METASTATIC LUNG CARCINOMA PRESENTED AS ISOLATED LOWER MOTOR NEURON-TYPE FACIAL NERVE PALSY AND BILATERAL ABDUCENS NERVE PALSY WITH ABSENT OF TYPICAL LUNG SYMPTOMS - A RARE CLINICAL PHENOMENON

Jeyapraniya Arumugam [1] , Arjuna Fernando [2]

1.Registrar in general medicine ,Nation hospital Sri Lanka,Colombo,Sri Lanka.

2 Consultant neurologist , National hospital Sri Lanka , Colombo, Sri Lanka.

Abstract

When a patient presents with simultaneous abducens nerve paralysis in both eyes and unilateral facial nerve paralysis, we consider potential brain stem disorders such as infection, vascular issues, demyelination, and neoplastic causes. Lung cancer, a common and highly fatal malignancy, frequently spreads to various body parts. Specifically, lung adenocarcinoma tends to metastasize to the liver, adrenal glands, brain, and bones. Brain metastases occur in approximately 10.4% of non-small cell lung carcinoma (NSCLC) cases, usually showing up incidentally or through seizures. Here we describe the case of a 46-year-old woman who had been diagnosed with left-sided Bell's palsy two months prior and sought neurological attention due to experiencing double vision during lateral gaze for the past two months. Upon examination, subtle paralysis of the abducens nerve (CN VI) in both eyes and lower motor neuron facial nerve (CN VII) paralysis on the left side were observed. Magnetic resonance imaging (MRI) revealed multiple metastases in both cerebral and cerebellar hemispheres. Further malignancy screening, including Contrast Enhanced Computed Tomography (CECT) of the chest, abdomen, and pelvis, identified an enhancing soft tissue mass in the right lower lung lobe, suggestive of a primary neoplastic lesion. Biopsy confirmed the presence of lung adenocarcinoma. The patient was referred to an oncologist and received intracranial irradiation and chemotherapy. This case is notable because the patient with lung carcinoma presented with isolated bilateral abducens nerve paralysis and unilateral facial nerve paralysis as initial symptoms, without respiratory complications.

Key words :-*Lung,Malignancy,Facial,Abduscens,palsy*

Introduction

Solitary sixth nerve palsies commonly occur in individuals within the age group prone to vascular issues and are often associated with conditions such as diabetes mellitus, hypertension, and atherosclerosis[1]. Nonetheless, they can also be a result of skull base tumors. However, the occurrence of isolated bilateral sixth nerve palsies due to skull base lesions caused by metastatic neoplasms is exceptionally rare. It's important to note that nearly half of people diagnosed with lung cancer will develop metastases in the central nervous system (CNS) at some point during the progression of their illness. Nevertheless, it's unusual for these metastases to present solely with neurological symptoms[2].

Case Presentation

The 44-year-old previously healthy female, employed in the garment industry, presented with double vision in lateral gaze persisting for two months. Two months earlier, she experienced a sudden onset of left-sided facial weakness without motor or sensory impairment in the upper and lower limbs, vertigo, facial numbness, or ear vesicles. Initially managed as Bell's palsy with steroids, acyclovir, and Trans electronic nerve stimulation (TENS) .She later developed bilateral abducens nerve palsy causing double vision in both eyes. She denied early morning headache, fits, abnormal behavior, speech or memory problems, and limb weakness. Additionally, there were no reported cough, hemoptysis, abnormal uterine bleeding, altered bowel habits, or breast lump. She mentioned dust exposure at her workplace.

During examination, she appeared well and not dyspneic. Neurological assessment revealed bilateral subtle abducens nerve palsy evident on the cover test and left-sided lower motor neuron-type facial nerve palsy. No long tract signs were observed. Hemodynamically stable, with unremarkable respiratory, abdominal, and cardiovascular examinations.

A lumbar puncture showed an elevated CSF opening pressure (310 mmHg) with no cells and normal sugar. CSF protein was marginally increased (72 mg/dl). MRI Brain (Figure A and B)revealed multiple brain metastases involving both cerebral and cerebellar hemispheres, prompting the need to identify the primary source. Other basic investigations were normal, except CXR-PA(Figure C) revealing peripheral opacification in the lower lobe of the right lung. Further CECT disclosed a soft tissue mass in the right lung lower lobe suggestive of the primary neoplastic lesion, along with ipsilateral lung nodules, mediastinal nodal deposits, and multiple bone metastases, possibly staging T4N1M1c. The patient was referred to an oncologist for intracranial irradiation and further management.

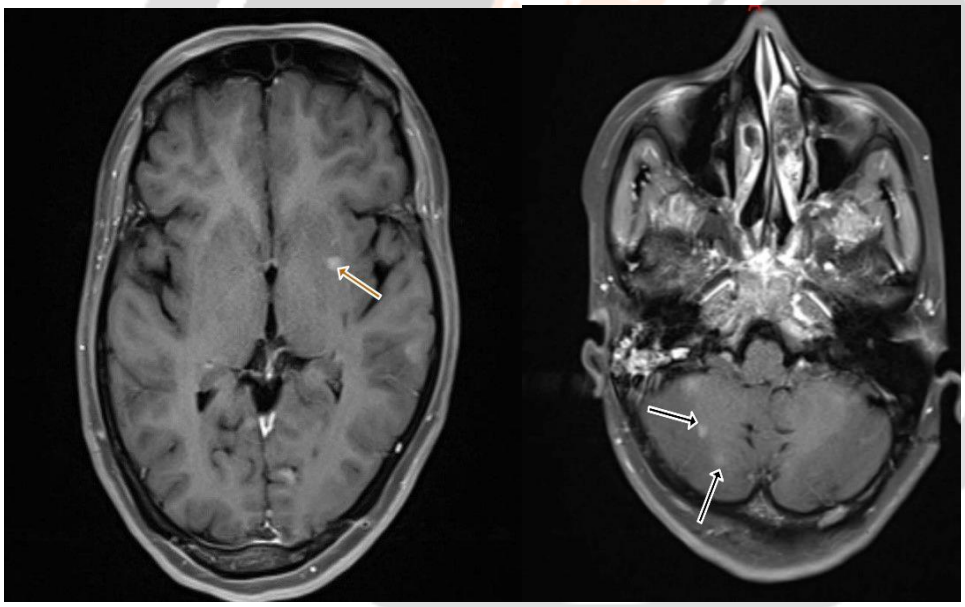

Figure A and B-MRI-Brain showing mets

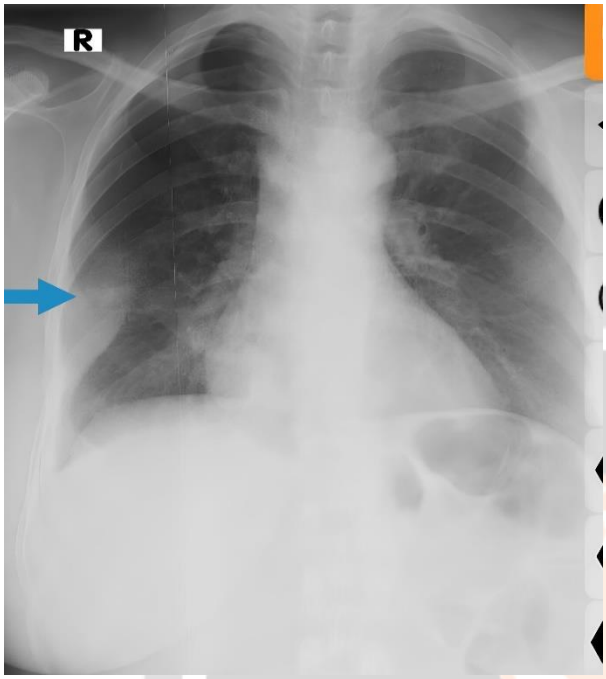

Figure C-*CXR-PA showing Right side lower lobar mass lesion*

Discussion.

Impairment anywhere along its pathway, spanning from the pons to the lateral rectus muscle, can result in sixth nerve palsy[3]. Arising close to the seventh cranial nerve within the pons, the abducens nerve emerges from the brainstem, travels along the clivus within the subarachnoid space, and advances toward the petrous apex of the temporal bone before entering the cavernous sinus[3]. Microvascular issues, particularly prevalent in older individuals, are frequently implicated in abducens nerve palsy[4]. Other contributing factors include trauma, demyelinating or inflammatory conditions like Tolosa-Hunt syndrome, infections, tumors, aneurysms, and heightened intracranial pressure. Bilateral abducens nerve palsy can occur in around 3% of cases with increased intracranial pressure[4].

In our case, it's probable that bilateral abducens nerve palsy occurred as a misleading indicator due to heightened intracranial pressure caused by cerebral metastases from undiagnosed lung cancer. Furthermore, the presence of metastatic deposits at the clivus, as observed in our patient, could also contribute to the development of abducens nerve palsy. Clival metastases have been documented in various types of cancers, including lung cancer, prostate carcinoma, skin melanoma, and hepatocellular carcinoma. It's worth noting that while abducens nerve palsy is uncommon, it is not uncommon in patients with clival metastasis[5].

Facial nerve paralysis often occurs without a known cause and is referred to as "Bell palsy." This condition is diagnosed by ruling out other possible causes and has an incidence rate ranging from 10 to 40 cases per 100,000 individuals[6]. Despite initially being diagnosed with Bell's palsy, it is probable that our patient's condition is actually due to metastases affecting the mastoid cavity. This suspicion is supported by the presence of multiple bone metastases detected in both MRI and CT scans.

In the absence of proper screening, most cases of lung cancer evade detection until reaching advanced stages, resulting in an unfavorable prognosis. Common symptoms encompass cough and dyspnea, with hemoptysis considered the most specific. While rare, the presence of digital clubbing is a strong indicator of lung cancer. These symptoms may originate from a local tumor, intrathoracic spread, distant metastases, or paraneoplastic syndromes[7].

Interestingly, our patient did not manifest any of the typical symptoms mentioned above; instead, the presentation involved a lower motor neuron-type facial nerve palsy and bilateral abducens nerve palsy. It's a rare event and serves as a wake-up call for neurologists or physicians to investigate the underlying cause before categorizing lower motor neuron-type facial nerve palsy as Bell's palsy.

Rissardo et al. and Muhd et al. documented instances of isolated abducens nerve palsy linked to lung malignancy.[8,9]. However, none of the cases reported simultaneous abducens and facial nerve palsy as a presentation of metastatic lung carcinoma, making this case a distinctive presentation.

Conclusion

In conclusion, the presented case underscores the importance of thorough investigation when faced with atypical neurological presentations, such as lower motor neuron-type facial nerve palsy and bilateral abducens nerve palsy. While Bell's palsy is a common diagnosis, the absence of typical symptoms in this patient, coupled with findings of cerebral metastases from undiagnosed lung carcinoma, highlights the need for a comprehensive approach. This case serves as a reminder for neurologists and physicians to exercise vigilance, considering rare manifestations that may indicate underlying and potentially serious conditions, even in seemingly routine presentations. Early recognition and a holistic diagnostic approach are crucial for timely intervention and improved patient outcomes.

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