Non-Operative Management of Acute Upper Cervical Injuries

By

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With 14 Figures

Summary

The results of a closed, non-operative type of treatment in acute upper cervical injury have been reviewed, especially as they relate to the use of the halo cast or vest. The morbidity with the use of this device has been minimal and there has been no mortality. Early patient mobilization has been readily achieved and in the case of the Hangman's, Jefferson's, and odontoid fractures, stable solid bony healing has been achieved in nearly all cases. Similar results have been noted in the C-1 arch fracture, as well as the acute post-infectious subluxations of C-1/C-2. In a small number of cases involving traumatic C-1/C-2 and occipital/atlas subluxation, there has occurred a significant incidence of instability, despite adequate closed treatment. This has been likely to be due to the serious ligamentous disruption in these cases and it would appear that surgical fusion may be the preferential form of initial treatment in this group of injuries.

Of the several types of injuries affecting the upper cervical spine there seems to be a developing tendency to treat these problems in their acute phase with a closed, non-operative type of management. This trend seems to have evolved following the introduction of the halo cast and vest, which have allowed maximum immobilization of the spinal axis, while at the same time allowing patient mobilization and ambulation (Fig. 1)\(^2, 4, 5, 7, 13\). These devices are then particularly applicable to the patient who requires adequate spinal fixation, to allow maximum fracture and ligamentous healing, but whose minimal neurological impairment or normal neurological state is no deterrent to tolerance of an external fixation device (Fig. 2). Previously, a closed, non-operative approach to surgical spine injury required an extended period of traction and bedrest, until fracture stability and healing were evident. The morbidity and mortality associated with prolonged
recumbency are evident to anyone managing these injuries and certainly the advantages of early patient mobilization are well documented. These complications of bedrest and traction have been one of the strong arguments for early operative intervention in acute cervical injuries. In addition, there is the added benefit of an immediate internal stabilization of the injury. With the use of the halo cast or vest the hazards attendant to prolonged bedrest would also be avoided, since early mobilization is usual. However, the use of this device and other closed methods raises the question of the adequacy of injury site immobilization and the completeness of fracture healing. With this in mind we have reviewed our experience over the past seven years in the non-operative treatment of upper cervical injuries.

**Results**

*Occipital-Atlas Subluxations*

Although this injury is usually fatal, we have managed initially in a closed fashion, one non-fatal case of an occipital-atlas subluxation