A Case of Child Nasopharyngeal Carcinoma Admitted with Cervical Lymphadenitis Responsive to Antibiotic Therapy

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1. Introduction

Cervical lymphadenitis, defined as symptomatic enlargement and inflammation of the cervical lymph nodes, can have many causes, including infections. The condition is typically self-limited. The most common cause is an upper respiratory illness but malignancy should also be kept in mind as a rare but important cause. Herein, we report a 12-year-old boy who presented with cervical lymphadenitis that was diagnosed as nasopharyngeal carcinoma (NPC) by newly-developing clinical findings, but that responded well to antibiotic treatment on follow-up.

2. Case report

A 12-year-old previously healthy boy was admitted with fever and painful swelling in the neck for about 2 weeks with no history of antibiotic therapy. On physical examination, there were symmetrical hypertrophy of the tonsils without hyperemia in the oropharynx accompanied by normal ear and nose examination, and a hyperemic hot and painful 5 cm × 4 cm lymphadenopathy with restricted mobility at the top of the sternocleidomastoid muscle on the right side of the neck. In laboratory studies, hemoglobin was 13 g/dL (normal range, 11–14 g/dL), white blood cell count was 16.6 × 10^9/L (normal range, 3.4–10.8 × 10^9/L), and platelets were 377 × 10^12/L (normal range, 150–450 × 10^12/L). In peripheral blood smear, 90% neutrophil cells were detected with no atypical cell. Erythrocyte sedimentation rate was 21 mm/h (normal range, 0–20 mm/h), and C-reactive protein 2.9 mg/dL (normal range, 0–0.8). All of the blood biochemistry parameters were within normal limits. The results of all tests performed for TORCH infections, tularemia, cat-scratch disease, and tuberculosis were negative. On ultrasonography, there was an ovoid hypoechoic 40 mm × 16 mm lymph node on the upper right cervical chain with markedly increased vascularization on Doppler examination. Intravenous sulbactam–ampicillin was started with diagnosis of lymphadenitis. The size of lymph node significantly regressed within 4–5 days, and the patient was afebrile during hospitalization. On the 10th day of admission, the lymphadenitis was almost completely cured, but one-sided spontaneous tears, one-sided smell and hearing impairment, and difficulty in swallowing developed. A hyperemic irregular mass lesion, which obstructed the choanae by about 30% with infected mucosal...
surfaces on the posterior wall and roof of the nasopharynx, and serous otitis media in the right ear were diagnosed. A moderately conductive hearing loss in the right ear was found on a hearing test. On paranasal computed tomography, adenoid tissue was asymmetrically thickened and irregular on the right of the posterior nasopharynx; the right medial pteryoid ridge of sphenoid bone and right posterior compartment of sphenoid sinus were destructed; and there was a soft tissue density completely filling the right sphenoid sinus compartment (Figure 1). The patient was referred to pediatric oncology and tissue biopsy was planned with the preliminary diagnosis of NPC. On nasopharynx biopsy, undifferentiated lymphoepithelial carcinoma was detected by the presence of diffuse positive staining tumor cells with keratin, also with sparse positivity for Epstein–Barr virus (EBV) and p53. Anti-EBV antibody titers of the patient found anti-EBV viral capsid antigen (VCA) immunoglobulin M to be 8.4 U/mL (negative 9–13 U/mL, intermediate 10–13 U/mL, positive > 13 U/mL) and anti-EBV VCA IgG 32.9 U/mL (negative 10 U/mL, intermediate 10–15 U/mL, positive > 15 U/mL). The patient was diagnosed as stage III (according to American Joint Committee on Cancer) NPC after imaging and tissue biopsy with no metastasis. Four cycles of chemotherapy regimen with doctaxel, cisplatin, and fluorouracil were given to the patient. Control magnetic resonance imaging showed that the lesion significantly regressed, then chemotherapy was discontinued and one-time radiotherapy was given to the patient. Repeated magnetic resonance imaging was completely normal. Complete remission was obtained after treatment without any complications in 2 years of follow-up.

3. Discussion

Lymphadenitis, which is defined as lymph node enlargement with tenderness, warmth, and erythema, is a common condition in children. The challenge lies in the many potential underlying etiologies as well as the coexistence of easily identifiable causes, such as upper respiratory tract infection, with some more nebulous etiologies. Time course of lymphadenopathy, associated symptoms, anatomical location with size and character, and investigations should allow differentiation of benign versus potentially malignant pathology. Enlarged cervical nodes especially unresponsive to antibiotics should be investigated earlier for malignancy via ultrasound with a view to biopsy to eliminate diagnostic uncertainty. In our case, lymph node enlargement associated with infection suggesting signs of local inflammation was suspected because of the short history of the lymphadenopathy, accompanying hypertrophic tonsils, and the absence of severe systemic symptoms other than fever. Preliminary diagnosis was supported with higher values of acute phase reactants and lack of results suggestive of malignancy. Appropriate antibiotic therapy was started and prompt clinical response was observed. Common infectious pathogens and malignancy were ruled out by laboratory investigations and imaging.

NPC is an uncommon malignancy in children with a rate of <1% of all childhood malignant diseases and the most presenting symptom is cervical lymphadenopathy. The clinical features vary depending on age, racial, and geographic factors, but EBV is nearly always present as an oncogenic factor. Lymphoepithelioma is most common subtype in children, and is associated with a greater rate of distant metastasis followed by nasal, aural and neurological symptoms. In our case, although the patient presented with cervical lymphadenopathy known as most common presenting symptom of NPC, interestingly, the lymphadenopathy regressed responding well to antibiotic therapy. Although it is difficult to determine whether the lymphadenopathy is a coincidental finding or directly related to the NPC, such as metastasis, the lymphadenitis was not considered as the presenting symptom of carcinoma due to prompt regression of lymphadenopathy with antibiotic treatment. Suspected NPC findings such as ear, nose, and throat symptoms appeared mainly on follow-up.

Compared with adult patients, undifferentiated carcinoma is the most common histologic type of NPC in children with a higher prevalence of distal metastasis, and EBV is more closely associated with the tumor. Optimal treatment recommendations for childhood NPC have not yet been established, and treatment modalities follow guidelines arranged for adults. Recently, studies on NPC treatment regimens have documented the advantage of co-administration of cisplatin-based chemotherapy and radiotherapy, and the use of cisplatin-containing chemotherapy regimens has increased the survival in NPC up to 80%. In the present case, both the EBV positivity in tissue that is frequently encountered in NPC and the survival with the administered treatment regimen are remarkable.

Cervical lymphadenopathy is the initial presentation in many cases, and the diagnosis of NPC is often made by biopsy from this lymph node. This case is important because NPC was diagnosed after suggestive symptoms of malignancy on follow-up despite initial presentation of cervical lymphadenopathy. As in this case, in patients who responded well to
antibiotic treatment, continuing clinical follow-up is important for discovery of other underlying conditions especially in the case of a malignancy like NPC, which is generally not suspected clinically until late in the tumor process.

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

References