

CASE REPORT

Middle Ear Recurrence in Nasopharyngeal Carcinoma: A Case Report

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Abstract: We report an extremely rare case of case of nasopharyngeal carcinoma (NPC) extending into the middle ear. A 38-year-old woman who presented with otorrhea, a polyp in the external auditory canal, and right facial palsy. The patient had undergone radio- and chemo-therapy for NPC 15 months previously. A computed tomography scan revealed the presence of a soft tissue density in the right mastoid air cells, middle ear, and external auditory canal, suggesting chronic otitis media with mastoiditis. The histopathologic examination of the mass demonstrated undifferentiated carcinoma that shared a similar histologic appearance with the original NPC. Otologic symptoms and signs may be the initial presentation of recurrent NPC. Therefore, physicians must be aware of the possibility of tumor recurrence in patients with a prior history of NPC who present with otorrhea and a polyp in the external auditory canal because awareness will allow early referral to an oncologist.

Keywords: Nasopharyngeal carcinoma, middle ear, metastasis

Submitted : 25 May 2010

Accepted : 25 March 2011

Introduction

Nasopharyngeal carcinoma (NPC) is a tumor arising from the epithelial lining of the nasopharynx. The World Health Organization (WHO) recognizes three different histologic subtypes of NPC: squamous cell carcinoma, non-keratinizing carcinoma, and undifferentiated carcinoma ^[1]. NPC presents most commonly as a cervical lymph node enlargement; the tumor may not be clinically apparent at the time of presentation. Other presenting features of NPC include a bloody nasal discharge or less frequently, cranial nerve palsies. Patients with NPC may also have otologic symptoms, including deafness due to middle ear effusion, and conductive and sensorineural hearing loss after radiotherapy. Involvement of the middle ear is extremely rare. There are only a few reports of NPC metastasizing to the middle ear. Herein, we report a rare case of NPC metastasizing to the middle ear in a patient who suffered from middle ear discharge and facial nerve palsy on the right side.

Case Report

A 38-year-old woman was admitted to the hospital with complaints of an earache and discharge from the right ear for 3 months. She had a facial palsy for 3

days. She had undergone radio- and chemo-therapy for NPC 15 months previously. Otoscopy revealed a large polyp occluding the right external auditory canal. On nasal endoscopy, the nasopharynx was free of tumor and the subsequent nasopharyngeal biopsy specimens were negative. Examination of the oral cavity, larynx was normal. A computed tomography (CT) scan revealed the presence of a soft tissue density in the right mastoid air cells, middle ear, and external auditory canal, suggesting chronic otitis media with mastoiditis. There was no bone erosion and the nasopharynx was normal (Figure 1). The patient underwent a radical mastoidectomy. During the surgery, friable tissue in the tympanic portion of the eustachian tube and in the middle ear was observed. Biopsies were obtained from the mass around the eustachian tube and the middle ear. The histopathologic examination of the mass demonstrated undifferentiated carcinoma that shared a similar histologic appearance with the original NPC (Figures 2 and 3). The patient was treated with radiation therapy and additional chemotherapeutic management. The patient died 5 months after surgery due to subsequent liver metastases.

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Figure 1. The right ear involvement in recurrent nasopharyngeal carcinoma.

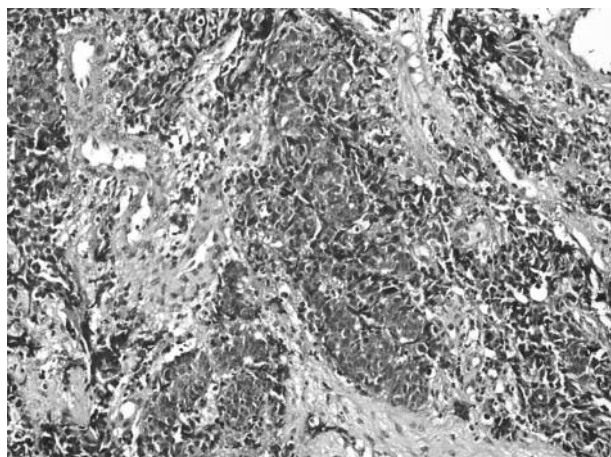


Figure 2. Histopathologic examination of the nasopharyngeal biopsy specimen; epithelial tumor infiltration arranged in solid islands and embedded in a desmoplastic stroma. H&E, X100

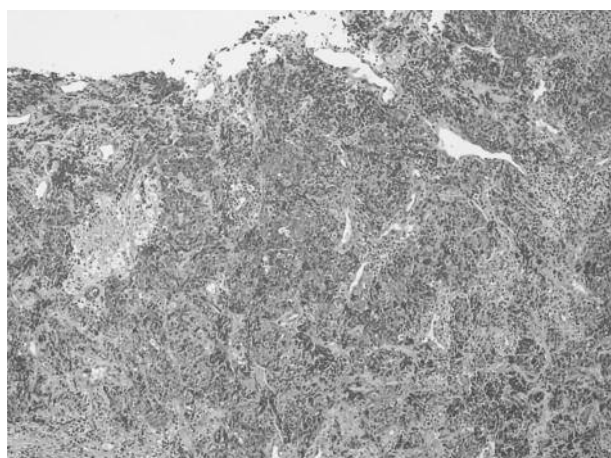


Figure 3. Histopathologic examination of the middle ear biopsy specimen; mucosal tumor infiltration arranged in irregular solid epithelial islands. H&E, X200

Discussion

There are several modes of spread for head and neck malignancies, including direct extension, perineural invasion, and lymphatic and hematogenous spread. The spread of nasopharyngeal tumors most commonly occurs via the blood and the lymphatics. NPC most commonly metastasizes to the cervical lymph nodes and presents as a unilateral neck lump in 50%-70% of patients [2]. Distant metastases are encountered in 5%-11% of the patients at the time of initial diagnosis [3, 4]. The most common sites of metastasis are bone, thorax, liver, distant lymph nodes other than the mediastinal lymph nodes, and other distant sites, including bone marrow and soft tissue. Ear involvement in NPC is extremely rare; indeed, there are only five reports of ear involvement by NPC [5-8].

Moreover, there is a reported case of the extension of nasopharyngeal lymphoma NPC into the middle ear [9]. In the present case, the histopathologic examination of the surgical specimen obtained from the ear cavity revealed a tumor identical to the original NPC. The primary tumor recurred and involved the middle ear. Nasopharyngeal tumors may extend into the middle ear through the eustachian tube; such extension of tumor may be mucosal or submucosal. Yang et al. [8] reported the CT and magnetic resonance imaging (MRI) appearance of a NPC spreading along the eustachian tube. In the study of King et al. [10], the MRI findings of patients with NPC demonstrated that the orifice of the eustachian tube, the levator veli palatini muscle, the parapharyngeal space, and the tensor veli palatini muscle were the most commonly involved sites.

The presence of an ear discharge and the presence of external auditory canal polyps are the most common presenting symptoms and signs of ear involvement for NPC. A high index of suspicion in patients with known NPC, who present with these symptoms and signs, will allow early diagnosis and treatment. In NPC, the primary tumor is staged according to the Tumor, Node, Metastasis (TNM) Classification using both clinical and radiologic data. T staging is based on the relationship of the primary tumor with the anatomic structures. Patients with tumors invading the middle ear are staged as T4, which is associated with a poor prognosis with a 5-year survival rate between 28% and 35% [11].

To conclude, we present an unusual case of a NPC extending into the middle ear and external auditory canal, manifesting as an aural polyp and otorrhea. Ear involvement in NPC is quite rare, but must be considered in the differential diagnosis of a middle ear polyp, as ear involvement carries a grave prognosis. Prompt imaging and referral to an oncologist is crucial.

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