

Figure 1A and B: Non-contrast CT maxillofacial (coronal view) showing initial avulsion type fracture through right occipital condyle, and 3mo follow up CT in a similar plane showing healed fracture

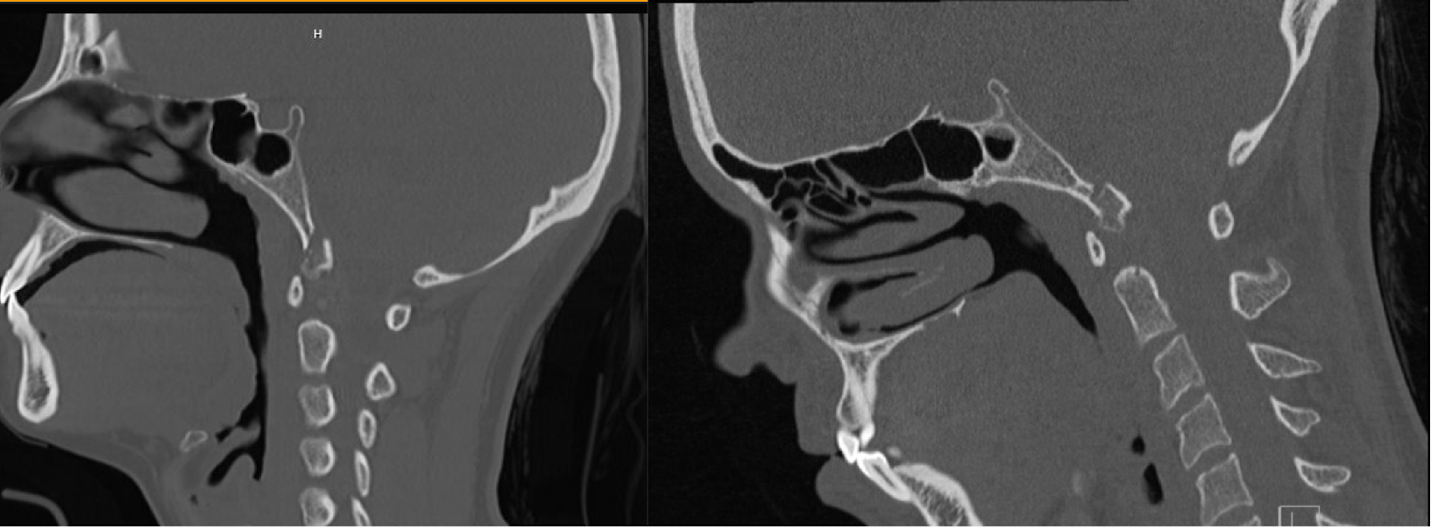


Figure 2A and B: Non-contrast CT maxillofacial (sagittal view) showing initial avulsion type fracture through right occipital condyle, and 3mo follow up CT in a similar plane showing callus formation

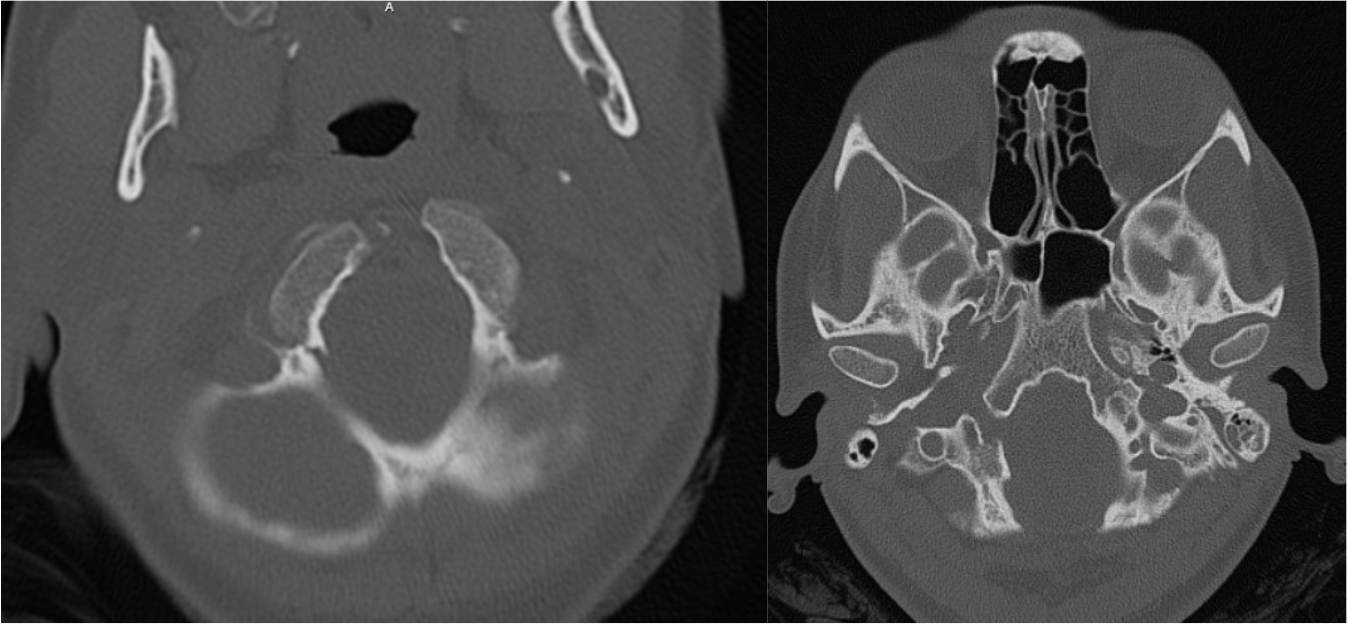


Figure 3A and B: Non-contrast CT maxillofacial (axial view) showing initial avulsion type fracture through right occipital condyle, and 3mo follow up CT showing narrowing of the hypoglossal canal due to callus formation

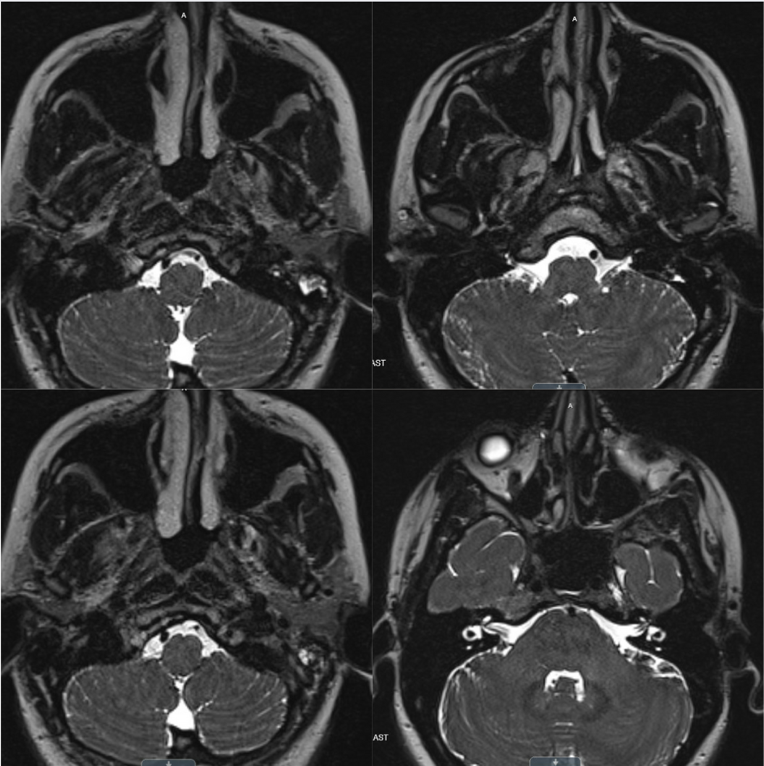


Figure 4A-D: MRI brain w/o contrast, T2 weighted imaging showing (A and B, left images) increased edema of the right hypoglossal nerve compared to left as it enters the hypoglossal canal, and (C and D, right top/bottom images) cranial nerves 9-11 exiting the jugular foramen and 7-8 exiting the IAC for comparison.

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| TABLE 1: Literature Review With Previously Reported cases of Isolated Hypoglossal Nerve Palsy Following Occipital Condyle Fracture | | | | | | |
| Author/Year of Publication | Age/Sex | Mechanism of Injury | CN12 Palsy onset/ Time to onset | Imaging Finding | Intervention | CN 12 Palsy Outcome |
| Orbay et al. (1989) | 37 M | MVA | Delayed/12 Weeks | Left OCF traversing hypoglossal canal | Soft cervical collar | Unchanged |
| Wasserberg et al. (1995) | 39 M | MVA | Delayed/3 weeks | left OCF with displaced spinal axis 11 mm to the right of skull base | None | Unchanged |
| Castling et al. (1995) | 21 | MVA | Delayed/6 days | Right OCF through basiocciput | None | Unchanged |
| Noble et al (1996) | 33 M | MVA | Delayed/not reported | NA | None | Not reported |
| Demisch et al. (1998) | 45 F | MVA | Delayed/9 weeks | Right OCF traversing hypoglossal canal with callus formation | Rigid cervical collar | Unchanged |
| Muthukumar (2002) | 32 M | MVA | Delayed/3 weeks | Right OCF | Rigid cervical collar | Mild improvement |
| Rue et al. (2013) | 19 M | MVA | Delayed/15 days | Displaced left OCF upwards and inwards with a fracture through the foramen of the left hypoglossal nerve | Cervical brace | Unchanged |
| Vadivelu et al. (2017) | 20 F | MVA | Delayed/6 weeks | Anderson and Montesano Type III OCF with bone fragment resting in the epidural space at the foramen magnum-C1 junction | Decompression, bone fragment removal, 0-C1 fusion | Complete resolution |
| Ucler et al. (2018) | 16 F | MVA | Delayed/3 days | left OCF extending from the hypoglossal canal to inferior clivus | methylprednisolone and rigid cervical collar for 2 months | Complete resolution |
| Dattatreya et al. (2019) | 44 M | MVA | Delayed/12 days | minimally displaced right OCF | philadelphia collar | unreported |
| This Case | 25 F | MVA | Delayed/12 weeks | Right OCF | Cervical Thoracic orthosis for 6 weeks and steroids | Complete resolution |