

Beneath the surface: An unusual case of asymptomatic cervical nerve root avulsion

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Background

Cervical nerve root avulsion represents a severe form of nerve root injury marked by the complete tearing of one or more of the spinal nerve roots. Subsequent to avulsion injury, pseudomeningocele formation can occur due to an accumulation of cerebrospinal fluid in the damaged meninges. Here, we report an unusual case of asymptomatic cervical nerve root avulsion resulting from a high-energy trauma.

Case Presentation

A 29-year-old male patient was admitted to the emergency department after a motor vehicle accident. At the time of presentation, he complained of cervicalgia. Cerebral and cervical computed tomography revealed a right occipital condyle fracture and a confined anterior perivertebral hematoma from C0 to C6. Cervical magnetic resonance imaging (MRI) additionally revealed bilateral hydrops of the atlanto-occipital joint with torn adjacent ligaments, suggestive of atlanto-occipital dislocation. A conservative approach utilizing a hard cervical collar was initiated. Follow-up MRI after two months displayed an empty nerve root sleeve of the right C2 level with an adjacent pseudomeningocele from C2 to C5. Apart from cervicalgia, the patient remained asymptomatic.

Follow-Up

Sequential cervical imaging during the follow-up period of 1.5 years displayed a gradual reduction in the size of the pseudomeningocele. The patient remained completely asymptomatic, except for mild cervical discomfort.

Conclusion

Cervical nerve root avulsion can be a devastating injury. We present a case where the avulsion of the non-essential C2 nerve resulted in asymptomatic presentation. When the patient's neurologic course is stable or improving, surgical intervention is not necessarily indicated. This case underscores the importance of correlating radiological findings with clinical status to guide appropriate clinical management.

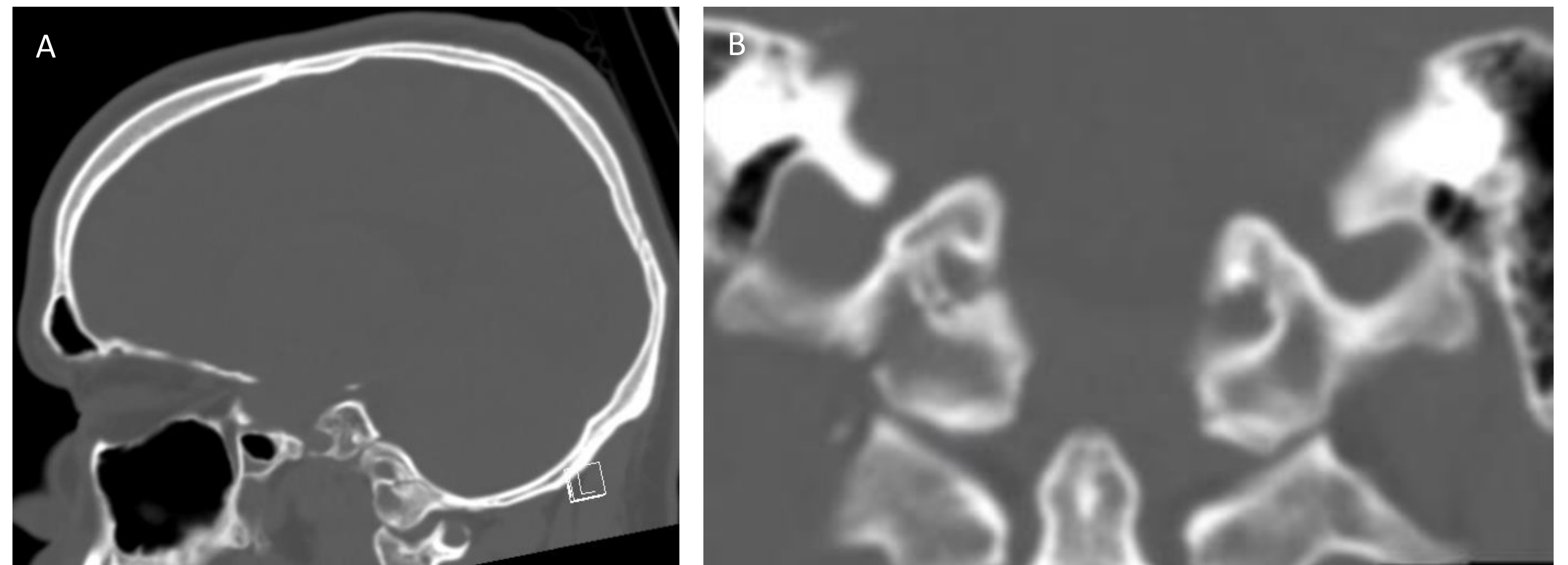


Figure 1. Sagittal (A) and coronal (B) CT at presentation demonstrating a right occipital condyle fracture.

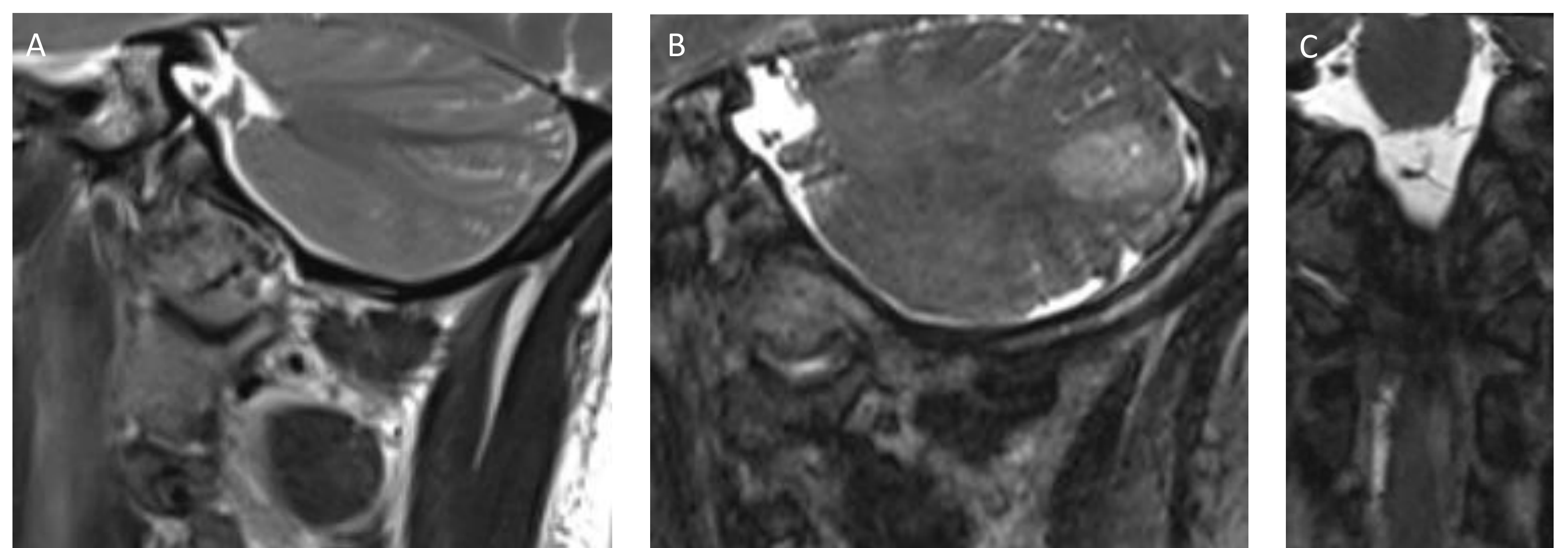


Figure 2. Sagittal cervical right T2 (A), left T2 (B) and coronal T2 (C) MRI demonstrating hydrops of the atlanto-occipital joint at presentation.

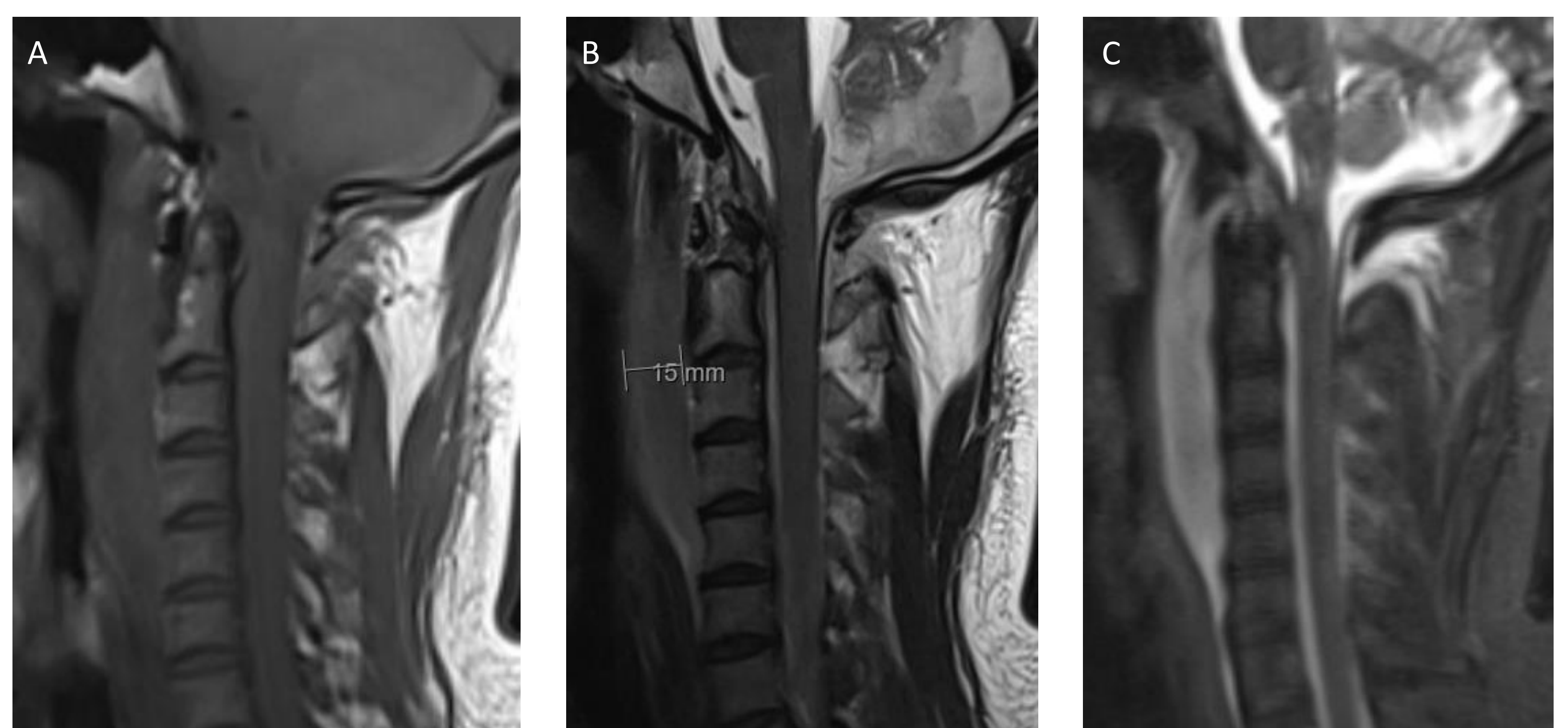


Figure 3. Sagittal T1 (A), T2 (B) and STIR (C) MRI at presentation shows an anterior perivertebral hematoma from C0 to C6, as well as a limited anterior epidural hemorrhage.

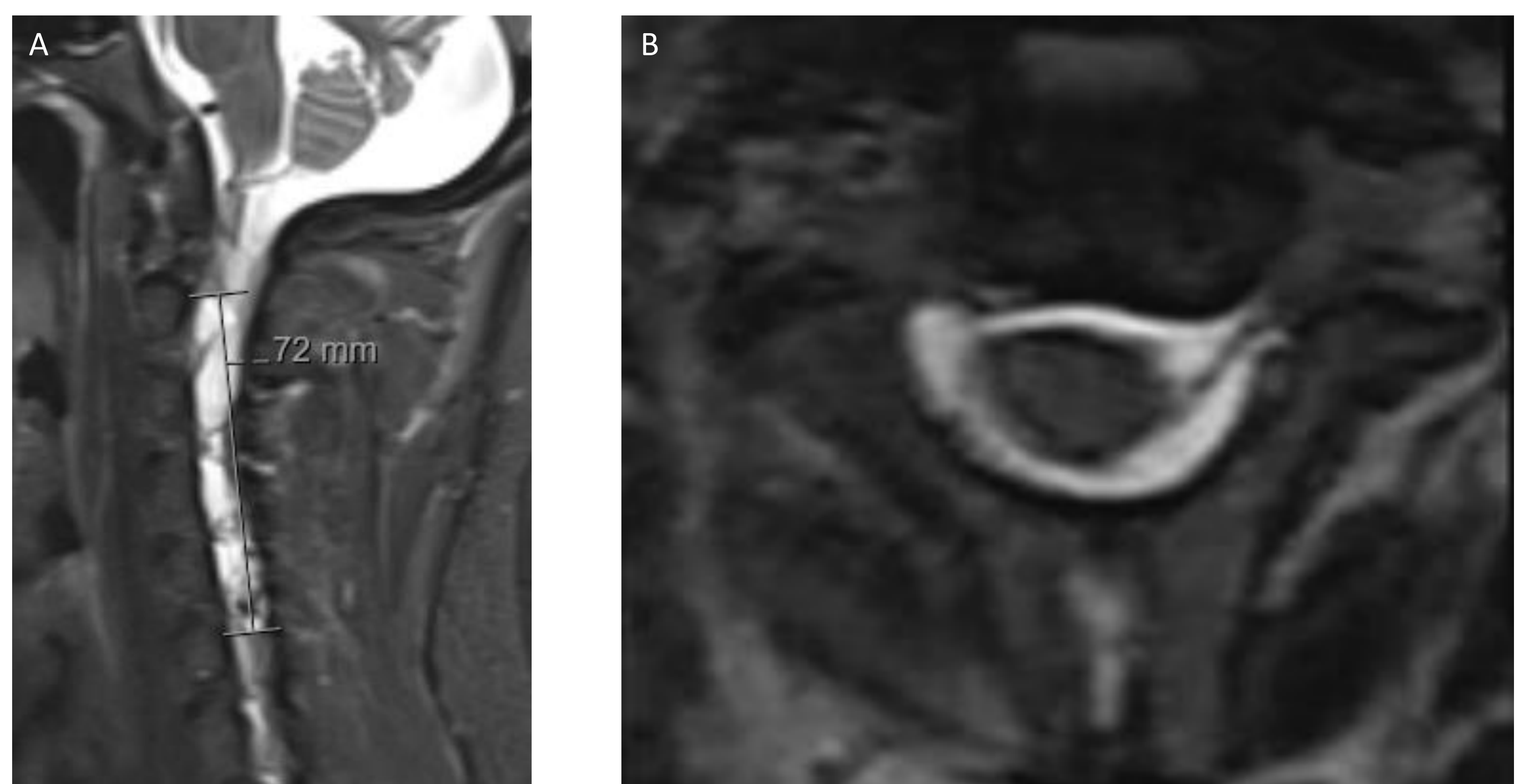


Figure 4. Sagittal (A) and axial (B) T2 MRI after two months displays a pseudomeningocele from C2 to C5 with an empty nerve root sleeve at the right C2 level due to traumatic avulsion.