

Clival Metastasis from Lung Primary

Kanmani Velarasan

Department of Radiation Oncology, Tirunelveli Medical College, India.

Deivanayagam R

Department of Radiation Oncology, Tirunelveli Medical College, India.

Valli S

Department of Anatomy, Tirunelveli Medical College, India.

Clivus is a rare location for metastasis. We report a patient with lung cancer presented to us with diplopia and headache. He was found to have clival metastasis and treated with palliative radiation therapy to clivus. Metastasis is also a differential to be considered when patients present with clival lesion.

Introduction

Lung cancer is the most common cancer diagnosed according to GLOBOCAN 2020. The most frequent sites of metastasis of lung cancer were brain, bone and liver. Metastasis to clival region appears to be rare. In this report, we present a patient with lung cancer and clival metastasis.

Case Report

66 year old gentleman presented with complaints of pain over right chest, loss of weight and loss of appetite for one month. He was evaluated and diagnosed to have lung mass (Figure 1).

Figure 1. Shows Lung Lesion (Arrow mark points the lung mass).

Biopsy from the lesion was reported as large cell carcinoma. Metastatic workup showed skeletal metastases in the acetabulum. He was diagnosed to have stage IV disease. He underwent one cycle of chemotherapy with Injection cisplatin and etoposide in September 2021. In October 2021, he presented to the radiation oncology outpatient department with complaints of headache and double vision in the left eye. Clinical examination showed left sided sixth cranial nerve palsy (Figure 2).

Figure 2. Shows Clival Lesion Invading Carvernous Sinus on Left Side Seen in MRI (axial cut).

MRI brain was taken to rule out brain metastases. MRI revealed osteolytic erosion of body of clivus and skull metastases (Figure 3).

Figure 3. Shows GTV- Gross Tumor Volume (red) and PTV - Planning Target Volume (cyan).

There was no parenchymal disease. He was advised palliative radiation therapy. He underwent 30 Gy in 10 fractions in October 2021. Target volume was the lesion in Clivus.

During his follow up, he is currently undergoing systemic chemotherapy. His eye symptoms subsided markedly.

Discussion

Clivus location is a very rare site for metastasis [1]. Clivus is involved in approximately 1% of intracranial tumors [2]. Metastatic lesions in clivus found to have primary from prostate, thyroid, breast and stomach [3]. Clival tumors are rare [4].

Lesions involving clivus can present with headaches, isolated sixth cranial nerve palsy and multiple nerve palsies [2]. Diplopia is due to the involvement of abducens nerve in the Dorello's canal, present on the posterior surface of Clivus [5]. Clivus forms a part of the skull base. Many neurovascular structures are closely situated around the clivus. Sixth cranial nerve has a long course. Hence it is likely to be involved [4][6].

Pathologic lesions affect clivus ranges from benign to malignant. Diseases involving clivus are chordoma, chondrosarcoma, myeloma, invasive pituitary adenoma, nasopharyngeal carcinoma, fibrous dysplasia, cholesteatoma and metastasis [5].

Differential diagnosis is to be considered depending on the site of invasion of lesion. Nasopharyngeal carcinoma appears to have disease centered in nasopharynx. Invasive pituitary adenoma appears to have lesion above the clivus [5].

Chordoma and chondrosarcoma appears to have high signal on T2 weighted images. Metastasis may have low signal on T2 weighted images. Plasmacytoma may be moderately hyperintense on T2 weighted images [5].

From the literature, clival metastasis is a poor prognostic factor [2]. Treatment options available for metastatic clival lesions are surgery, radiation therapy and chemotherapy [2].

References

References

1. Pallini R, Sabatino G, Doglietto F, Lauretti L, Fernandez E, Maira G. Clivus metastases: report of seven patients and literature review. *Acta Neurochirurgica*. 2009; 151(4)[DOI](#)
2. Dekker SE, Wasman J, Yoo KK, Alonso F, Tarr RW, Bambakidis NC, Rodriguez K. Clival Metastasis of a Duodenal Adenocarcinoma: A Case Report and Literature Review. *World Neurosurgery*. 2017; 100[DOI](#)
3. Ulubaş B, Ozcan C, Acka G, Aydn O, Saritaş E. Clivus metastasis of squamous cell carcinoma: a rare location. *Journal of Clinical Neuroscience: Official Journal of the Neurosurgical Society of Australasia*. 2005; 12(1)[DOI](#)
4. Zhang W, Bao Y, Qiu B, Wang Y, Li Z, Wang Y. Clival metastasis of renal clear cell carcinoma: Case report and literature review. *World Journal of Clinical Cases*. 2018; 6(9)[DOI](#)
5. Neelakantan A., Rana A. K.. Benign and malignant diseases of the clivus. *Clinical Radiology*. 2014; 69(12)[DOI](#)
6. Susan Standring. Gray's Anatomy. *The Anatomical Basis of Clinical Practice, 40th edition, 2008*.