THE USE OF PEDICLE SCREWS FOR VEPR FIXATION TO THE SPINE

Richard E. McCarthy, M.D.
Professor, Departments of Orthopaedics and Neurosurgery
University of Arkansas for Medical Sciences
Arkansas Children’s Hospital

Frances L. McCullough, MNSc, RNP
Arkansas Children’s Hospital
The original design of the VEPTR used supralaminar hooks as anchors to the spine. One difficulty with rib to spine VEPTR has been complications related to the distal anchor hook to the spine (loss of fixation, migration). A technique of using reinforced pedicle screws in place of the hook as fixation of the spine has been developed in an attempt to eliminate this occurrence.
Charts and radiographs were reviewed on all patients who had placement of rib to spine VEPTR devices utilizing screw fixation to the spine.

The technique for the pedicle screw fixation was done with pedicle screws reinforced with fiberwire around the spinous process or lamina or with a supplemental hook above.
Eight patients

Diagnoses:
- Congenital-4
- Neuromuscular-1
- Syndromic-2
- Cyanotic heart disease-1

Average age at placement: 6+5 years
- (range 1+6 to 17+10 years)

Average length of follow-up: 2+7 years
- (range 6 weeks to 5+8 years)

Average number of lengthenings per patient: 4
- (range 0-12)
Complications

- Asymptomatic migration of the screw distally which was replaced at the next scheduled lengthening - 1 patient
- Infection - 2 patients
- Upper anchor pullout - 1 patient
Pedicle screw reinforcement offers safe and secure distal fixation at two year follow-up for rib to spine VEPTR placement.