RARE CASE OF THIRD NERVE PALSY AS AN INITIAL CLINICAL MANIFESTATION OF LUNG ADENOCARCINOMA

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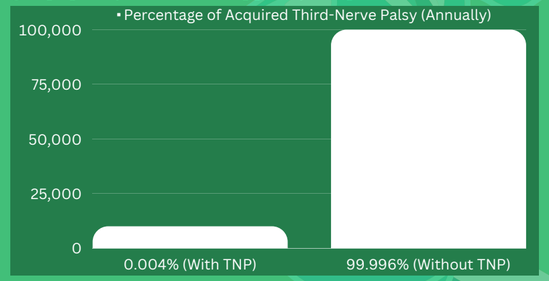
ABSTRACT

The incidence of an isolated third nerve palsy as the primary presentation of a metastasis from a lung carcinoma is extremely rare. This report suggests that thorough examination and complete imaging diagnostics are crucial for early detection of the cause. And early therapeutic intervention can help prevent neurological dysfunction in this life-threatening condition.

INTRODUCTION

Lung cancer is the second most common malignant tumor and the leading cause of cancer-related mortality worldwide. The prevalence of acquired third-nerve palsy was found to be 4 per 100 000 individuals annually. Third nerve palsy is a condition that causes a wide impairment of oculomotor function. It can present as diplopia, ophthalmoplegia, pupil mydriasis, and upper eyelid ptosis.



CASE PRESENTATION

This is a case of a 53-year-old left-handed and an elementary graduate male, who complained of drooping of the right eyelid. The patient presented with a progressive drooping of the right eyelid for 2 months, initially as partial but eventually develop into full or complete drooping, which was not fatigable and occurs throughout the day with no other symptoms. He is known as hypertensive, non-diabetic, and denies recent head or neck trauma with no family history of cancer, a 20-pack-year smoker, occasional beverage drinker, and works as a tricycle driver. Physical examination revealed to be unremarkable, however, on neurologic examination there was right upper eyelid ptosis, dilated pupil that is nonreactive to light with preserved consensual reflex, and right ophthalmoplegia, where the right eye was non-movable medially or upward. A neurological exam revealed a complete oculomotor nerve palsy.

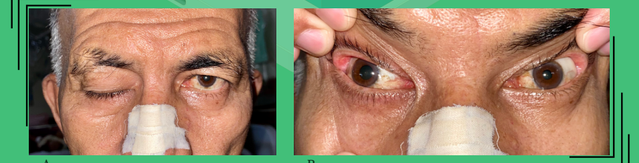


Figure 1. Right eye ptosis (A). Comparing the pupils, there is presence of anisocoria, with a dilated right pupil that is not reactive to light, downward outward presentation, and ophthalmoplegia (B).

Initial work up such as blood tests and stroke assessment were also unremarkable. Ice pack test was also done which was negative for myasthenia gravis. On initial imaging, chest radiograph showed a faint-defined, ovoid opacity located in the left hilar region measuring 4.2 x 4.7cm. and the rest of the lungs are clear. Further imaging work up such as chest and abdomen computerized tomography (CT) with contrast, brain magnetic resonance imaging (MRI) and a mediastinal tissue biopsy, were performed as part of systematic diagnostic assessments.

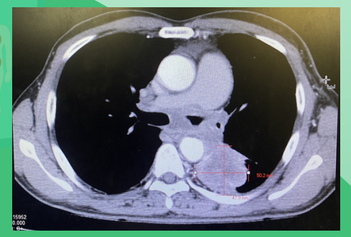


Figure 2. CT scan of Chest and whole abdomen with IV contrast findings show Left pulmonary mass with malignant features (5 x 4.9 x 4.3 cm) with Mediastinal lymphadenopathies and pulmonary nodule, left, likely metastatic. Normal abdominal findings

MRI of the brain showed a homogenously enhancing mass in the right frontotemporal area of the midbrain near antero-ventral part of cavernous sinus. A CT scan with contrast of the chest and whole abdomen eventually showed metastatic disease involving the lungs with normal findings on the abdomen.

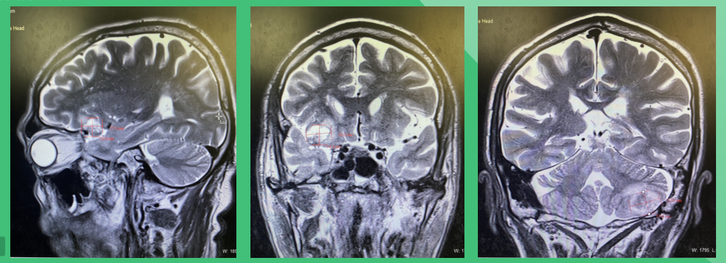


Figure 3. Rim enhancing foci is seen in the cortical-subcortical white matter junctions of the right frontal (1.0 x 1.1 cm), right temporal (0.9 x 1.1cm, and left cerebellar hemispheres (1.5 x 1.6 cm) with metastasis as the primary consideration. No remarkable findings in the orbits.

The mediastinal tissue fine needle aspiration cytology of the lung biopsy showed atypical glandular cells with abundant cytoplasm and prominent nucleoli consistent with lung adenocarcinoma.

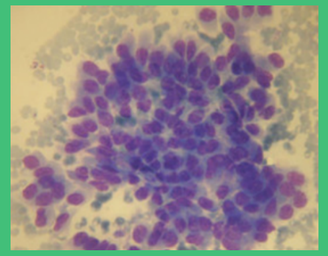


Figure 4. Fine needle aspiration cytology (FNAC) of lung mass showing atypical glandular cells with abundant cytoplasm and prominent nucleoli compatible with lung adenocarcinoma (H&E stain, x100, and ×400).

MANAGEMENT AND OUTCOME

A neuro-ophthalmological examination is crucial for the early detection of this life-threatening condition and early therapeutic intervention can help prevent neurological dysfunction. The standard treatment options for brain metastasis are surgery and radiotherapy which include stereotactic radiation therapy. A patient was able to undergo radiotherapy, however, on the 13th hospital stay, the patient suddenly died of massive hemoptysis.

DISCUSSION

Lung cancer directly infiltrated the oculomotor nerve causing isolated third nerve palsy as the only symptom manifested. A similar study was reported on a 41-year-old female presenting cranial nerve palsies from a non-small cell lung carcinoma metastasis. These imaging studies can also help exclude the possibility of life-threatening intracranial aneurysms. Third nerve palsy can occur from different etiologies; hence a thorough evaluation and neuroimaging studies are highly suggested by this report. These imaging studies can also help exclude the possibility of life-threatening intracranial aneurysms, as the risk of impending ruptured aneurysms may be present.

CONCLUSION

In conclusion, this case report shows that an isolated cranial nerve III palsy can be a possible primary presentation of a brain metastasis from a lung adenocarcinoma despite being extremely rare and a unique manifestation. This case also highlights the importance of third nerve palsy among other cranial nerve abnormalities and the need of high index of suspicion, since a subset can be caused by life-threatening aneurysms. A thorough work up and imaging evaluation is highly suggested in evaluating a third nerve palsy which can help in the early diagnostic and therapeutic intervention.

LIMITATION

The limitation of this report is that the neuroimaging studies were limited due to the unavailability of Magnetic resonance angiography or Computed tomography angiography at that time of evaluation. Despite these limitations, this report provides a valuable information on third nerve palsy.

ACKNOWLEDGEMENT

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