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Should adults with isolated serous otitis media be undergoing routine biopsies of the post-nasal space?

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Main Article

Mr A K Gona takes responsibility for the integrity of the content of the paper

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Abstract

Background. Serous otitis media is a recognised presentation of Eustachian tube dysfunction secondary to post-nasal space pathology. Post-nasal space biopsies are commonly taken in patients with isolated serous otitis media, despite normal nasendoscopy findings, without robust evidence for doing so. This study examined cases of unilateral serous otitis media with effusion in adults. It is the largest known retrospective study to investigate whether post-nasal space biopsies are indicated in non-endemic regions.

Methods. A retrospective analysis was performed of 119 patients who underwent post-nasal space biopsy because of isolated serous otitis media, in a tertiary referral centre, from 2007 to 2017. Endoscopic examination and final histological report findings were reviewed.

Results. Of the 119 patients identified, 6 (5.0 per cent) were found to have abnormal histology. In all six cases, suspicious clinical findings had been noted on nasendoscopic examination prior to biopsy.

Conclusion. Suspicious findings pre-operatively predict sinister pathology. Biopsies are not recommended in cases of adult serous otitis media with normal nasendoscopy findings if no other risk factors exist. A UK-wide retrospective study or prospective study over the next 10 years will help provide the evidence necessary to support this guidance.

Introduction

Nasopharyngeal carcinoma (NPC) accounts for about 0.6 per cent of all malignancies. It demonstrates a distinct gender, racial and geographic distribution, which is reflective of its multifactorial aetiology.[1,2] Risk factors include Epstein–Barr virus, human papilloma virus, tobacco use, alcohol consumption, and several dietary practices including the intake of preserved foods.[1] Worldwide, there are around 86 000 cases and 50 000 deaths annually; however, in the western world NPC is rare, with an incidence of only 0.5–2 cases per 100 000, with a 2–3 fold higher risk in males.[3]

The most common presenting symptoms are neck lumps, headache, diplopia, epistaxis and facial numbness.[1,4] The classical Trotter's triad of unilateral conductive hearing loss, ipsilateral otalgia or facial pain, and ipsilateral paralysis of the soft palate represents a very rare presentation of the disease. In patients presenting with unilateral serous otitis media, nasopharyngeal malignancy must be considered as a potential underlying cause. It is identified in 0.4–7.4 per cent of patients who present with isolated serous otitis media.[5] Furthermore, serous otitis media is the sole presenting complaint in 0–1.5 per cent of nasopharyngeal tumour patients,[6–8] and is one of the presenting complaints in 26–46 per cent of cases.[9]

Serous otitis media is a recognised presentation of Eustachian tube dysfunction secondary to post-nasal space pathology. Therefore, examination of the nasopharynx is an essential part of the investigation of any patient presenting with serous otitis media. Whenever a suspicious lesion is identified during nasendoscopy, biopsy is unquestionably warranted. However, the question as to whether biopsy is required in cases of isolated serous otitis media when nasendoscopy findings are normal, so called 'blind biopsy', is yet to be answered definitively. The uncertainty involved and concern of missing a cancer diagnosis means that it is common practice in many centres to perform a routine nasopharyngeal biopsy regardless of nasendoscopy findings or the presence of additional clinical manifestations of NPC. At present, there are no guidelines and no clear indications for when a nasopharyngeal biopsy should be performed.

This question has important implications for many aspects of patient care. There is evidence that waiting on an investigation for a possible cancer diagnosis has a significant impact on patients' psychological wellbeing.[10] Furthermore, despite evidence that local anaesthesia and general anaesthesia for biopsies of the post-nasal space have similar sensitivities for diagnosing NPC (95.1 per cent *vs* 95.6 per cent respectively),[11] surgical skill and equipment availability means that many centres still perform post-nasal space biopsy under general anaesthetic. This has notable financial consequences, as well as ethical implications regarding the risk–benefit of a general anaesthetic.

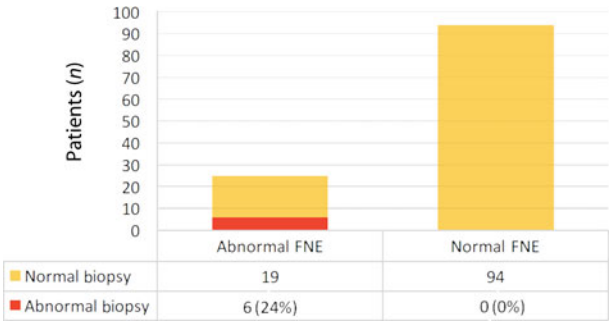

Fig. 1. Results of post-nasal space examination and biopsies. FNE = flexible nasendoscopy

This 10-year review of adult patients with serous otitis media aimed to determine whether there is a role for blind biopsies of the nasopharynx in this country, which has a low incidence of NPC.

Materials and methods

An electronic patient record search was performed for all histology specimens of the nose, nasopharynx and post-nasal space taken between 2007 and 2017 at the Norfolk and Norwich University Hospital NHS Foundation Trust. The associated patients' clinic letters, operative notes and histology request forms were analysed to confirm those patients who underwent biopsy of the post-nasal space for isolated serous otitis media. Patients who were aged under 18 years or had other symptoms suggestive of nasopharyngeal carcinoma were excluded from the study. The remaining identified patients were then categorised by their post-nasal space examination as either normal or abnormal, and by their histology results as either normal or abnormal. In our study, we only examined cases of unilateral serous otitis media with effusion in adults.

Results

Of the 601 patients who underwent nasal biopsies as identified from our initial database search, 119 fulfilled the study inclusion criteria. There were 62 (52.1 per cent) men and 57 (47.9 per cent) women, with a median age of 58 years (range, 22–81 years).

Of the 119 patients who underwent post-nasal space biopsy for isolated serous otitis media, the post-nasal space appeared normal on nasopharyngeal examination in 25 patients. Of these 25 patients, 6 (24 per cent) were found to have an abnormality on histology (Figure 1). One patient had vasculitis, one had recurrence of follicular lymphoma and four had new malignancies (two non-Hodgkin's lymphomas, one squamous cell carcinoma and one carcinoma ex-pleomorphic adenoma). Four of these patients were men and two were women, with a median age of 73 years (range, 55–79 years). Of the 94 patients with a normal-looking nasopharynx, none were found to have anything concerning on histology.

Discussion

Nasopharyngeal carcinoma (NPC) is one of the most aggressive upper respiratory tract tumours affecting the head and neck. It has a reputation for insidious onset and delayed diagnosis, which results in a poor prognosis.[12] One reason for this is that NPC frequently originates from the fossa of Rosenmüller, which is a clinically occult site; hence, by the time patients develop symptoms, the disease is often locally or regionally advanced, with lymph node metastases present in 75–90 per cent of cases at diagnosis.[13]

Early diagnosis of NPC has a distinct clinical advantage, as curability falls from over 80 per cent in patients with disease confined to the nasopharyngeal mucosa to less than 20 per cent in cases of advanced disease.[14] Serous otitis media is a well-recognised presentation and, unlike cranial nerve palsies or lymphadenopathy, may be present while the disease is still confined to the nasopharynx.[6]

Diagnosis is also difficult because NPC is notorious for demonstrating minimal mucosal disease while having a large submucosal component.[15] Furthermore, apposition of mucosal surfaces around the fossa of Rosenmüller has the potential to hide the primary tumour.[16] Therefore, clinicians are often inclined to perform a biopsy when there is nothing concerning visible.

To date, two cases of NPC have been reported that were identified after the biopsy of a normal-looking nasopharynx in patients with isolated serous otitis media.[17] Furthermore, in three studies of 72, 275 and 169 patients presenting with serous otitis media, some of whom also had other symptoms, a tumour was identified in one patient with normal nasendoscopy findings in each study, with no other suspicious signs or symptoms in each study, representing 1.4 per cent, 0.4 per cent and 0.6 per cent incidence rates, respectively.[6,9,18] Conversely, in two studies of 85 and 57 patients with isolated serous otitis media, no tumours were identified in patients with normal nasendoscopy findings.[19,20] Table 1 summarises the current evidence.[6,9,18–22]

In conclusion, Eustachian tube dysfunction secondary to underlying malignancy must be considered in all adults

Table 1. Summary of current evidence

Study author	Year	Location	Number of serous otitis media patients	Patients with tumours (*n* (%))	Patients with tumours, with normal nasendoscopy findings & no other suspicious signs or symptoms (*n* (%))
Dempster *et al.*[9]	1988	Glasgow	275 (with other symptoms)	10 (3.6)	1 (0.4)
Gaze *et al.*[6]	1992	Edinburgh	72 (with other symptoms)	3 (4.2)	1 (1.4)
Sheu *et al.*[21]	1998	Taiwan	36 (isolated)	2 (5.6)	–
Glynn *et al.*[19]	2006	Dublin	85 (isolated)	4 (4.7)	0 (0)
Ho *et al.*[22]	2008	Taiwan	87 (isolated)	5 (5.7)	–
Sadr *et al.*[20]	2009	Bath	57 (isolated)	0 (0)	0 (0)
Shilo *et al.*[18]	2018	Tel Aviv	169 (isolated)	–	1 (0.6)

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presenting with serous otitis media; however, our findings do not support the routine practice of post-nasal space biopsy in low-risk patients in the absence of positive nasendoscopy findings. Before national practice is altered, however, a pan-UK prospective study should be performed, and this could be a topic for consideration by Integrate, the UK ENT Trainee Research Network.

- Serous otitis media is a recognised presentation of Eustachian tube dysfunction secondary to post-nasal space pathology in adults
- This is the largest known retrospective study to investigate whether biopsy is indicated in non-endemic regions
- Over a 10-year period, no nasopharyngeal carcinomas (NPCs) were found in patients with a normal-looking nasopharynx
- In patients considered at high risk of NPC (endemic regions), further evaluation by radiology and biopsies should be considered
- The study findings do not support the routine practice of post-nasal space biopsy in low-risk patients in the absence of positive nasendoscopy findings

Competing interests. None declared

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