Unusual association of diseases/symptoms

Posterior pharyngeal wall carcinoma presenting as sudden onset bilateral upper limb radiculopathy

Swaroop Revannasiddaiah,¹ Priyanka Thakur,¹ Madhup Rastogi,¹ Irappa Madabhavi,² Adarshkumar Bellad,² Sandeep Chindi²

¹Radiation Therapy and Oncology Department, Regional Cancer Centre, Shimla, Himachal Pradesh, India;

²Internal Medicine Department, Indira Gandhi Medical College, Shimla, Himachal Pradesh, India

Correspondence to Dr Swaroop Revannasiddaiah, swarooptheone@gmail.com

Summary

This report describes the case of an elderly gentleman who presented with sudden onset bilateral upper limb radiculopathy and neck stiffness. On neck radiography, erosion of the fourth cervical vertebral body was seen. Further evaluation revealed the cause to be a moderately differentiated squamous cell carcinoma of the posterior pharyngeal wall. In spite of prompt initiation of radiation therapy with concurrent steroids, the patient died of progressive disease within 3 weeks of initial presentation.

BACKGROUND

Posterior pharyngeal wall (PPW) carcinomas are rare, comprising only around 7% of all hypopharyngeal malignancies.¹ They are described as being silent during the early stages, with the majority of patients presenting with advanced disease.²⁻³ In spite of the proximity of the cervical vertebral bodies to the PPW, direct invasion of the cervical vertebrae is uncommon.⁴ A thorough literature search failed to reveal any previously published cases in which the presenting feature of a hypopharyngeal carcinoma was neurological compromise arising from direct extension of the tumour.

CASE PRESENTATION

A 62-year-old man presented with a sudden onset of sharp shooting pain radiating from his neck to his hands bilaterally for the previous 3 days. On questioning, he also revealed a sensation of stiffness in his neck for the past week, and pain on neck movements for the past 3 days. He also revealed that these symptoms were preceded by an apparently innocuous sensation of tingling and occasional numbness in his arms and forearms for the past 2 weeks. He reported no preceding weakness in his upper and lower limbs.

There were no complaints of dysphagia or odynophagia, respiratory difficulty, or bowel or bladder disturbance. There was no history of recent or past trauma to the neck.

On a clinical examination, there was no apparent muscle wasting. However, there was a bilaterally positive Hoffmann's reflex, which is a stretch reflex test performed by suddenly flicking the fingernail of the patient's middle finger and observing for the flexion of the thumb and of the middle and distal phalanges of one of the other fingers—a positive test implies the presence of an upper motor neuron lesion above the level of 7th or 8th cervical vertebra). There was evidence of hyper-reflexia and hyper-tonia in all four limbs. Clonus could be elicited at the ankle joint and the plantar reflex was upgoing.

Anal sphincter tone was normal, as were bowel and bladder control. The higher central nervous functions were intact.

There was a hard, fixed, enlarged, matted lymph node mass with a maximum diameter of 6.5 cm in the left posterior triangle of the neck (level V). In addition, there were bilateral level II lymph nodes around 2 cm in diameter on either side.

The patient described himself as an 'occasional social drinker' and denied ever smoking. There was no history of illicit drug use. There was no family history of neurological disorders and no personal history of fever, tuberculosis, or suggestive of toxin exposure.

INVESTIGATIONS

Serum biochemical parameters were within normal limits. A lateral neck radiograph was procured as part of an evaluation for the cervical radiculopathy. There was evidence of destruction of the fourth cervical vertebral body (figure 1).

A CT scan revealed a heterogeneously enhancing locus in the PPW which was anterior to, adjacent to and contiguous with the destroyed fourth cervical vertebral body (figure 2). The CT scan also confirmed the presence of the nodal mass in the left cervical posterior triangle.

The patient was referred to the otorhinolaryngology department where an endoscopic evaluation revealed a whitish lesion in the posterior wall of the hypopharynx. A biopsy of the infiltrative patch revealed a keratinising moderately differentiated squamous cell carcinoma.

Fine needle aspiration cytology performed from the enlarged left-sided level V matted lymph node mass revealed nodal deposits of moderately differentiated squamous cell carcinoma. Chest radiography and abdominal ultrasonography were normal.

Hence, the patient was diagnosed as having a moderately differentiated squamous cell carcinoma of the hypopharynx (subsite: PPW), with very advanced local disease (invasion of the prevertebral fascia, ie, T4b), and

Figure 1 Lateral view radiograph of the neck showing the destruction of the C4 vertebral body.

N3 nodal disease (in view of the matted lymph node mass in the left posterior cervical triangle measuring more than 6 cm). Stage was assigned as $T_{4b}N_3M_0$ (stage IV-B) according to the seventh edition of the TNM-AJCC.⁵

TREATMENT

The patient was counselled about the stage of the disease and the limited options for management available. In view of the unresectable disease, and in agreement with the patient's wishes, he was started on a course of palliative radiation therapy (RT).

The plan was to deliver 30 Gy at a rate of 3 Gy per fraction, five daily fractions per week, over a period of 2 weeks, followed by a break for 1 month. Re-assessment of the patient and planning for possible further RT, based on tumour response and the performance status of the patient, would follow.

The patient was also started on intravenous steroids (dexamethasone 4 mg every 8 h) and oral allopurinol (300 mg per day).

OUTCOME AND FOLLOW-UP

In spite of prompt initiation of treatment, the patient displayed progressive worsening of his neurological deficits and during the second week of RT, manifested loss of bowel and bladder control along with quadriparesis and respiratory failure. Surgical decompression was decided against in view of his short life expectancy. The patient and his family requested discharge from medical care, to which we agreed. The family informed the hospital of the patient's death 4 days later.

DISCUSSION

The PPW is a rare subsite for hypopharyngeal carcinoma, with only around 7% of all hypopharyngeal carcinomas being reported to arise from the PPW. The prognosis of hypopharyngeal carcinomas is poor, with that of PPW carcinomas even worse.¹

PPW cancers are reported to be silent in the early stages.² Around 60% of patients present with stage III or

Figure 2 The upper panel (a) depicts a CT slice showing a heterogeneously enhancing mass below the posterior pharyngeal wall (*) which extends posteriorly where the destroyed C4 vertebral body is visualised and a lymph node mass (+) in the left posterior cervical triangle. The lower panel (b) depicts a digitally reconstructed sagittal radiograph showing the level of visualisation of the slice in panel (a).

IV disease.³ Further, around half of patients are reported to have poor performance status at presentation.³

The posterior wall of the hypopharynx is contiguous with the oropharynx superiorly and the cervical oesophagus inferiorly and PPW carcinomas are known to spread along the mucosal and submucosal planes towards the oropharynx, the cervical oesophagus and the trachea.⁴

Posterior to the mucosal lining of the PPW are the submucosa, the fibrous pharyngobasilar fascia, the inferior constrictor muscle and the visceral fascia. Posterior to the visceral fascia is the retropharyngeal space, which is separated from the cervical vertebrae by strong prevertebral fascia. Hence, although the space between the PPW mucosa and the adjacent anterior vertebral body is about 1 cm thick in the midline, direct extension of malignancy to the cervical vertebral bodies is uncommon.⁴

Invasion of the prevertebral fascia indicates a poor prognosis since it precludes the option of surgical resection.

Imaging methods such as CT and MRI rely upon visualisation of the retropharyngeal fat plane to rule out prevertebral space involvement. However, cross-sectional imaging could show false negative results unless there is visualisation of vertebral destruction,⁶ as happened in the present case (figure 2).

RT can offer durable local control for patients with PPW cancers. Overall, local control rates with RT for PPW carcinomas are reported to be 36% at 5 years.⁷ However, the 5-year overall survival for stage IV-B disease is just 5% after RT alone.⁸ This is in stark contrast to the 33% overall survival after RT alone at 5 years reported for stage IV-B pyriform sinus carcinoma (a relatively favourable subsite of the hypopharynx).⁷

Although concurrent chemotherapy with RT might improve outcomes, it must be kept in mind that a great proportion of these patients present with advanced disease and poor performance status, which lessens the possibility of these patients tolerating an intensive and toxic chemoradiotherapy regimen.

We conclude by stating that patients with PPW malignancies and suspected prevertebral space involvement should be quickly initiated on a radical chemoradiotherapy regimen. Otherwise, further extension of the carcinoma posteriorly to the prevertebral space could cause the patient's general condition to drastically worsen, precluding any hope of the patient tolerating a curative regimen.

Learning points

- ▶ Hypopharyngeal carcinomas arising from the posterior pharyngeal wall are silent in the early stages and hence patients are likely to present with advanced disease.
- ▶ When cure is unlikely, adequate focus must be directed at maintaining quality of life.
- ▶ Watchful surveillance in case of posterior disease progression should be exercised in patients with posterior pharyngeal wall carcinomas in order to prevent the catastrophic consequences of vertebral column involvement.

Acknowledgements The authors would like to honour the cheerful demeanour of the described patient, who before his death chose to ignore his own pain and explicitly acknowledged our efforts to help him deal with his cancer.

Competing interests None.

Patient consent Obtained.

REFERENCES

1. **Rimmer A**, Lee N, Zelefsky MJ. Cancer of the Hypopharynx. In: Hoppe RT, Phillips TL, Roach M3rd, eds. *Textbook of Radiation Oncology*. Third Edition. Philadelphia, PA: Saunders 2010:664–780.
2. **Barzan L**, Barra S, Franchin G, *et al*. Squamous cell carcinoma of the posterior pharyngeal wall: characteristics compared with the lateral wall. *J Laryngol Otol* 1995;**109**:120–5.
3. **Jones AS**, Stell PM. Squamous carcinoma of the posterior pharyngeal wall. *Clin Otolaryngol Allied Sci* 1991;**16**:462–5.
4. **Mendenhall WM**, Werning JW, Pfister DG. Treatment of Head and Neck Cancers. In: Devita VT, Lawrence TS, Rosenberg SA, eds. *Devita, Hellman & Rosenberg's Cancer: Principles & Practice of Oncology*. Eight Edition. Philadelphia, PA: Lippincott Williams & Wilkins 2008:809–79.
5. **Edge SB**, Byrd DR, Compton CC, *et al*. *American Joint Committee on Cancer (AJCC) Cancer Staging Manual*. Seventh Edition. Chicago: Springer, Inc 2010.
6. **Hermans R**. Oropharyngeal cancer. *Cancer Imaging* 2005;**5** Spec A:S52–7.
7. **Amdur RJ**, Mendenhall WM, Stringer SP, *et al*. Organ preservation with radiotherapy for T1-T2 carcinoma of the pyriform sinus. *Head Neck* 2001;**23**:353–62.
8. **Fein DA**, Mendenhall WM, Parsons JT, *et al*. Pharyngeal wall carcinoma treated with radiotherapy: impact of treatment technique and fractionation. *Int J Radiat Oncol Biol Phys* 1993;**26**:751–7.

This pdf has been created automatically from the final edited text and images.

Copyright 2012 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit

<http://group.bmj.com/group/rights-licensing/permissions>.

BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Please cite this article as follows (you will need to access the article online to obtain the date of publication).

Revannasiddaiah S, Thakur P, Rastogi M, Madabhavi I, Bellad A, Chindi S. Posterior pharyngeal wall carcinoma presenting as sudden onset bilateral upper limb radiculopathy. *BMJ Case Reports* 2012;10.1136/bcr.11.2011.5269, Published XXX

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow