HYPOGLOSSAL NERVE PALSY SECONDARY TO SKULL BASE METASTASIS – ANALYSIS OF 60 CASES

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Figure 1 - Tongue deviation due to hypoglossal nerve palsy associated with skull base metastasis.

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INTRODUCTION

Hypoglossal nerve palsy, characterized by ipsilateral tongue deviation and dysfunction, is a rare but pivotal clinical manifestation of skull base metastasis. In many cases, it occurs as part of occipital condyle syndrome (OCS), which is defined by the combination of unilateral occipital headache and ipsilateral hypoglossal nerve palsy, typically resulting from metastatic involvement of the occipital condyle. Recognizing tongue deviation as an initial presentation can prompt timely investigation and diagnosis. The present study aims to explore the clinical presentations, diagnostic challenges, and prognosis of patients with hypoglossal nerve palsy due to skull base metastasis.

MATERIALS AND METHODS

We conducted a retrospective analysis of cases of hypoglossal nerve paresis caused by skull base metastases published between 1996 and 2024, complemented by three newly identified cases from our medical center. Data were systematically collected and analyzed for patient demographics, primary malignancies, presenting symptoms, imaging findings, therapeutic interventions, and prognosis.

RESULTS

A total of 60 cases (41 males, 19 females) were analyzed. Patient age ranged from 25 to 77 years (mean: 60 years). The predominant primary malignancies were prostate cancer (26.7%) and breast cancer (15%) (Table 1).
All patients exhibited unilateral hypoglossal nerve palsy (100%), manifested by ipsilateral tongue deviation (Fig. 1). Imaging uniformly demonstrated skull base metastases (Fig. 2) with involvement of the occipital condyle in most cases, thereby establishing the diagnosis of occipital condyle syndrome (Table 1).
Headache was documented in 53 patients (88.3%): 50 presented with occipital headache, including one case with radiation to the temporal region, 1 presented with isolated temporal headache, and 1 patient reported hemicranial headache. In most cases, headache preceded the onset of tongue deviation by several days to one week; however, the headache was generally mild and nonspecific, leading most patients not to seek medical attention until the more alarming symptom of tongue deviation appeared. 7 patients had no recorded headache upon presentation to the emergency department.

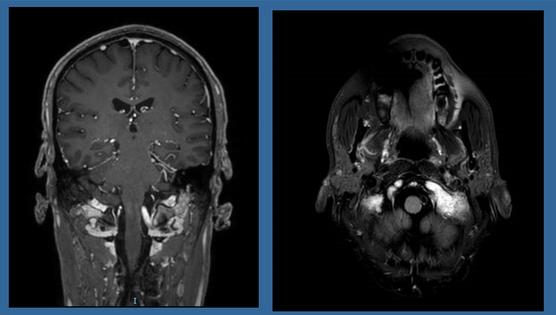

Figure 2 - MRI imaging demonstrating skull base metastases

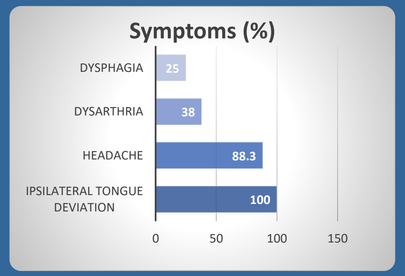

Figure 3 - Symptoms associated with skull base metastases

Additional clinical features included dysarthria (38%) and dysphagia (25%) (Figure 3). Follow-up data were available for 30 cases (50%). Among these, mortality occurred in 16 patients (53%), with survival duration ranging from several days to six months in most cases. Only one patient survived up to 10 months post-diagnosis (Table 1).

CONCLUSIONS

Hypoglossal nerve palsy secondary to skull base metastasis serves as a critical red flag for malignancy progression. While treatments can alleviate symptoms and improve quality of life, prognosis remains poor in most cases. Clinicians should maintain a high index of suspicion when encountering these symptoms, particularly in the absence of other neurological deficits.

Feature	Result
Skull base metastasis	Present in all
Occipital condyle syndrome	90%
Primary tumors	Prostate (26.7%) Breast (15%) Other (58.3%)
Cases with Follow-up data	30 (50% of total)
Mortality within 12 months	16/30 (53%)

Table 1 - Clinical characteristics

REFERENCES