The Nasoaxial Line and Nasopalatine Line as Measurements of Atlantoaxial Instability in Patients with Down Syndrome

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ABSTRACT

The atlantoaxial instability (AAI) is an important pathology that must be ruled out prior to surgery, as complications can lead to spinal cord compression. Radiographic imaging from 62 pediatric patients with Down syndrome has been performed to determine if the nasoaxial line or nasopalatine line can identify instability in a cohort of only Down syndrome patients.

METHODS AND MATERIALS

Radiographic images from 62 pediatric patients (age range 1-14 years) with Down syndrome since 1993 were analyzed for inclusion in this study. To be eligible, a patient must have at least one lateral radiographic, CT or MRI study that includes a sagittal cut of the head and neck region (specifically the rhinion, maxillary and the cervical spine).

RESULTS

Of the 62 patients, only 22 patients had images containing the entire head and neck that were either radiographs, CT scans, or MRI scans. Of those 22 patients, only 8 had images that fit our inclusion criteria. The region of suspicion for atlantoaxial instability was significantly less using the nasoaxial line compared to the nasopalatine line (11.11 mm vs. 21.16 mm) (Table 1).

CONCLUSIONS

AAI is an important pathology that must be ruled out prior to surgery, as complications can lead to spinal cord compression. Further research is warranted before concluding whether the nasoaxial line or nasopalatine line is useful in evaluating the cervical spine in Down syndrome patients.

REFERENCES