A shortening of the sternocleidomastoid muscle causes the neck to laterally flex and the chin to rotate toward the opposite side. The etiology of "wry neck," or torticollis, is unknown but the immediate cause of deformity is fibrosis within the sternocleidomastoid muscle. When surgery for congenital muscular torticollis is the course of correction, it is necessary to immobilize the head and neck for a period of 2 to 3 days after surgery. Because infants and young children cannot be counted on to cooperate with postsurgery instructions, the torticollis head and neck immobilizer is recommended.

The Department of Occupational Therapy at the Children's Hospital of Alabama in Birmingham receives a request for immobilization while the child is still in surgery. The splint cart and materials are taken into the recovery room where the apparatus is cut, formed, and fitted before the child is taken to his or her hospital room.

Perforated Polyform is used because it has been found to be the easiest low-temperature thermoplastic material to form. It requires the least amount of heating and cools fastest to secure the mold. Perforation also allows the material to breathe by providing ventilation around the head and neck.

Construction of the Head and Neck Immobilizer

An approximate measurement is taken from ear to ear underneath the chin and from the chin to the clavicle (see Figure 1). This is used for the neck conformer portion of the splint. The thermoplastic material is cut out and the edges are rounded. The piece is heated and molded to the neck of the supine child. The neck should be in slight extension to inhibit any tendency toward return to an abnormal position. The collar is molded so that the mandible is cradled in the collar and the splint material conforms to the neck. The collar may be lined with moleskin.

A piece of ½-in. dense foam padding is placed occipitally (see Figure 2) and secured with foam straps to pieces of self-gripping fastening material on the neck collar. To further ensure immobilization, a bonnet of perforated thermoplastic is cut out, molded, and secured to the collar in the following manner: The approximate distance is measured from one side of the neck collar, up over the head, and down the other side (see Figure 3). A corresponding piece of thermoplastic is cut out and draped over the child's head. This is heated and molded (thermoplastic will not catch the child's hair). It is then removed and areas for the ears are cut out to avoid friction rubbing or pressure areas (see Figure 4). The bonnet is attached to the collar with self-gripping fastening material.
Discussion

The head and neck immobilizer is applied in the recovery room and worn until the surgeon requests range of motion. It has proven to be successful in assuring minimal movement and proper positioning in infants and young children after torticollis release surgery. As soon as the surgeon specifies (usually 2 to 3 days after surgery), progressive rigorous daily range of motion and stretching exercises are taught to the parent to assure carryover at home. From this point until up to 6 weeks after surgery, only the neck collar is worn at night. The bonnet is discarded, having served its purpose during the acute stage of recovery.

The head and neck immobilizer has been used successfully on six children over a period of approximately 2 years. It does not need to be removed for feeding, as it does not interfere with this activity. However, it should be removed during feeding if the child has any associated neurological complications in which positioning influences the integrity of a swallow. None of the six children who have worn this immobilizer has had any complications other than the torticollis.

Figure 1. Areas to be measured for construction of the head and neck immobilizer.

Figure 2. Side view of immobilizer.

Figure 3. Area to be measured for construction of bonnet.

Figure 4. Shape of bonnet with cutout areas for ears.