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Clinical vignette

Primary nasal-ethmoid choriocarcinoma detected by 18F-FDG PET/CT: a rare tumor with complete remission

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Abstract

Choriocarcinoma is a highly malignant and rare tumor characterized by secretion of the beta-subunit-of-human-choriogonadotropin (β-HCG).

We report a case of primary nasal choriocarcinoma with good response to chemotherapy.

A 36-years-old woman gravida 0 and with history of 4 spontaneous abortion, in December 2018 referred to Otorhinolaryngology Department for repeated episodes of epistaxis. Cervical Magnetic Resonance Imaging (MRI) revealed a tumor mass involving right nasal cavity, right ethmoid, sphenoidal and maxillary sinuses.

For a differential diagnosis between metastatic gestational choriocarcinoma and primary choriocarcinoma in January 2019 she underwent 18Fluorine-Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography (18F-FDG-PET/CT) scan that demonstrated intense uptake only in the nasal-ethmoid tumor mass showed by MRI. This was suggestive of primary nasal-ethmoid choriocarcinoma she received 3 courses of BEP – regimen and after β-HCG was reduced to 500 mIU/mL and 18F-FDG-PET/CT scan showed a decreased uptake in tumor mass but the appearance of a new uptake in cervical lymph node which was analysed and reported as metastatic localization of choriocarcinoma. Therefore she was treated with 2 cycles of TIP-regimen. Subsequents 18F-FDG-PET/CT and MRI showed a complete tumor remission.

This case proved the fundamental role of PET/CT to make diagnosis of primitive choriocarcinoma and to exclude the hypothesis of distant metastasis.

KEY words: choriocarcinoma; nasal-ethmoidal; PET/CT

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Choriocarcinoma is a highly malignant and rare tumor characterized by secretion of the beta-subunit-of-human-choriogonadotropin (β-HCG). In women, can distinguish two types of choriocarcinoma: gestational and non-gestational primary choriocarcinoma, which is extremely rare, arising from germ cells. We report a case of primary nasal choriocarcinoma with good response to chemotherapy [1, 2].

A 36-year-old woman gravida 0 and with history of 4 spontaneous abortion, in December 2018 referred to Otorhinolaryngology Department for repeated episodes of epistaxis. Cervical Magnetic Resonance Imaging (MRI) revealed a tumor mass involving right nasal cavity, right ethmoid, sphenoidal and maxillary sinuses. At histological examination, the tumor was composed of cohesive sheets of highly atypical mononucleate epithelioid tumor cells, minor component of plurinucleate cells referable to syncytiotrophoblast cells and areas of hemorrhage and necrosis. At immunohistochemical analysis tumor cells were positive for SALL4, GATA3, cytokeratin AE1/AE3, CK7, Glypican3 and β-HCG and negative for CD30, CD117, CX20 and S100. Ki67 proliferation index was > 90%. The final diagnosis was choriocarcinoma.

For a differential diagnosis between metastatic gestational choriocarcinoma and primary choriocarcinoma in January 2019 she underwent 18Fluorine-Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography (18F-FDG-PET/CT) scan that demonstrated intense uptake only in the nasal-ethmoid tumor mass showed by MRI. This was suggestive of primary nasal-ethmoid choriocarcinoma [3, 4]. The serum levels of β-HCG were 3839 mIU/mL while serum α-fetoprotein levels were normal.

Treatment of choriocarcinoma includes tumor resection and chemotherapy with EMA/CO (etoposide, methotrexate, actinomicin D, cisplatin), DCF (docetaxel, cisplatin, 5-FU) and BEP

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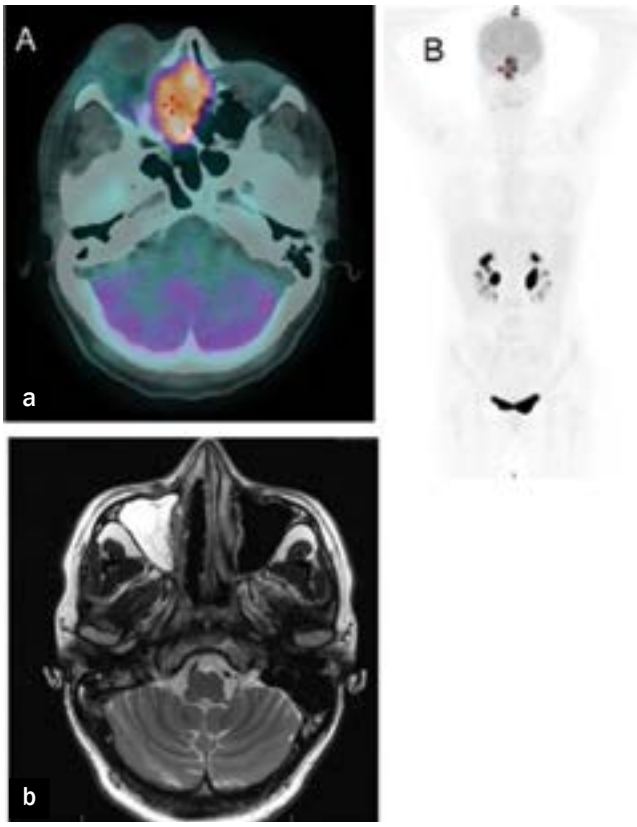

Figure 1. A. Staging PET/CT showed intense uptake in nasal-ethmoidal mass; **a**. Fused image; **b.** MIP image; **B.** Staging Cervical MRI showed large tumor mass involving right nasal cavity, right ethmoid, sphenoidal and maxillary sinuses

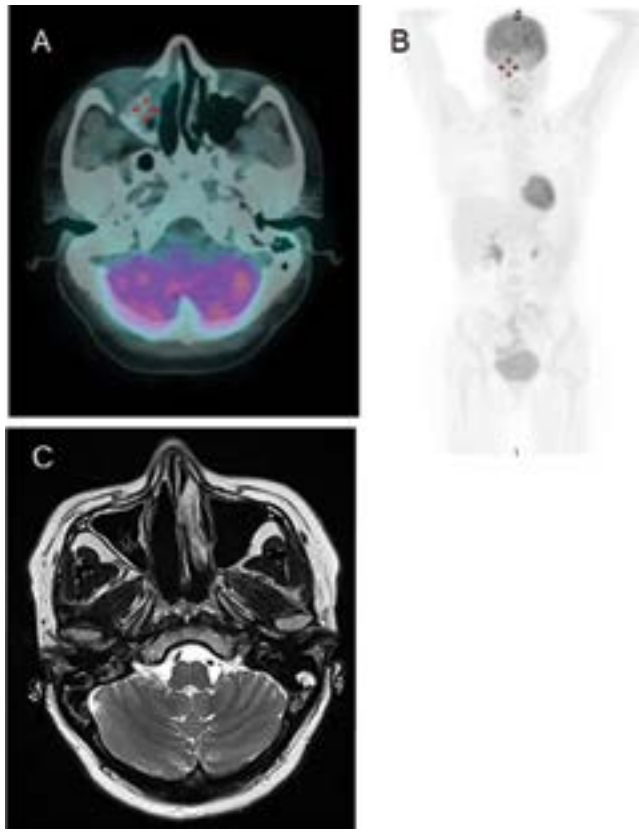

Figure 2. End-of-treatment images: **A.** PET/CT; **B.** Cervical MRI; both showed complete remission of nasal-ethmoidal mass

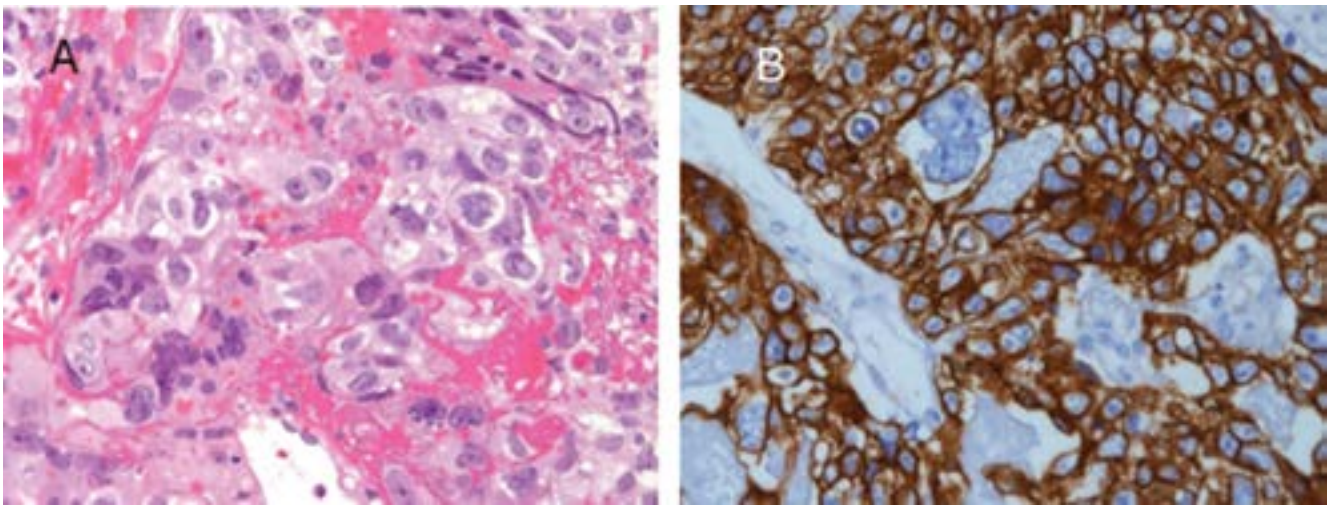

Figure 3. A. Hematoxylin and eosin stain showing mononucleated and plurinucleate tumor cells with striking cytologic atypia and central hemorrhage (200× magnification); **B.** Tumor cells positive for cytokeratin AE1/AE3 (200× magnification)

(bleomycin, etoposide and cisplatin), but patients who relapse after initial treatment or patients who didn't respond completely to chemotherapy have a poor prognosis [5, 6]. Motzer et al. [7, 8] showed in a study that it is possible to obtain promising results with a combination of paclitaxel, ifosfamide and cisplatin (TIP) as a salvage therapy.

According to literature, she received 3courses of BEP regimen and after that β-HCG was reduced to 500 mIU/mL and

18F-FDG-PET/CT scan showed a decreased uptake in tumor mass, but the appearance of a new uptake in cervical lymph node which was analyzed and reported as metastatic localization of choriocarcinoma. Therefore she was treated with 2 cycles of TIP regimen. Subsequent 18F-FDG-PET/CT and MRI showed a complete tumor remission.

Due to aggressive and malignant biology of the disease, a correct identification of this tumor is important to start an effective therapy to improve the poor prognosis of choriocarcinoma. This case proved the fundamental role of PET/CT in establishing diagnosis of primitive choriocarcinoma and excluding the hypothesis of distant metastasis.

References

1. Zhou HY, Nguyen JK, Ganesan S, et al. Choriocarcinoma of the adrenal gland: A case report. Int J Surg Case Rep. 2015; 6C: 92–94, doi: 10.1016/j.ijscr.2014.12.018, indexed in Pubmed: 25528034.
2. Gurzu S, Copotoiu C, Tugui A, et al. Primary gastric choriocarcinoma - a rare and aggressive tumor with multilineage differentiation: A case report. World J Clin Cases. 2019; 7(14): 1837–1843, doi: 10.12998/wjcc.v7.i14.1837, indexed in Pubmed: 31417929.
3. Bell DM, Porras G, Tortoledo ME, et al. Primary sinonasal choriocarcinoma. Ann Diagn Pathol. 2009; 13(2): 96–100, doi: 10.1016/j.anndiagpath.2008.12.008, indexed in Pubmed: 19302957.
4. Tariq M, Kalan A. Metastatic choniocarcinoma of the nasal cavity-presenting as intractable expistaxis. Indian J Otolaryngol Head Neck Surg. 2004; 56(3): 220–222, doi: 10.1007/BF02974356, indexed in Pubmed: 23120080.
5. Stockton L, Green E, Kaur B, et al. Non-Gestational Choriocarcinoma with Widespread Metastases Presenting with Type 1 Respiratory Failure in a 39-Year-Old Female: Case Report and Review of the Literature. Case Rep Oncol. 2018; 11(1): 151–158, doi: 10.1159/000486639, indexed in Pubmed: 29681814.
6. Sato S, Yamamoto E, Niimi K, et al. The efficacy and toxicity of 4-day chemotherapy with methotrexate, etoposide and actinomycin D in patients with choriocarcinoma and high-risk gestational trophoblastic neoplasia. Int J Clin Oncol. 2019.
7. Kurobe M, Kawai K, Oikawa T, et al. Paclitaxel, ifosfamide, and cisplatin (TIP) as salvage and consolidation chemotherapy for advanced germ cell tumor. J Cancer Res Clin Oncol. 2015; 141(1): 127–133, doi: 10.1007/s00432-014-1760-x, indexed in Pubmed: 25062721.
8. Motzer RJ, Sheinfeld J, Mazumdar M, et al. Paclitaxel, ifosfamide, and cisplatin second-line therapy for patients with relapsed testicular germ cell cancer. J Clin Oncol. 2000; 18(12): 2413–2418, doi: 10.1200/JCO.2000.18.12.2413, indexed in Pubmed: 10856101.