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A case report of nasopharyngeal carcinoma in a Caucasian Italian man

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ABSTRACT:

— ***Background:*** The main risk factor for the development of nasopharyngeal carcinoma (NPC) is Epstein-Barr virus (EBV) infection. NPC is rare among Caucasian people while it is common among people of Chinese or Middle Eastern ethnicity. Of the three histological types, the most globally diffused is the type III or undifferentiated carcinoma. We present a case of NPC which occurred in an Italian Caucasian man.

— ***Case presentation:*** A 40 years old man complained of a five month history of bilateral cervical lymphadenopathies and severe weakness, treated with occasional corticosteroids and NSAIDs with mild and not sustained relief. Blood exams showed EBV-VCA IgG and EBV-DNA positivity. US and CT scan described "hyperplastic or reactive lymph nodes" at both side of neck. Consequently, the patient underwent lymph node biopsy which described lymphatic methastasis of likely rhinopharyngeal origin. Nasal fibroscopy showed the presence of nasopharyngeal swelling which was confirmed to be a NPC at the histological exam. Finally, patient started treatment with cisplatinum and radiotherapy. After five weeks, a nasal fibroscopy showed absence of neoplastic lesions and serum EBV-DNA was undetectables ix month later.

— ***Conclusions:*** Even if it is rare, NPC can occur among Caucasian men. EBV-DNA test is useful for diagnosis and post-treatment follow-up.

— ***Key words:*** Nasopharyngeal carcinoma, Epstein-Barr virus, Caucasian, Italy, EBV-DNA, Lymph nodes

BACKGROUND

Epstein-Barr virus (EBV) infection is considered the most important risk factor for the development of nasopharyngeal carcinoma (NPC), which is a malignant neoplasm diffused mostly in some geographical areas (mainly among Greenland natives, Middle-Eastern and Eastern Asian people) but rare among Caucasian populations in Europe as well as in Italy[1,2]. Indeed, each year in Italy less than fifty cases are notified[3].

Of the three different types of NPC recognized by WHO, the most globally diffused (around 95% of all diagnosis) is the type III or undifferentiated non-keratinazing cell carcinoma (type III)[4].

Herein, we report a case of NPC which occurred in a Caucasian Italian man.

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CASE REPORT

In November 2013, a 40 year old man was admitted to the Unit of Infectious Diseases of "*Mater Domini*" University Hospital of Catanzaro (Italy). He was of Caucasian ethnicity and Italian nationality. During his life, he had always lived in Italy, moving abroad only for brief travels (mostly in central Europe). He was a non smoker. He complained of a 5 month long history of severe weakness and bilateral cervical lymphadenopathies that had been treated with corticosteroids and non steroidal anti inflammatory drugs with only mild and not sustained relief. Nothing worthy of attention was present at his familial and medical history. At inspection, mildly painful and fixed enlarged lymph nodes were present at both sides of the neck. Hepatomegaly was also present (hepatic margin at 2 cm below the rib edge).

Monotest resulted positive in August, negative in September and positive again in October 2013. Once admitted at the hospital, laboratory tests revealed negative IgM versus the viral capsid antigen (EBV-VCA), Monotest and Paul-Bunnel reaction were also negative but EBV-VCA IgG and EBV-DNA were positive. Parotitis virus and Toxoplasma IgG were also positive. Leukocyte formula showed normal white cell counts (6,430 cell/µl), 75% neutrophils and 16% lymphocytes. Other blood exams were normal, except high creatinine (1.4 mg/dl) and low iron level (56 µg/dl).

Patient underwent neck ultrasound which showed "numerous hypoechogenic nodules". On the left side, the biggest had a diameter of 32 mm while on the right side the biggest had a diameter of 20 mm. These nodules had to be referred to "hyperplastic or reactive lymph nodes". Enlarged lymph nodes were also confirmed by a CT scan (Figure 1).

Following hematological consultation, a biopsy of a lymph node was performed. Histologic/citologic examination revealed the presence of "lymphatic metastasis of undifferentiated cell carcinoma with Regaud growth pattern, likely nasopharyngeal neoplasm". Rhinoscopy showed hyperplastic tissue; histologic examination confirmed "undifferentiated nasopharyngeal carcinoma" (Figure 2). Once the diagnosis was obtained, patient was referred to an oncologic center. There, he was treated for six weeks with radiotherapy, cisplatinum and corticosteroids. At the end of treatment, lymphadenopathies were resolved, fibroscopy did not show any nasopharyngeal lesions and EBV-DNA was undetectable. Patient complained for weakness, nausea and mucositis. On July 2014, EBV-DNA in serum was confirmed undetectable.

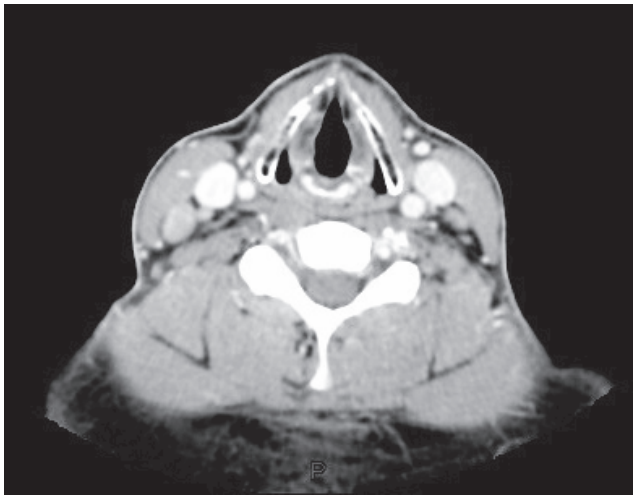

Figure 1. Neck CT scan. The picture shows presence of bilateral cervical lymph nodes. Except for severe weakness, lymphadenopahy was the only symptoms complained by patient.

DISCUSSION

In non endemic regions, during last 50 years, incidence of undifferentiated NPC raised[1,5]. However, this was supposed to be mostly related to the increase of migration flows towards these areas from endemic regions rather than an augmented exposure of residents to risk factors for NPC development[5]. Indeed, in low incidence countries, the risk of development of NPC in immigrants is estimated to be around 30-fold greater than in residents[6]. Unfortunately, there are not sufficient data on the epidemiologic trend of NPC in Italy but we can argue that epidemiology of NPC does not differ significantly compared to that of the rest of non endemic regions.

In high incidence populations, exposure to risk factors seems to be particularly important in early ages of life, leading to incidence peak of 50-59 years and decline on subsequent ages[1]. On the other side, among low incidence populations, risk of NPC seems to increase with age[1]. Among immigrants in non-endemic countries, risk of NPC seems to decrease with prolongation of residence[7]. In our case report, NPC developed at an earlier age than normally expected in either high or low incidence populations.

Among risk factors that can act early in life, EBV infection could be important but, until now, association between infectious mononucleosis, the most common clinical manifestation of EBV infection and increased risk of NPC has not been statistically demonstrated and its importance in patient's medical history could not be established[4,8]. However, it appears necessary to detect EBV related antibodies and DNA in blood. No sufficient data are available about a possible utility of searching heterophile antibodies, while in high risk population, research of antibodies against VCA is now considered to bea screening test for NPC[1]. Moreover, decreasing of VCA IgA and IgA against early antigen was associated with a remission from NPC after treatment[9]. EBV-DNA seems important not only for checking the presence of virus, but also high levels of EBV-DNA are related with recurrence of NPC either in high or low risk populations[1,10].

CONCLUSIONS

In Italy, as well as in the rest of Europe, NPC is a rare malignancy but it should be taken into account even when classical risk factors are not present. It is possible that migration from high risk countries would further increase the incidence of this disease.

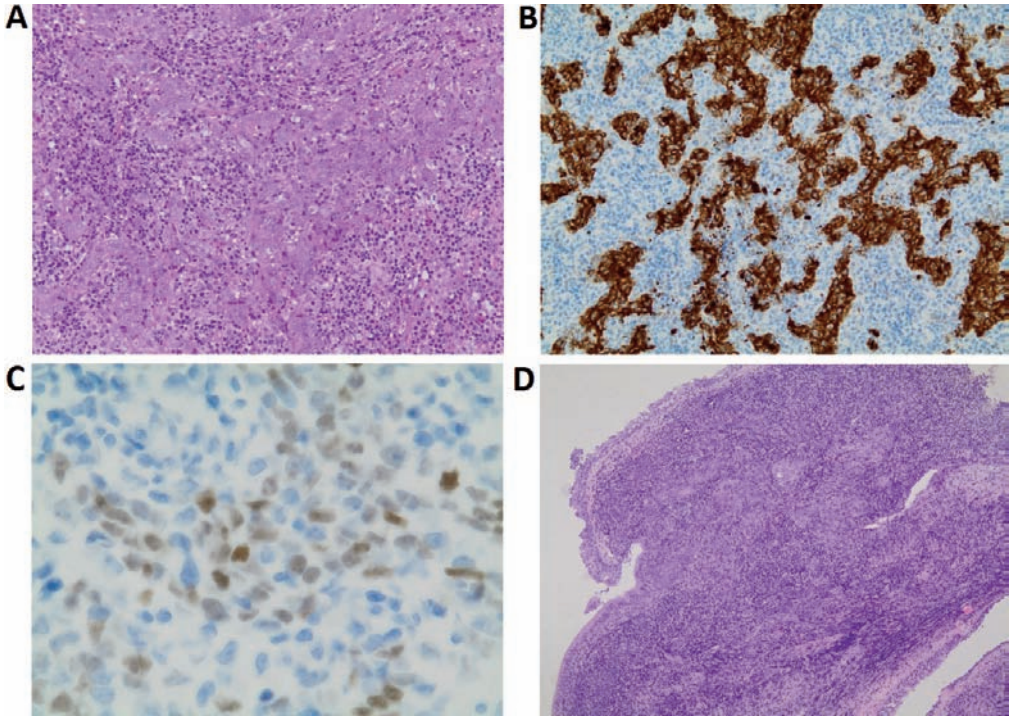

Figure 2. Histology. The picture shows histological images of lymph node *(A-C)* and nasopharyngeal lesion *(D)*. *A,* 100X. Undifferentiated cells present vescicular nuclei and eosinophil nucleoli. *B,* immunohistochemical pancytokeratine, 200X. Neoplastic cells capture the brown strain while lymphocytes maintain blue strain. *C,* immunohystochemical P63, 400X. The marked cells (brown strain) show that the neoplasm originates from an epithelium. *D,* ematoxylin and eosin, 40X. Under squamous rhynopharingeal epithelium there is a lymphatic struma with many undifferentiated cells.

Conflict of Interests:
The Authors declare that they have no conflict of interests.

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