

Metastatic seminoma presenting in kidney and cervical lymph node after a 25-year interval

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Abstract: Seminoma comprises approximately 50% of testicular germ cell tumors. retroperitoneal lymph nodes being the most common initial metastatic site but Renal metastases are infrequent and the majority of renal tumors represent primary neoplasm. In this study, we present a 48-year-old male with metastases of seminoma to the cervical lymph node and kidney after a 25-year of interval.

Introduction:

Germ cell tumors are the most common type of testicular cancer. The most typical symptom of testicular cancer is a painless lesion in the testis. Less frequent symptoms include gynecomastia and testicular pain. Males between the ages of 15 and 35 are most frequently affected by testicular malignancies, which make up 1% of all cancer cases in men. Seminomas and nonseminomas are the two types of testicular germ cell cancers. More than half of diagnoses for germ cell cancers are seminoma.¹⁻⁴

Although only a small percentage of seminoma patients have distant metastases at diagnosis, Lung, bone, liver, and retroperitoneal lymph nodes are among the organs where seminomas frequently metastasize.^{1, 5, 6} The majority of kidney malignancies are primary neoplasms. Secondary kidney tumors are relatively uncommon in clinical practice.^{7, 8}

In this study, we report the clinic-pathological, radiological, and immunohistochemical findings of a case of seminoma metastasis to the kidney and cervical lymph node after 25 years of interval.

Case presentation:

A 48-year-old man who had previously experienced a seminoma 25 years earlier, came to our attention with a left kidney mass and some masses in the right side of the neck and base of the skull. Before the pathologic examination was completed, the patient and his family did not inform the healthcare professionals about his history of seminoma also there were no records regarding the stage or treatment of seminoma. unfortunately, the patient passed away one month after receiving a diagnosis of metastatic seminoma.

After undergoing multidetector computed tomography (MDCT) and magnetic resonance imaging (MRI), the patient showed some mass-like lesions at the base of the skull and in the right cervical region that also included lymph nodes. Prior to a pathologic examination, radiologic findings pointed to several potential diagnoses, such as lymphoma or kidney-originated tumors that had metastasis to the base of the skull and neck.

Radiologic findings include:

Temporal bone M.D.C.T scan showed Soft tissue density in the middle ear cavity and mastoid antrum in the Rt side, tissue mass lesion in the base of the skull in the Rt side at the foramen jugular region with the destruction of the adjacent bony structure also retention cyst in the sphenoid sinus.

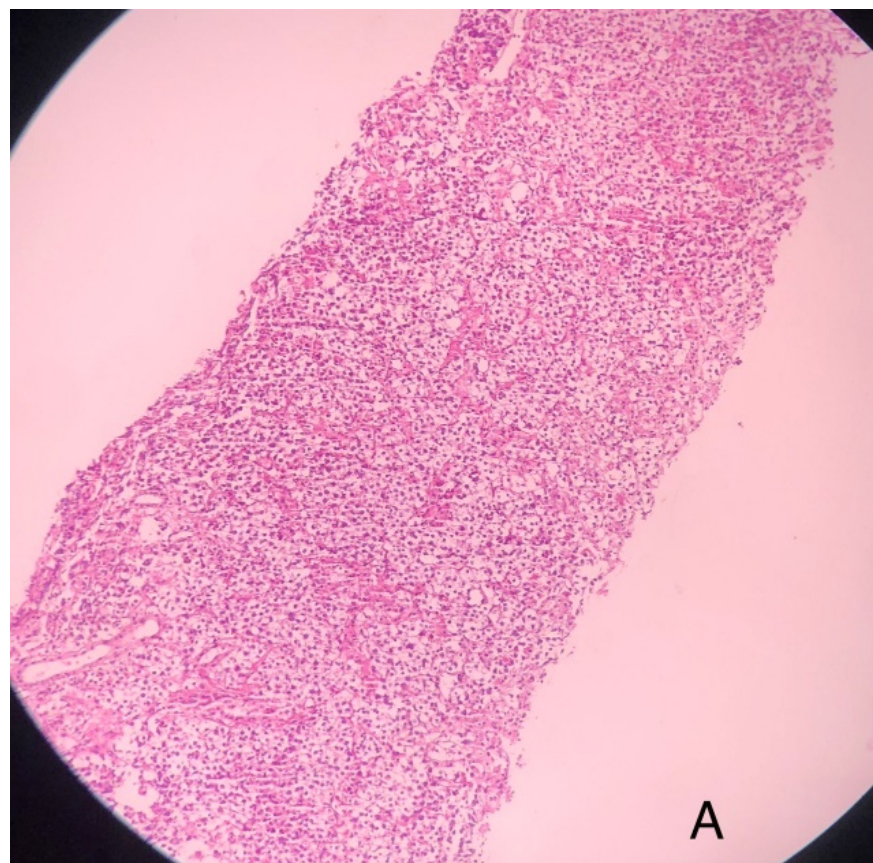
Brain M.D.C.T scan showed a heterogeneous mass lesion in Rt Petrus apical portion reaching the level of the nasopharynx and Post-surgical changes at Rt mastoidectomy, soft-tissue edema, and emphysema in Rt temporal region.

Brain MRI with multiplanar images in different pulse sequences was performed. Diffuse signal changes can be seen in the right side of the skull base, including the petrous apex, right side of the clivus, and C1 vertebra, with intermediate signal intensity on T1W and T2W sequences. Diffusion restriction and enhancement are also seen, extending to the ipsilateral jugular foramen and carotid canal as well as invading the Dorellos canal abducens nerve.

Histologic and immunohistologic findings include:

Seminomas have a nest-like or sheet-like growth pattern, distinct cell membranes, big polygonal nuclei, pale to clear eosinophilic cytoplasm, and nest-like or sheet-like shape in the histological inspection. Lymphocytes could make up the septa. In some metastatic situations, the histological morphology is a little out of the ordinary. Additionally, germ cell characteristics of primary and metastatic seminoma tumors, such as the positivity of the tumor markers OCT3/4, CD117, and PLAP, are similar.⁹

The neoplastic proliferation of malignant tumoral cells is visible as diffuse patterns in the left kidney mass core needle biopsy (Fig.1). These cells range in size from medium to big, with a high N/C ratio, eosinophilic cytoplasm, and hyperchromic nuclei that are rounded. There are mitotic figures and necrotic tissues. Vimentin, PLAP, CD117, and CD10 IHC staining are all positive in tumor cells (Fig.2).



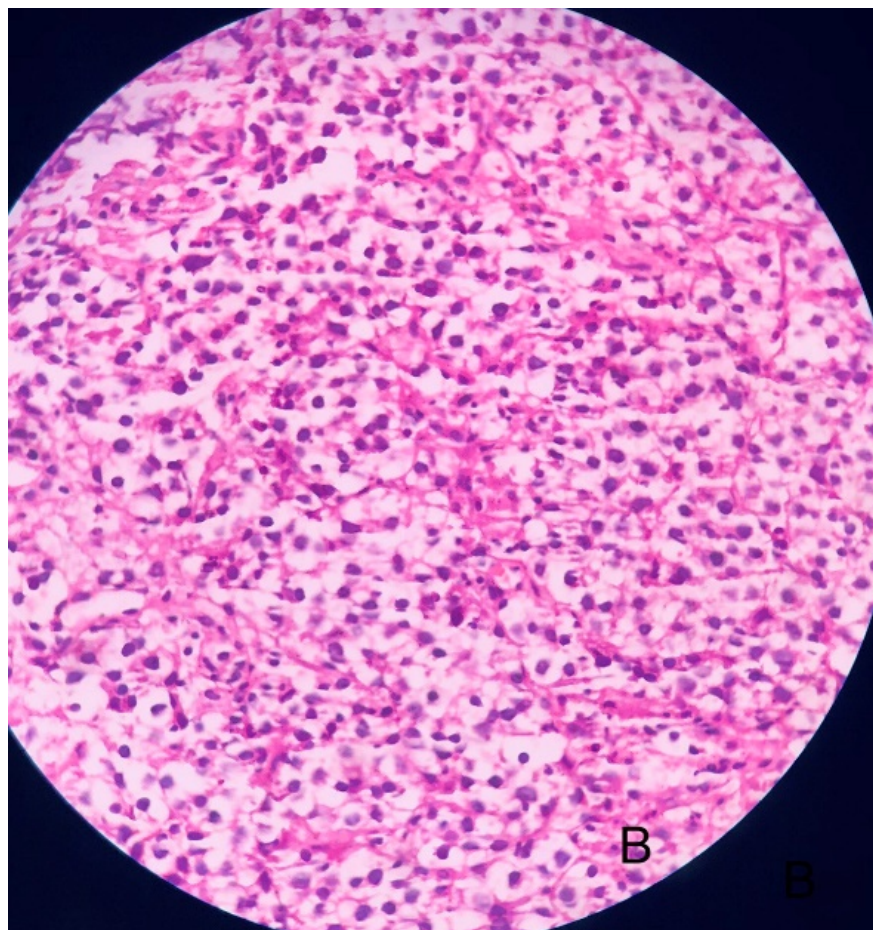


Fig1. Renal core needle biopsy. Renal tissue completely replaced by tumoral cells, composed of neoplastic germ cells with clear cytoplasm and large nuclei. Hematoxylin & Eosin staining A) *100 B) *400

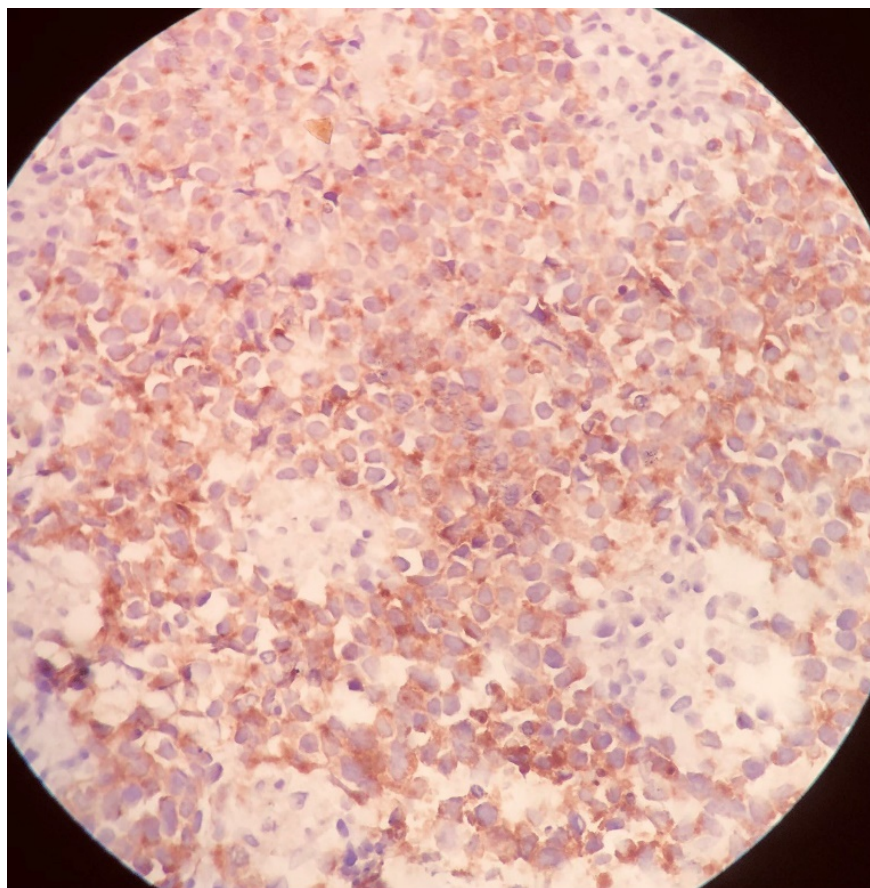


Fig2. Immunohistochemistry for PLAP antibody shows positive cytoplasmic staining in tumoral cells.

A mass biopsy of the right skull base reveals a broad pattern of medium to large cell neoplastic growth. These cells exhibit pleomorphism, a high mitotic rate, a high N/C ratio, and crashing. IHC staining is Ki67 positive in about 60%, OCT focally positive, CK dot-like positive, CD10 and PALP positive.

Discussion:

Males between the ages of 15 and 35 most frequently develop testicular tumors, which have an improving rate of complete recovery. Seminoma usually spreads metastatically along the lymphatic drainage routes to the retroperitoneal lymph nodes; however, involvement of the kidney, adrenal gland, psoas muscle, stomach, seminal vesicle, bladder, prostate, and pericardium is rarely present ($<1\%$).¹⁰

For testis tumors, metastases during the first two years are considered as early, whereas those after five years are categorized as late. The majority of metastases occur within the first two years.¹¹ We present a case of very late seminoma metastases that occurred after 25 years.

In a research conducted by the husband and colleagues on 650 patients with testicular malignancies who underwent CT, only 6 patients showed kidney metastases, of which 2 were seminomas. This study demonstrates the uncommon frequency of renal seminoma metastases.¹⁰

Castelán et al describe a case of a 24-year-old man who underwent a left radical orchiectomy as a result of classic seminoma, left renal metastases from seminoma were also discovered in this instance.⁸ Despite this, the renal metastasis in our patient occurred 25 years after the initial seminoma presentation.

Malignant tumors are the most frequent cause of neck masses in adults, and neck involvement may frequently

be the first or only clinical symptom¹² and Neck metastases from uterine, ovarian, prostate, and testicular malignancies have been described seldom. Supraclavicular metastases can develop in men as their prostate and testicular cancers progress.¹³

Considering that 4.5-15% of seminoma patients may experience neck metastases during the course of the disease, the neoplastic diffusion to the cervical lymph node is not an unusual presentation of the disease.^{14, 15}

A 59-year-old man who presented with a left indolent neck swelling that had developed gradually over 6 months is the focus of a case study by Corazzi and colleagues. The clinical history of the patient revealed a left testicular seminoma that had undergone surgery and adjuvant treatment 20 years ago.¹²

To the best of our knowledge, no other examples of seminoma metastases to the kidney, cervical, and base of the skull occurring simultaneously after a 25-year interval have been documented in the literature.

Conclusion:

Late neck lymph node and renal metastasis is rare occurrence in the natural history of testicular cancers. In cases of positive clinical data, cancers of remote sites should always be considered especially in the differential diagnosis of neck adenopathies with unknown etiology, even many years after the primary treatment.

Authorship List:

Each author participated sufficiently in the work to take responsibility for appropriate portions of the content. All authors read and approved the final manuscript.

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Conflict of Interest Statement:

The authors declare that they have no competing interests.

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