

Author Year Country Research Design Score Total Sample Size	Methods	Outcome
<p>Hayashi et al. 2013</p> <p>Japan</p> <p>Pre-Post</p> <p>N=20</p>	<p>Population: Mean age: 47.3 yr; Gender: males=19, females=1; Level of injury: thoracic=11, lumbar=5, cervical=4; Level of severity: complete=11, incomplete=9.</p> <p>Intervention: All patients underwent a laminectomy at the level of trauma with ventricular drainage tubes inserted into the cephalic and caudal ends of the subarachnoid space. Bypass tubes were also inserted into the subdural space.</p> <p>Outcome Measures: Frankel Score (neurologic status), AISA motor score, Klekamp system (bladder function), Syring length.</p>	<ol style="list-style-type: none"> Overall, 12 patient demonstrated clinical improvement, four remained stable and four showed deterioration of symptoms. Of the four who reported worsening symptoms, two improved after additional shunting but one reported no change. There was a significant reduction in mean syring length from pre-surgery to post-surgery ($p<.01$). A significant correlation was found between clinical outcome and change in the syring size whereby those who syring was reduced experienced clinical improvement ($p=.01$). No significant correlation was found between preoperative and postoperative scores for either the ASIA Motor Score (59.6 versus 60.8 respectively) or Klekamp system for bladder function (1.1 versus 1.0 respectively).