Metastases to the craniovertebral junction

Metastases to the craniovertebral junction represent less than 1% of spinal metastases, and the literature is limited to small case series.

Clinical features

Metastatic disease of the craniovertebral junction (CVJ) can cause cranial nerve deficits, occipitocervical instability, brainstem/spinal cord compression if left untreated.

CVJ tumors present with flexion, extension, and rotational pain, are often associated with occipital neuralgia.

Diagnosis

Magnetic resonance imaging is the most sensitive imaging modality for the detection of spinal metastases, but plain x-rays, computed tomography, and 18F positron emission tomography play a role in diagnosis and management.

Outcome

Many patients with metastasis in this region have a high burden of systemic disease and short life expectancy making them poor candidates for aggressive surgical resections and fusion procedures.

Advanced surgical techniques and stereotactic radiation may improve outcomes with less morbidity ¹⁾.

Treatment

Traditionally symptom palliation and local disease control in these patients has been achieved through conventional radiation therapy.

Conventional external beam radiation therapy or stereotactic radiosurgery effectively treat the majority of patients with normal spinal alignment or minimal fracture subluxations. Surgery should be considered in patients with fracture subluxations greater than 5 mm, or 3.5 mm subluxation with 11-degree angulation. The palliative goals for surgery favor posterior approaches only including laminectomy for decompression, without the need for anterior approaches with the associated morbidity. Occipitocervical instrumentation using screw-rod systems are effective for irreducible subluxations, but posterior strategies using C1-C2 or C1-C3 can be used for patients with reducible subluxations.

Effective management of CVJ tumors using radiation and/or surgery results in significant pain and functional improvement in properly selected patients.

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Stereotactic radiosurgery

Stereotactic radiosurgery (SRS) has the advantage of precisely delivering radiation to a target in fewer fractions.

Case series

2015

Clinical and radiological information from the charts of 25 patients with metastatic disease of the CVJ who were treated with SRS between 2005 and 2013 at the Stanford CyberKnife Center were retrospectively reviewed.

Seven male and 18 female patients with a median age of 58 years (range 34-94 years) were identified. The most common primary tumors were breast cancer (n = 5) and non-small cell lung cancer (n = 5), and the most frequent symptom was neck pain (n = 17). The average tumor volume treated was 15.9 cm3 (range 0.16-54.1 cm3), with a mean marginal radiation dose of 20.3 Gy (range 15-25.5 Gy). The median follow-up was 18 months (range 1-81 months), though 1 patient was lost to follow-up. SRS provided radiographic tumor stability in over 80% of patients, offered pain alleviation in nearly two-thirds of patients, and produced no serious complications. Moreover, SRS preserved spinal stability in all but 1 patient, in whom pre-SRS stability was established. There was no evidence of radiation toxicity in the patient population. Median survival was 28 months (range 2-81 months), with survival of 13.3% at 5 years.

In the absence of unstable pathological fracture and spinal cord compression, metastatic tumors of the CVJ can be safely and effectively treated with SRS. This treatment option offers palliative pain relief and can halt tumor progression with only a low risk of complications or spinal instability ².

2014

Tuchman et al performed a retrospective review of nine consecutive patients with ten tumors of the CVJ treated with SRS at the Keck Medical Center of USC. Two tumors were treated with Gamma Knife while the other eight received CyberKnife.

The median marginal dose was 20 Gy (16-24 Gy) over one to five fractions. Point maximal dose to the brainstem or spinal cord ranged between 8 and 18.9 Gy. Median survival was 4 months (1-51 months). Five of six patients presenting with pain had at least partial symptom resolution. No patient went on to require surgical decompression or fusion and there were no complications directly related to SRS.

In well-selected patients SRS for metastatic lesions of the CVJ has a low risk for complications or treatment failure, while achieving a high rate of palliation of pain symptoms ³⁾.

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Moulding HD, Bilsky MH. Metastases to the craniovertebral junction. Neurosurgery. 2010 Mar;66(3 Suppl):113-8. doi: 10.1227/01.NEU.0000365829.97078.B2. Review. PubMed PMID: 20173512.

Azad TD, Esparza R, Chaudhary N, Chang SD. Stereotactic radiosurgery for metastasis to the craniovertebral junction preserves spine stability and offers symptomatic relief. J Neurosurg Spine. 2015 Oct 30:1-7. [Epub ahead of print] PubMed PMID: 26516666.

Tuchman A, Yu C, Chang EL, Kim PE, Rusch MC, Apuzzo ML. Radiosurgery for Metastatic Disease at the Craniocervical Junction. World Neurosurg. 2014 Sep 3. pii: S1878-8750(14)00899-7. doi: 10.1016/j.wneu.2014.08.061. [Epub ahead of print] Review. PubMed PMID: 25195109.

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