Orthotics and Prosthetics, Vol. 30, No. 1, pp. 41–42, March 1976

THE MODIFIED OR MINIHALO

W. Heath Harvey, C.P.O.[1]
Louis A. Hazouri, M.D.[2]

A 14-year-old, white female was hospitalized from an automobile accident which resulted in a fracture-dislocation of C-4 and C-5 vertebrae. The patient was on her way from church, riding in the rear of an automobile, when it was struck from behind. She was seen in Langdale, Alabama, where she was evaluated by a physician who referred her after it was certain she had a fracture-dislocation of C-4 and C-5 vertebrae. The patient had complained of neck pain as well as tingling in the upper limbs.

She was placed in complete bed rest and was fitted with a hard cervical collar, before being transferred to the Columbus Medical Center where examination revealed that all limbs had some degree of weakness with poor coordination of the upper limbs, even though she was able to open a package of chewing gum. The patient was cooperative, alert, well-developed, well-nourished, oriented as to time and place, but complained of headaches as well as generalized neck pain. Her heart and lungs were clear. Her blood pressure was 110/70. Her pulse was regular. There was no evidence of any damage to the lungs. There was evidence of contusion about the right scalp. The cranial nerves revealed no evidence of any intracranial pressure. The pupils were round, regular, equal, and reacted to light and accommodation.

On 5/14/75 Gardner tongs were applied.

On 5/14/75, X-rays revealed a vertical fracture line through the posterior aspect of the C-4 vertebral body. Good head position and alignment were evident. Follow-up at 6:30 p.m. showed similar findings.

On 5/15/75 X-rays revealed slight subluxation. The equipment was readjusted and rechecked two hours later, revealing satisfactory abduction and good alignment.

At 7:30 a.m., 5/16/75, X-rays again showed fracture of the vertebral body. However, at this time there was some anterior slipping of the C-4 vertebra with respect to C-5, amounting to five or six millimeters, which indicated fracture instability in the arch. A repeat lateral view taken with better extension shows good position and alignment as noted in the intial two studies.

On 5/21/75 the patient was taken to surgery. Disc excision and fusion was carried out on the C-4 and C-5 vertebrae. Subsequent to disc excision and fusion, the patient was maintained in traction.

On 6/9/75 consideration was given to providing the patient with an orthosis. Because we had had quite a bit of trouble with the four-bar cervical orthosis, its use was ruled out if we could find something better. A halo was discussed, but it, too, was ruled out.

It was decided that we would make a mini or modified halo, with the use of the Gardner tongs.

A molded Plastizote collar was securely and firmly fitted to the patient. Plaster-of-Paris bandages were wrapped around the collar, not only to secure it, but also to provide a firm base for application of the modified halo. The Gardner tongs were left intact but the weights were removed from the traction. Four turnbuckles were secured to the Gardner tongs: one on each side attached to the anterior aspect of the collar, and one on each side attached to the posterior aspect of the collar. These turnbuckles were placed on the Plastizote collar in the position where the plaster-of-Paris had been wrapped around, and were secured to the collar with the plaster-of-Paris both anteriorly and posteriorly. The patient was placed in slight hyperextension to maintain the position that had been held during traction.

When the plaster-of-Paris had dried, the turnbuckles were opened slightly to reduce the pressure on the patient's chin and also to give some traction. That afternoon the patient was allowed to stand and walk a few steps. The next day she went to physical therapy. The only discomfort the patient complained of was a small abrasion on

[1]Certified Prosthetist-Orthotist: 1306 Broadway, Columbus, Georgia

[2]Neurosurgeon: 1519 Thirteenth Avenue, Columbus, Georgia

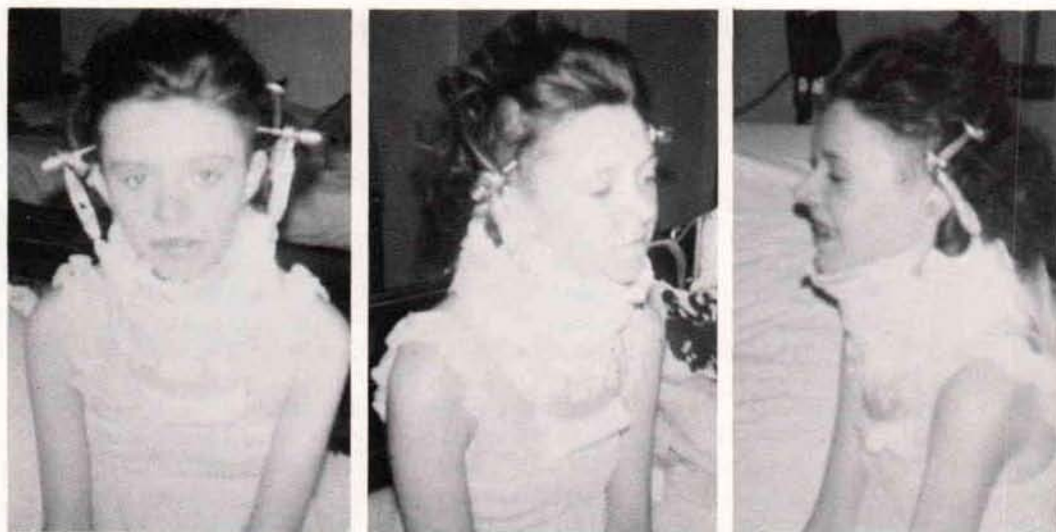

Fig. 1. Three views of the patient with the minihalo.

her chin which was corrected easily by opening the turnbuckles.

On 6/14/75 the patient was dismissed from the hospital. Her response had been excellent and she and her mother had been instructed carefully in reference to the care of the patient and the orthosis.

Contact with the patient on June 25, 1975 revealed that she was having no problems with the orthosis. It was very comfortable, and she was able to go about her normal activities each day. She was very pleased with the results.

We have concluded that use of this modified or minihalo has proved to be most comfortable, effective and simplest to manage of any of the cervical braces that we have ever used. This method does not preclude the use of the "Halo," but can serve as an alternative in most cases.