



## Image Report

# Craniovertebral junction anomaly with kissing carotids

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## ABSTRACT

**Background:** “Kissing carotids” typically involves the lower C4-C6 retropharyngeal space. Here, we describe a case of “kissing carotids” observed at the C1-C2 level in conjunction with basilar invagination (BI).

**Case Description:** A 34-year-old-male presented with congenital atlantoaxial dislocation and BI. The initial surgical plan was for a transoral decompression (TOD). However, this approach was abandoned when the preoperative computed tomography angiography (CTA) documented “kissing carotids” lying anteriorly at the C1-C2 level.

**Conclusion:** Obtaining a CTA before performing a TOD for BI is essential to prevent an intraoperative catastrophic hemorrhage due to the laceration of “kissing carotids.”

**Keywords:** Atlantoaxial dislocation, Basilar invagination, Craniovertebral junction, Kissing carotids

## INTRODUCTION

Kissing carotids has been described involving the retropharyngeal space, typically at lower cervical levels, C4-C6.<sup>[1-3]</sup> Here, we identified kissing cervical carotids at the C1-C2 level in a patient with accompanying BI.

## CASE REPORT

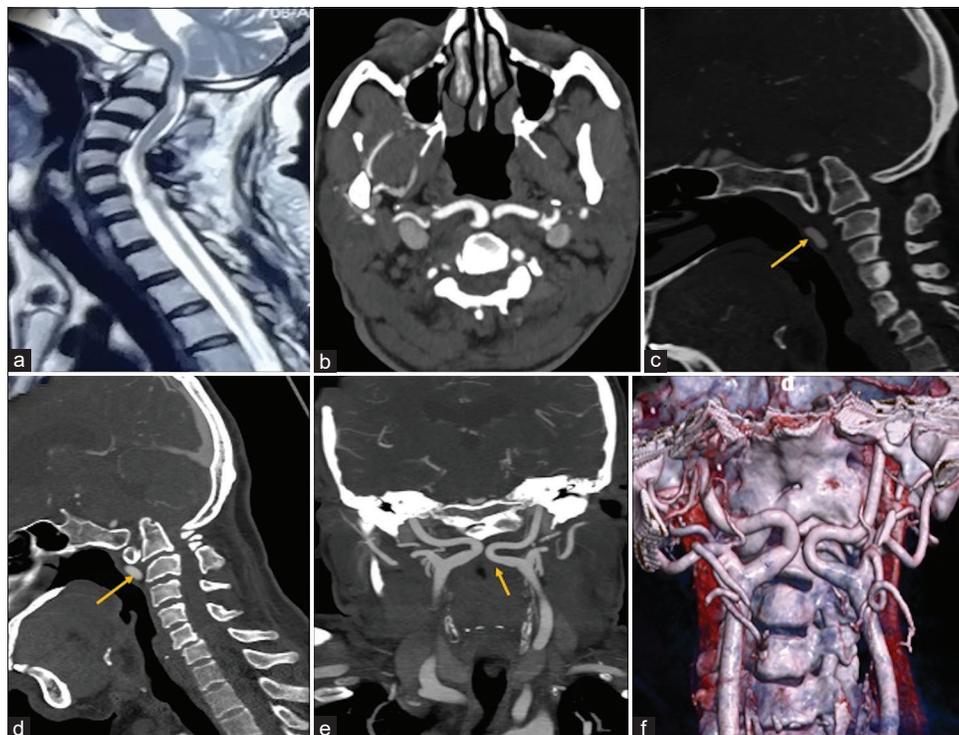
A 34-year-old male presented with neck pain and a progressive spastic quadriparesis (3–4/5) of 3 years duration. The MR showed atlantoaxial dislocation (AAD) with severe compression of the spinal cord at the craniovertebral junction (CVJ) [Figure 1a]. The CT-CVJ and CT angiography (CTA) [Figure 1b-e] demonstrated AAD with basilar invagination (BI) and a partially occipitalized C1 arch [Figure 1c and d]. The CT angiography (CTA) and 3D-CT with volume rendering technique [Figure 1f] demonstrated that both carotid arteries had an abnormal elongated and tortuous course and were “kissing” (lying very close to each other) anteriorly at the C1-C2 level. At present, this patient is alternatively considered for a posterior C1-C2 decompression/fusion.

## DISCUSSION

Kissing carotids have been described in the retropharyngeal space at lower cervical levels (C4-C6).<sup>[1-3]</sup> In this case, we identified kissing cervical carotids at the C1-C2 levels accompanied by BI. Notably, had an anterior approach been pursued without the preoperative CTA, there could have been a fatal

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**Figure 1:** (a) T2 sagittal MR craniocervical junction showing the presence of BI with severe compression of the spinal cord. No evidence of Chiari or syrinx. The axial (b), sagittal (c and d), and coronal (e) source images of CT angiogram of neck vessels show an abnormal tortuous and retropharyngeal course of bilateral cervical internal carotid arteries, coming nearby at C1-2 level (yellow arrow). Note the atlantooccipital assimilation and basilar invagination. The volume rendering technique image (f) shows the proximity of the carotids in relation to C1-C2: “Kissing carotids.”

intraoperative hemorrhage. Therefore, this case underscores the importance of obtaining a preoperative cervical CTA before planning an anterior approach/transoral decompression for a patient with BI.

## CONCLUSION

Obtaining a CTA before performing a TOD for BI is indispensable to prevent the laceration of “kissing carotids.”

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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