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Main Article

Routine nasopharyngeal biopsy in adults presenting with isolated serous otitis media: is it justified?

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Abstract

Nasopharyngeal malignancy accounts for less than 2 per cent of all head and neck cancers. Serous otitis media (SOM) causing deafness is a recognized indicator of nasopharyngeal obstruction and the possibility of a nasopharyngeal malignancy must be considered in all adults. Examination under anaesthesia (EUA) and biopsy of the nasopharynx is routinely undertaken in many centres to rule out nasopharyngeal malignancy in adults with SOM. The purpose of this 10-year retrospective study was to evaluate the case records of all adult cases of SOM, including their presentation, clinical findings, management and nasopharyngeal biopsy results.

Eighty-five patients were included in the study. Fifty-nine presented with unilateral SOM and 26 with bilateral SOM. The primary presenting complaint in all cases was hearing loss. A nasopharyngeal mass was documented in 55 patients (69 per cent). Four nasopharyngeal masses were noted to have irregular or exophytic mucosa on flexible nasendoscopy. All patients underwent a EUA of the ears and a nasopharyngeal biopsy. The four patients with suspicious-looking masses were all found to have malignancies (two squamous cell carcinomas, one B-cell non-Hodgkin lymphoma and one adenocarcinoma). Three of these patients presented with unilateral SOM and one with bilateral SOM. All other patients with masses were found to have benign lymphoid hyperplasia. In total, 4.7 per cent of the adults with conductive hearing loss secondary to SOM were found to have a malignancy on nasopharyngeal biopsy.

We would advocate a high index of suspicion of a nasopharyngeal tumour in adults presenting with SOM. If a mass is found in the nasopharynx then it should be biopsied. If no mass is found then it is not necessary to biopsy; however, close follow up, with repeat fibre-optic nasendoscopy, is advised.

Key words: Nasopharynx; Otitis Media with Effusion; Head and Neck Neoplasms

Introduction

The term nasopharyngeal carcinoma (NPC) is used to refer to the epitheloid-derived tumours that arise in the nasopharynx. Nasopharyngeal carcinoma in the western world is estimated to account for less than 1 per cent of all malignant tumours.[1] However, appreciably high incidence rates have been reported from countries having a large Chinese population, e.g. Malaysia and Singapore (13.2 per cent), Hong Kong (18 per cent) and Taiwan (21 per cent). Nasopharyngeal carcinoma is endemic in southern China (Guangdong) and north east Africa, with up to 38.4 per cent of cases presenting solely with unilateral serous otitis media (SOM).[1] All these regions have a high prevalence of the Epstein–Barr virus, which is strongly associated with NPC.

Nasopharyngeal obstruction secondary to an underlying malignancy must be considered in all adults presenting with unilateral or bilateral SOM. In order to clarify the association between the two and to evaluate the benefit of routine nasopharyngeal biopsy in Caucasian adults with SOM, the clinical features of adults with SOM and the prevalence of malignancy in these patients were assessed.

Materials and methods

All patients within the study group were Caucasian adults aged over 18 years. The inclusion criterion was presentation primarily with hearing loss secondary to SOM, with no clinically obvious cause. Adults with a history of rhinosinusitis or other symptoms of possible nasopharyngeal carcinoma (i.e. neck masses

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or symptoms of cranial nerve palsies) were excluded. Records from a 10-year period (1994–2004) were reviewed at two Irish tertiary care centres, the Royal Victoria Eye and Ear Hospital, Dublin, and the Waterford Regional Hospital, Waterford.

All patients undergoing examination under anaesthesia (EUA) of the ears and nasopharyngeal biopsy were included. Their presenting symptoms, clinical findings (i.e. otoscopy and flexible nasendoscopy), pure tone audiometry, tympanometry and nasopharyngeal biopsy results were reviewed.

Results

Eighty-five patients fulfilled the inclusion criteria, 46 men and 39 women. Their mean age at presentation was 50 years (age range 18–65 years). Middle-ear effusions (MEEs) were unilateral in 59 patients (69 per cent) and bilateral in 26 (31 per cent). All patients complained of hearing loss, and the duration of symptoms ranged from six weeks to three years. Middle-ear effusions were detected otoscopically in all cases and confirmed by pure tone audiometry and tympanometry (i.e. air–bone gap >20 dB average at 500, 1000 and 2000 Hz). All patients underwent flexible nasendoscopy in the out-patient department. Thirty-seven patients (63 per cent) with unilateral effusions had a mass in the nasopharynx: three were described as suspicious (i.e. either irregular, granular or exophytic mucosa), 30 were described as lymphoid tissue and four had no recorded description. Eighteen patients (69 per cent) with bilateral MEE had a visible mass in the nasopharynx. One was described as suspicious, 15 as lymphoid tissue and two had no recorded description. Thirty patients (35 per cent) had no visible mass in the nasopharynx.

All 85 patients underwent EUA of their ears with or without grommet insertion and biopsy of the nasopharynx. Multiple biopsies were taken from the suspicious areas and from the lateral and posterior nasopharyngeal walls in cases in which no mass was detected. Specimens were sent, fresh and in formalin, to the histopathology laboratory.

Eighty-one of the 85 patients (95 per cent) had biopsies consistent with either normal nasopharyngeal mucosa or inflammatory or other benign changes. Four patients had a nasopharyngeal tumour confirmed by histopathology. All of these patients had suspicious-looking masses described in the nasopharynx prior to biopsy. Two patients had a squamous cell carcinoma, one had a B-cell non-Hodgkins lymphoma and one had an adenocarcinoma. Three of these patients presented with a unilateral effusion (two squamous cell carcinoma patients and one adenocarcinoma patient) and one patient presented with a bilateral effusion, (lymphoma). Four patients (4.7 per cent) had a nasopharyngeal tumour diagnosed as a result of investigation of SOM; their sole presenting symptom was hearing loss and the only abnormal finding, in addition to the MEE, was a suspicious-looking mass in the nasopharynx. All MEEs were treated by myringotomy and ventilation tube insertion. Fifty-one out of the 59 patients (86 per cent) with a unilateral effusion had fluid on myringotomy, and 23 out of the 26 patients (88 per cent) with a bilateral effusion had fluid on myringotomy at the time of surgery. No surgical complications were reported. The mean time between assessment and undergoing the procedure was 32 days for clinically non-suspicious-looking nasopharyngeal masses and eight days for clinically suspicious-looking nasopharyngeal masses. All patients were reviewed six months later, and there were no new cases of nasopharyngeal tumours detected in previously negative biopsies.

Discussion

Nasopharyngeal carcinoma is one of the most aggressive tumours of the upper respiratory tract[2] and has a reputation for insidious onset and delayed diagnosis, which result in a poor prognosis. Early diagnosis of nasopharyngeal tumours is imperative, as curability falls from over 80 per cent in patients with disease limited to the nasopharyngeal mucosa to less than 20 per cent in cases of advanced disease.[3] Hearing loss is a well recognized presentation and, unlike lymphadenopathy or cranial nerve palsies, may indicate disease still confined to the nasopharynx.[4] Therefore, thorough examination of the nasopharynx is necessary in all adult patients who present with SOM. Four patients (4.7 per cent) in our series presented solely with conductive hearing loss secondary to SOM and had a tumour confirmed on biopsy of the nasopharynx. The nasopharyngeal mass was described as suspicious in all four cases. It is accepted that nasopharyngeal tumours may spread submucosally and that the nasopharynx may appear normal on flexible nasendoscopy.[5,6] However, in our study, no patient with a normal-looking nasopharynx proved to have a nasopharyngeal tumour on initial biopsy or at six month follow up.

The reported rate of SOM as a sole presenting feature of nasopharyngeal tumour varies between zero[7] and 1.5 per cent.[4] Luxford and Sheehy, reporting on an ethnic Los Angeles population, detected a nasopharyngeal tumour in only five out of 381 adults (1.3 per cent) undergoing grommet insertion.[8] Gaze *et al*. reported similar findings in 1.4 per cent of adults with SOM undergoing nasopharyngeal biopsy.[4] With the advent of newer technology and constantly upgraded, higher resolution fibre-optic endoscopes, excellent views of the nasopharynx can be achieved in the out-patients department.[6,9] Our results and those of other authors cast doubt on the value of routine nasopharyngeal biopsy when there is no obvious mass on flexible nasendoscopy.[1,10] It is important to note that a number of patients with nasopharyngeal masses may refuse or be unfit for general anaesthesia. In these cases, biopsy may be performed under local anaesthetic. Waldron *et al*. compared biopsying the nasopharynx under local and general anaesthesia.[11] They found no statistical difference between the two methods, with

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sensitivities of 95 per cent for local and 95.6 per cent for general anaesthesia. They concluded that a general anaesthetic is rarely necessary for biopsying the nasopharynx. In our unit, nasopharyngeal biopsy is usually undertaken at the same time as EUA of the ears. No patient in this series required biopsy under local anaesthesia.

We advocate a high index of suspicion for NPC in any adult presenting with SOM. A thorough examination of the nasopharynx by fibre-optic nasendoscopy must be undertaken in all cases. All masses in the nasopharynx should be described accurately and biopsied. Biopsy of suspicious-looking masses should be a priority. It is reasonable to avoid biopsying a normal-looking nasopharynx in adults with SOM, provided these patients are followed up closely in the out-patients department.

- **Adult secretory otitis media (SOM) is a recognized indicator of nasopharyngeal malignancy. This retrospective study evaluated 85 patients with unilateral or bilateral SOM**
- **A nasopharyngeal malignancy was detected in 4.7 per cent of adults presenting with SOM**
- **No submucosal malignancies were detected in patients with a normal-looking nasopharynx**
- **If a patient has a mass in the nasopharynx then it should be biopsied. If a patient does not have a visible mass in the nasopharynx then it is reasonable to follow the patient closely as an out-patient**

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