



## CASE REPORT

### Metastatic Hypopharyngeal Carcinoma without Nodal Involvement

Robert Taylor, BMedSci MBChB, MRCS (ENT), Atia Khan, MBChB, BSc, MRCS (ENT)\*, Eugene Omakobia, MA (hons)(cantab), MB.BChir, MRCS (ENT), FRCS (ORL-HNS) and Raad John Glore, MD MRCSEd DO-HNS FRCS (ORL-HNS)



Ear, Nose and Throat Department, Bradford Royal Infirmary, Bradford Teaching Hospitals, NHS Foundation Trust, UK

\*Corresponding author: Atia Khan, MBChB, BSc, MRCS (ENT), Ear, Nose and Throat Department, Bradford Royal Infirmary, Bradford Teaching Hospitals, NHS Foundation Trust, Duckworth Lane, Bradford, BD9 6RJ, UK

#### Abstract

**Introduction:** In the UK, patients with hypopharyngeal carcinoma are managed via a multidisciplinary team approach based on UK National MDT Guidelines. Hypopharyngeal cancer often presents late, 80% of patients presenting with Stage III or IV disease, with PET-CT recommended for these patients to assess for metastases.

**Case:** We present a case of an elderly ex-smoker with T2N0 hypopharyngeal carcinoma later upstaged to T3N0M1.

**Discussion:** Our case highlights discrepancies between the MDT Guidelines and NICE guidance over when to perform staging scans. NICE recommends PET-CT for T4 or N3 disease compared to Stage III or IV disease in the National MDT guidelines. Our patient would not have qualified for PET-CT under NICE guidance and his metastatic disease would have been undiagnosed. This case highlights that lack of nodal involvement does not exclude metastases and there should be a low index of suspicion for distant metastases in patients with significant systemic symptoms.

#### Keywords

Hypopharyngeal neoplasms, Squamous cell carcinoma of head and neck, Positron emission tomography, Computed tomography, Neoplasm metastasis

14-22% for Stage IV disease. Principles for management of hypopharyngeal cancer in the UK are provided by the UK National MDT Guidelines but the low incidence of hypopharyngeal malignancy means there is a scarcity of high-level evidence upon which to base these [2]. The guidelines suggest the optimal investigations to stage disease and the appropriate treatment options depending on disease stage, patient age, comorbidities and performance status. This also includes guidance for curative or palliative treatment.

Early stage disease (Stage I & II) can be treated equally well with either radiotherapy or surgical options [3]. Advanced metastatic disease is treated with palliative intent, with palliative radiotherapy offering symptom control by utilising lowered doses compared to radical curative treatment. A reduced dosing regimen decreases distressing side effects such as mucositis, hypopharyngeal stenosis and psychological impact to improve the quality of life of terminally ill patients. Therefore accurate disease staging not only radically affects the treatment options available but also enables patients and clinicians to make informed choices with regard to the risks and benefits of proposed treatments.

Staging as per the American Joint Committee on Cancer (eighth edition) is based on tumour size, lymph node involvement and metastatic spread. Initial investigations for hypopharyngeal cancer include a barium swallow, as many patients present with dysphagia, computerised tomography (CT) scan and panendoscopy with biopsy to secure a tissue diagnosis. This allows full assessment of tumour growth and lymphovascular involvement. The UK MDT Guidelines

#### Introduction

Hypopharyngeal cancer accounts for a small proportion of the UK head and neck cancer burden with an age standardised incidence of 0.63 per 100,000 people [1]. Due to its insidious onset, many patients present late with advanced disease. Notably, 80% of patients present with Stage III or IV disease. This contributes to an overall five-year survival of 30%, which rises to 60% for T1 and T2 tumours and falls to

suggest PET-CT scanning in advanced stage disease (Stages 3 & 4) only to assess for distant metastases. NICE (National Institute for Health and Care Excellence) guidance goes further and suggests PET-CT only in T4 or N3 disease [4]. NICE recommend a CT chest or chest x-ray for staging less advanced hypopharyngeal malignancies with the explicit exception of T1N0 or T2N0 disease for which systemic staging investigations are not routinely advised.

Here, we report a case of an elderly male patient who was initially diagnosed with T2N0 right hypopharyngeal squamous cell carcinoma (SCC) but was later found to have widespread bony metastases with a final disease staging of T3 N0 M1. An English Language Literature Search of the PubMed database revealed no case reports of metastatic hypopharyngeal SCC presenting without nodal involvement and opens up a debate whether to offer systemic staging investigations for distant metastases, particularly PET-CT, to more patients with early disease.

## Case Report

An 86-year-old gentleman was referred to our institution's ENT fast track clinic with a one year history of progressive dysphagia, with a diet limited to puréed foods and weight loss of 12 kg over several months. Past medical history included aortic aneurysm, previous transcatheter aortic valve replacement in 2017, previous myocardial infarction, hyperlipidaemia and hypertension. He was an ex-smoker, having stopped 20 years ago but with a 50-pack year history and had a WHO Performance Status of 1. Flexible nasendoscopy (FNE) was essentially unremarkable with fully mobile vocal cords and normal hypopharynx but a cystic swelling was noted on the lingual surface of the epiglottis of benign appearance. Subsequent barium swallow showed cricopharyngeal spasm and minor aspiration only. At further review two months later, the patient complained of worsening dysphagia and was only able to swallow liquids and had suffered from recurrent aspirations. He underwent a panendoscopy under general anaesthesia which showed a 1.5 cm partially ulcerating tumour involving the right arytenoid cartilage, post-cricoid area and medial wall of the right pyriform fossa but not crossing the midline with a clinical staging of T2. Radiological staging via a CT scan was T2N0 and biopsy results confirmed a moderately differentiated squamous cell carcinoma without lymphovascular invasion.

Following discussion in a multidisciplinary team (MDT) meeting, the decision was to offer curative radiotherapy given his comorbidities, which included ischaemic heart disease conferring a high anaesthetic risk. As per UK MDT guidelines there was no requirement for staging investigations given his early stage disease. During a short inpatient admission for a radiologically-inserted gastrostomy (RIG) tube, the patient complained

of a hoarse voice and repeat FNE showed a fixed right hemilarynx with clinical upstaging to T3N0. In view of the disease progression to an advanced stage, a PET CT scan was arranged which showed widespread bone metastases involving the sternum, ribs, spine, pelvis, both scapulae, proximal humeri, femora and skull base deposits in the clivus and occipital condyles. Focal uptake was also seen in the right hypopharynx without hypermetabolic nodes and an avid lesion in the left side of the prostate. A subsequent myeloma screen was negative and PSA (prostate specific antigen) was only mildly raised at 8.9 ng/ml (reference range 0-5) with a normal feeling unenlarged prostate on digital rectal examination. Bone biopsy from the left posterior acetabulum showed extensive infiltration by metastatic squamous cell carcinoma confirming primary hypopharyngeal SCC staged as T3N0M1. As a result of these findings, the patient's treatment plan was changed to split course palliative radiotherapy following further MDT discussion.

## Discussion

We have outlined a case of hypopharyngeal malignancy with widespread bony metastases without nodal involvement. This report highlights an area for consideration in the current UK management guidelines for hypopharyngeal carcinoma. The patient was managed in accordance with MDT guidelines and was investigated with a barium swallow, panendoscopy with biopsy and a subsequent CT scan, confirming staging of T2N0 squamous cell carcinoma. Following this, an appropriate management plan for radical radiotherapy was agreed at an MDT meeting. The MDT guidelines did not recommend PET CT as this was not advanced disease at the time of discussion [2]. NICE guidance goes further to specifically recommend not to perform any staging imaging, including CT Chest, in T2 N0 disease [3]. As such, the patient was planned for a 6-week radical radiotherapy course with associated risks and side effects; since at this time, the imaging demonstrating widespread metastatic disease, conferring a poor prognosis and palliative treatment was not available.

The patient underwent a PET-CT scan after being upstaged clinically to T3N0 after a short admission for RIG feeding tube insertion. The subsequent PET-CT scan, whilst showing widespread bony metastases, did not reveal any nodal involvement. The decision for PET-CT imaging was taken as T3N0 is considered Stage III disease and as such, qualified for PET-CT as per UK MDT guidelines for advanced stage disease. NICE guidance would not have recommended PET-CT as this guidance only recommends PET-CT for T4 or N3 disease. NICE guidance recommends conventional imaging for T3N0 disease, i.e.: a CT scan of the chest. In this case this patient did not have mediastinal or lung metastases hence CT Chest imaging may have been falsely reassuring.

Distant metastasis is defined by the spread of a tumour to another organ system. Metastatic spread can occur via two pathways; either haematogenous spread via the systemic circulation or lymphatic spread via the lymphatic system to regional lymph nodes. The lymphatic system has a close anatomical relationship to the venous system as it germinates from this during embryogenesis. Lymphatic capillaries are more susceptible to assisting tumour spread as their relatively open endothelial junctions, compared to blood capillaries, allow larger cells to be more easily reabsorbed. The hypopharynx has a proliferative lymphatic supply which helps explain why it has a higher rate of distant metastases at presentation than other Head and Neck Squamous Cell carcinomas [5]. Despite the propensity for lymphatic spread over systemic spread, there is evidence that 0.19% to 1.75% of patients with N0 head and neck cancer have distant metastases [6]. This highlights that haematogenous spread plays a significant role in development of metastases. Further research is ongoing to investigate sensitive molecular diagnostics to allow detection of micro metastases in the systemic circulation, thereby facilitating earlier recognition of metastases prior to clinical or radiological evidence. These studies do highlight however, that a lack of nodal involvement does not preclude distant metastases.

This case highlights that the lack of nodal involvement both clinically and radiologically does not exclude the possibility of distant bony metastases. Whilst the MDT Guidelines recommend PET-CT only in advanced disease and NICE guidance only in T4 or N3 disease, the authors believe there should be a low index of suspicion for distant metastases if patients present with significant long term systemic symptoms not in keeping with the clinical or radiological disease staging. As with all clinical guidelines, we would advocate tailored assessment on a case by case basis to ensure optimal patient management.

## Summary

- Hypopharyngeal cancer is managed in the UK via Multidisciplinary teams utilising the National MDT Guidelines.
- There is discrepancy between NICE Guidelines and National MDT Guidelines recommending PET-CT for hypopharyngeal carcinoma.
- NICE recommends PET-CT for T4 or N3 disease only.
- National MDT guidelines recommend PET-CT in Stage III or IV disease.
- Our patient presented with T2N0 hypopharyngeal carcinoma for which PET-CT was not recommended, later upstaged to T3N0M1 for which only the National MDT Guidelines recommend PET-CT.
- Clinicians should be aware of potential metastases in patients without nodal involvement and have low index of suspicion for PET-CT if systemic signs of disease present.

## References

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