

O-2-3

Larsen syndrome: advocating early surgical treatment using 360° cervical fixation and fusion

Ioan-Lucian Branea¹, Ruf Michael¹, Pitzen Tobias¹, Jeszenszky Dezső J.², Tiripa Iulian¹

¹SRH Karlsbad-Langensteinbach, Karlsbad, Germany

²Schulthess Klinik, Zürich, Switzerland

Introduction: Larsen syndrome is a rare genetic disorder first described by Larsen in 1950. Among other skeletal anomalies, the typical feature in the cervical spine is the lack of solid connection between the posterior and anterior pillars. Progressive deformity subsequently occurs and leads to neurological deficit.

Material and Methods: We describe 5 consecutive patients with Larsen's syndrome operated in our institutions between 2012 and 2020. We looked at age, type of cervical spine deformity, neurological deficit, surgical treatment, clinical results and complications.

Results: 5 patients, mean age 17 years (1-49). All had severe deformity of the cervical spine, with mainly angular kyphosis in 2, and mainly spondylolisthesis in 3. A severe neurological deficit with loss of ambulation was always present. We employed halo-traction before surgical treatment in all five patients. Surgery consisted in anterior-posterior decompression, fixation and fusion procedures. The posterior fixation consisted in pedicle screw-rod constructs, thus achieving a solid connection between the posterior and anterior spinal pillars. Anterior cages with autologous bone graft were used anteriorly. All patients had a marked postoperative neurological improvement and in 3 cases regained ambulation. Complications included anterior screw pullout and anterior plate breakage, requiring revision in 2 cases.

Discussion: Larsen syndrome is a rare genetic disorder highlighting severe symptomatic kyphosis or spondylolisthesis in the cervical spine. Surgical treatment with 360° decompression and fusion should be timed early to prevent neurologic deterioration and may be facilitated by preoperative halo-traction.

Fig. 1: Lateral c- spine x-ray (right) and MRI (left) of a 10 years old girl with Larsen's Syndrome and progressive tetraparesis

Fig. 2: Postoperative aspect after posterior instrumented fusion and anterior cervical discectomy and fusion

Fig. 1



Fig. 2

