



Service Priorities and Programmes
Electronic Presentations

Convention ID: 386

Submitting author: Miss Helen Wai Man LEE

Post title: Prosthetist-Orthotist II, Queen Elizabeth Hospital, KCC

Effectiveness of halo program as an adjunct treatment to cervical unstable patients

Lee HWM(1), Lin ACW(1), Cho NSS(1), Law SYC(1), Kwan HH(1), Ho CH(2), Li KK(2), Cheng WKH(2), Wong CK(2), Chin RPH(2)

(1)Department of Prosthetic and Orthotic, Queen Elizabeth Hospital, Hong Kong

(2)Spine and rehabilitation service, department of Orthopaedics and Traumatology, Queen Elizabeth Hospital, Hong Kong

Keywords:

halo orthoses

adjunct treatment

cervical stabilisation

external

Introduction

The first halo orthosis was developed by Dr FA Bloom, Dr J Perry and Dr VL Nickel in 1959. In 1989, Botte et al. stated that complications were common, especially in pin loosening (36%), pin infection (20%) and pressure sore (11%). Although complications were not uncommon, superior cervical spine range of motion control and high arthrodesis rate, compared with other cervical orthoses, made halo orthoses inevitably as an external means of cervical stabilization. In 2011, Ho et al. evaluated 15 patients with halo orthotic treatment. Documented dislodgement by mal-position of patient and pin loosening was greatly reduced from 47% to 13% after implementation of guideline and discard re-use of skull pin.

Objectives

To evaluate the complication rate among a group of patients underwent cervical spine surgery with halo system as an adjunct treatment from March 2011 to April 2012 in Queen Elizabeth Hospital.

Methodology

Patients were selected based on the following inclusion criteria: 1) underwent cervical surgery 2)Received halo system as an adjunct treatment intraoperatively or postoperatively 3)Completed the halo program before end of the study. Patients underwent clinical pathway as follow. Patients received pre-halo assessment, including assessment of head and trunk circumferences and subsequent assessment, including regular inspection of skull pin poundage by spine specialty at 24-48 hours and 1st week post-operatively; regular inspection of superstructure and skin by P&O professionals at 24-48 hours, 1st week and 2nd week post-operatively. The details of assessment, including skull pin numbers, location, poundage, inspection, complication types, removal dates and inspection of removed halo system were recorded and signed in the form.

Result

16 patients, 9 males and 7 females were included in this study with mean age 55. Mean days of application were 75.06. Complication, included pin loosening (6.25%), pin site infection (6.25%), dislodgement (6.25%) and sore (12.50%). Major procedures involved cervical fusion (anterior and posterior approaches), instrumentation, laminectomy and laminoplasty. 6 patients received excision or destruction of lesion of spinal cord with neurophysiological monitoring before fixation orthopedically. Arthrodesis rate was 100% upon removal. Compliances of assessment form by O&T spine specialty and P&O professionals were 81.25 % and 83.33% respectively. Standardized halo clinical pathway provided a foundation for potential causes about common complication across the treatment period. High compliance of halo clinical pathway and collaboration among doctors, P&O professions, nurses, patients and carers attributed to the low complication rate. With standardized halo clinical pathway, halo orthosis regarded as a safe and effective adjunct treatment in cervical immobilization post-operatively.