tension to patient tolerance.

2. **MCP and/or PIP Contractures** – once a base pattern is formed, measure the area of the MCP to PIP and add ~1.5" to the length on both ends. Use scrap thermoplastic material to make and form over the doral aspect of the joints while the hand is held in maximal MCP extension – usually can be done with the hand resting on a table. Once the material is formed, line the material with self-adhesive foam. Place the hand back into the palmer extension splint and

then apply the dorsal splint over the area to fit. Apply a Velcro® hook and loop over the entire area and adjust tension to tolerance.

Advantages:

Relatively easy to fabricate

Transparent when warm so easy to visualize scar blanching when forming

Maintains good contact / minimizes slippage due to the silicone contact layer

Edges remain soft and comfortable allowing for increased tolerance to stretch

Provides silicone and pressure in a single modality therefore the splint does not require modification with an insert.

Disadvantages:

Maceration can develop in exceptionally warm climates or if proper cleaning is not employed.

Precautions / Contraindications: Flattening of the palmer arch if excessive wear is employed and pressure over volar joints of the MCP's and tips of the fingers.

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