Case Presentation

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Resolution on page 692.

The patient is a 9-month-old girl, victim of a car accident. Her mother, sitting in the passenger seat and wearing a seat belt, carried the child in her arms on her lap. She was referred from another health care center, with 48 hours of evolution. Examination on admission revealed a score 13 on the Glasgow scale, paralysis of both upper limbs with metameric level C5, but with response to nociceptive stimuli, intact neurological status of the trunk and lower limbs, respiratory distress with net decrease of air entry in the right hemithorax. Initial studies included cervical spine and chest radiographs and magnetic resonance imaging (MRI) of both regions.

FINDINGS AND INTERPRETATION OF IMAGING STUDIES

Anteroposterior and lateral radiographs of the cervical spine showed no abnormalities. The tracing of the four sagittal lines recommended in trauma was normal. However, the C2I-C3 facet relationship was questionable (Figure 1). Decreased air entry in the right hemithorax was associated with diaphragmatic paralysis and massive pulmonary atelectasis. (Figure 2). MRI of the cervical spine and skull base revealed epiphysiolysis of the axis, posterior ligament injury and significant perivertebral edema (Figure 3).

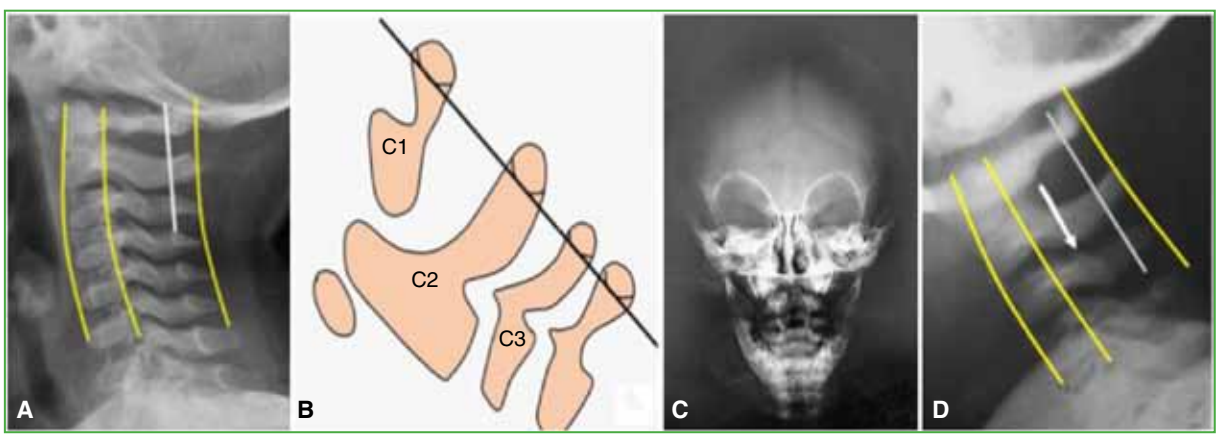

Figure 1. A and B. Normal lateral radiograph of the cervical spine and drawing showing the parallelism and harmony of the lines bordering the vertebral bodies, the spinous processes (yellow) and Swischuk's line (white) extending from the spinolaminar cortex of the atlas to that of C3. The one corresponding to the axis should lay on it with a tolerable dispersion of 1.5 mm to 2 mm. An excessive value in the anterior direction implies pathological subluxation and, in the posterior direction, spondylolisthesis of the axis. Its tracing is not possible in the presence of hypoplasia or absence of ossification of the atlas. **C and D.** Radiographic pair on admission. **C.** Odontoid AP view: preserved spinal axis, no segmental rotation, no evidence of trauma. **D.** Lateral: no anomalies of the above-mentioned parameters. However, the C2-C3 facet relationship raises the suspicion of subluxation (white arrow). The initial diagnosis was SCIWORA (*Spinal Cord Injury Without Radiographic Abnormality).*

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Figure 2. Chest radiograph and MRI of the neck and trunk . Paralysis of the right hemidiaphragm due to involvement of the phrenic nerve related to the C4 somite. Note the elevated liver (yellow asterisks), collapsed lung and atelectasis (yellow arrow).

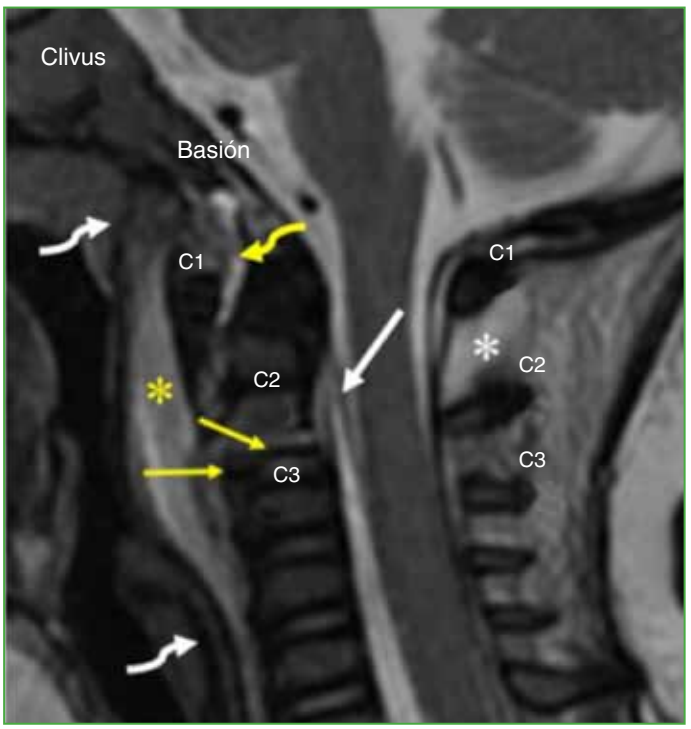

Figure 3. MRI of the skull base and upper cervical spine in T2 relaxation. Prevertebral or retropharyngeal fluid collection of 12 mm in its apical sector (average normal value in children and adolescents 5 ± 2 mm, yellow asterisk) extending from the clivus to C4 (curvilinear white arrows). Similar image in the preodontoid space propagating to the basion (curvilinear yellow arrow). Interspinal fluid signal in C1-C2 (white asterisk) and behind the tectorial membrane (white arrow). Salter-Harris type II epiphysiolysis of the base of the axis (upper yellow arrow), note the small Thurstan-Holland fragment (lower yellow arrow).

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