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BILATERAL CERVICAL SPONDYLOLYSIS

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Key-word: Spondylolysis

Background: A 42-year-old man, with no significant medical history, was admitted at the emergency department following a road traffic accident. While cycling, the patient had been hit by a car, after which he briefly lost consciousness. Upon admission, he complained of severe headache and pain in his left shoulder and thorax. Physical examination revealed stable vital parameters and a Glasgow Coma Scale of 15/15. There were no neurological deficits.

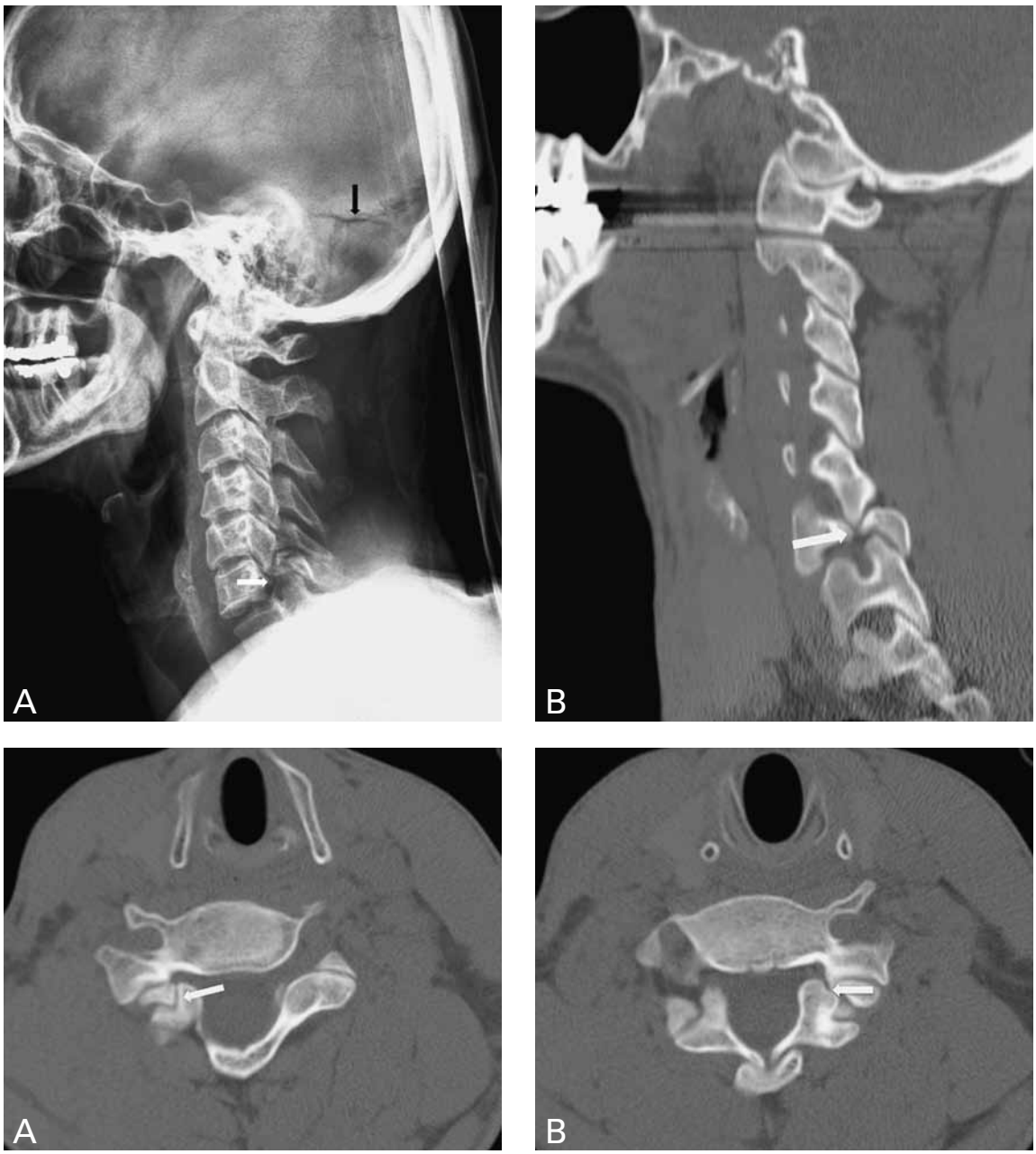

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Fig. 1A | 1B / 2A | 2B

Work-up

Radiography of the cervical spine (lateral view) (Fig. 1) shows a cleft in one or both of the C6 lateral masses (B, white arrow), with minimal displacement of the fragments, and mild anterolisthesis (grade I). Note also the presence of a fracture in the temporo-parietal region of the skull (A,black arrow). CT scan of the cervical spine (Fig. 2) shows on axial image at the C6 level (bone window) (A) frank dysplasia of the right lamina, which is split into two parts by a cortically marginated cleft (white arrow). On axial image at the C6 level (bone window) (B), the left lamina shows the same anomalies as were seen at the right side (white arrow). On reformatted image in the sagittal plane (bone window) (C), note a cleft in the right pars articularis of C6 (white arrow), resulting in two contiguous triangular parts (so-called "bow-tie appearance").

Radiological diagnosis

Based on radiographic and CT findings, the diagnosis of *bilateral congenital cervical spondylolysis* was made. The patient was admitted for observation and discharged after 2 days. The headache gradually decreased in the following weeks. EEG, performed 14 weeks after the accident, revealed no abnormalities.

Discussion

Cervical spondylolysis is a rare condition, with less than 200 cases described worldwide, making it much less prevalent than lumbar spondylolysis, which is reported in 5% of the population. Bilateral involvement occurs in up to two-thirds of cases. The sixth cervical vertebra is the most common site of involvement, which accounts for 70% of the reported cases. Clinically, cervical spondylolysis is mostly asymptomatic, although it has been discovered in patients with torticollis, neck pain, and radiculalgia. It is often diagnosed as an incidental finding on routine radiography in the evaluation of minor trauma. Spinal cord compression is extremely rare. The etiology of cervical spondylolysis remains unknown. Forsberg et al defined cervical spondylolysis as "a corticated cleft between the superior and inferior articular facets of the articular pillar, the cervical equivalent of the pars interarticularis in the lumbar spine". Radiologically, cervical spondylolysis is characterized by a vertical spondylolytic cleft in the involved lateral masses, creating two displaced fragments, each of which has a smooth cortical border. These fragments have a triangular shape, which appears as a "bow-tie" in the sagittal plane. Other frequent radiological features include dysplastic ipsilateral pedicles, dysplastic ipsilateral articular pillars, mild anterolisthesis (less than 3 mm), and spina bifida (occulta) at the same level. Computed tomography is essential to fully evaluate bony abnormalities, including any associated dysplastic and degenerative changes, and to differentiate between unilateral and bilateral lesions. Since the mainstay of the therapy is conservative, it is most important to differentiate cervical spondylolysis from acute (bilateral) fracture or facet dislocation. Corticated margins, the absence of soft tissue swelling, and associated congenital anomalies favour spondylolysis. The traditional "bow tie" appearance of overriding locked facets in facet dislocation can mimic spondylolysis, however in spondylolysis there is no real displacement between superior and inferior facets. Unlike congenitally absent pedicle syndrome, there is no transverse process dysplasia. Magnetic resonance imaging has been reported to be unhelpful for the diagnosis of spondylolysis.

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