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# Bilateral Abducens Palsy Secondary to Metastatic Breast Cancer

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## INTRODUCTION

- Worldwide, breast cancer is the most diagnosed malignancy with more than one million new cases annually.
- In the US, it is the most common malignancy in women and the second most common cause of death.
- The most common sites for breast cancer metastases include: bone, liver, brain, and lung.
- In postmortem studies, 70-90% of women with breast cancer will have metastatic bone disease.
- The clivus of the skull, a sloping midline surface of the occipital bone anterior to the foramen magnum, is involved in <1% of intracranial tumors.
- Metastatic lesions to the clivus have been reported in various cancers, however, they are extremely rare from breast cancer.

## CASE

- A 63 year old Indian woman with history of T1N0M0 breast cancer, diagnosed one year prior, presented with diplopia and headache without recent trauma.
- She had been previously treated with lumpectomy, radiation, and Tamoxifen.
- Physical exam was normal, except for inability to abduct either eye.
- CN II-V and VII-XII were intact.
- Funduscopic exam was normal.
- MRI of the brain revealed a lytic lesion in the clivus (no other metastases were identified).
- Three months later, she presented with a cough and shortness of breath and was found to have metastatic disease to lung and liver as confirmed with pulmonary fluid cytology.
- A transsphenoidal biopsy was not performed given rapid degeneration of her condition which ultimately led to her death within months.



Figure 1: Patient looking to her right.



Figure 2: Patient looking to her left.

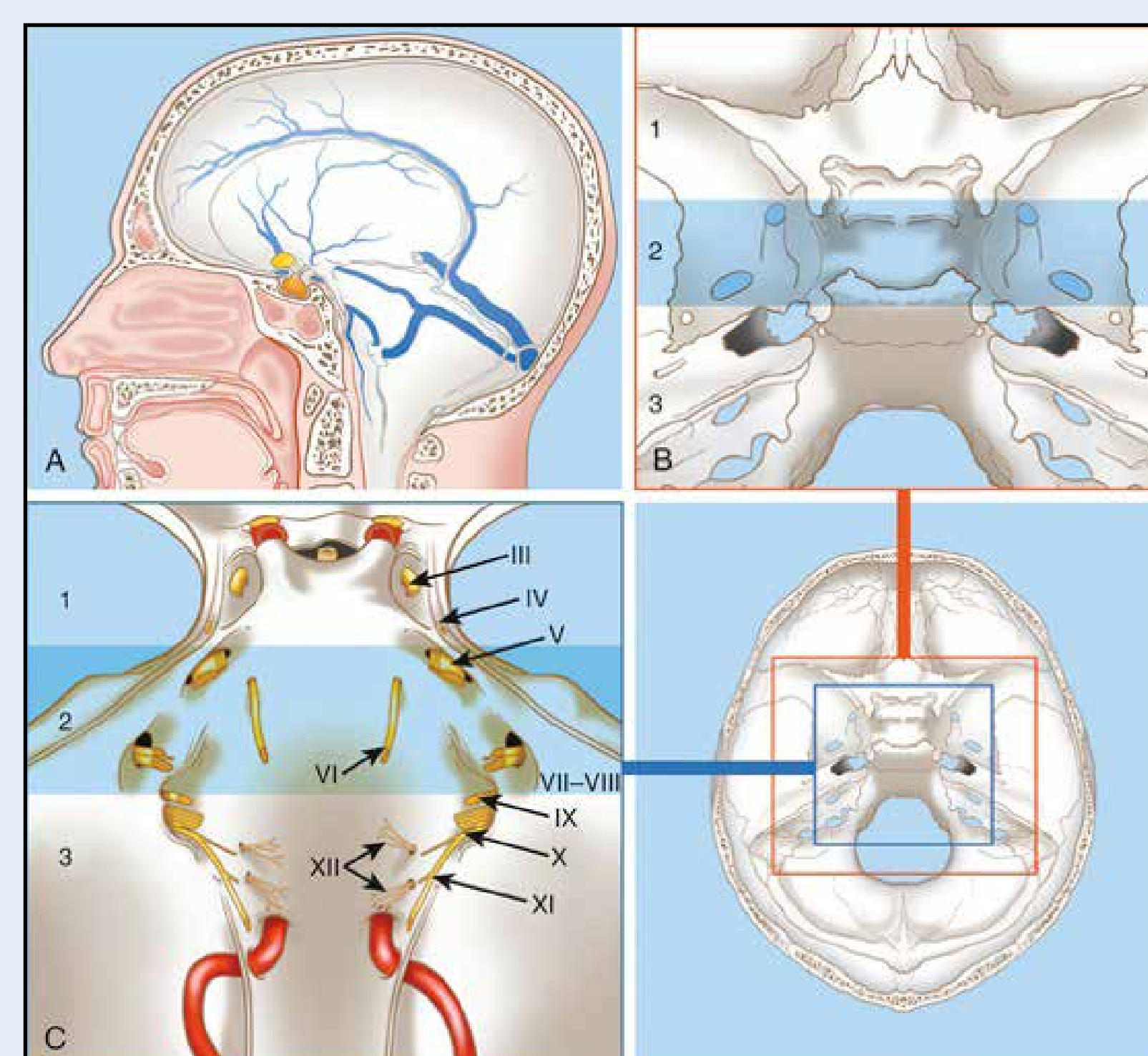


Figure 3: Anatomy of the Clivus and CN VI.

## DISCUSSION

- Isolated abducens nerve palsies may be ischemic (most common in age >50) or neoplastic, while increased intracranial pressure can lead to physical stretching of CN VI.
- CN VI courses from its nucleus in the dorsal pons along the clivus, through a fibrous sheath (Dorello's Canal) to innervate the lateral rectus muscle.
- The anatomic pathway renders the abducens nerves susceptible to injury if lesions involving the clivus are present.
- Endoscopic transsphenoidal needle biopsy is required with clival lesions to rule out other differential diagnoses: Chondrosarcoma, Paget Sarcoma, and Metabolic bone disease
- Treatment of abducens nerve palsy involves steroids and management of underlying causative process.
- There have been isolated reports of unilateral abducens nerve palsies in patients with metastatic cancer, however, this is the first report of primary breast cancer as a cause of bilateral abducens palsy due to clival metastatic disease.

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