Osteoradionecrosis of the cervical spine: an uncommon complication of radiation therapy for hypopharyngeal cancer

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DESCRIPTION

A patient in his 70s with a history of hypopharyngeal cancer presented with a 2 month history of progressive dysphagia and left mandible pain. On examination, he had severe trismus and left-sided mandibular swelling with tenderness. Flexible nasendoscopy revealed significant postradiotherapy changes at the tongue base and larynx, and a left vocal cord palsy; however, there were no signs of tumour recurrence.

The patient has a history of a surgically excised T1 squamous cell carcinoma (SCC) of the soft palate and carcinoma in situ of the left tonsillar pillar in 2015. This was followed by T2N2b SCC of the left piriform fossa treated with chemoradiotherapy in 2016, which included cisplatin and radiotherapy 65 Gy in 30 fractions. He had been asymptomatic since treatment.

Initial contrast CT neck and thorax found no definite cause for his symptoms, recommending MRI neck with contrast for further investigation. This revealed inflammatory changes including joint space narrowing with bone and soft tissue oedema (figure 1), with a differential diagnosis of septic arthritis/osteomyelitis in the atlantoaxial joint or osteoradionecrosis (ORN). Initially, due to the involvement of both sides of the joint, the diagnosis of septic arthritis was favoured prompting admission for intravenous antibiotics. Discussion with radiology suggested that repeat imaging after initial treatment would be beneficial. Repeat MRI neck 1 week later showed more extensive changes in this region centred around the left atlantoaxial joint which was now eroded (figure 2), despite patient remaining well. After multidisciplinary discussion with radiology and neurosurgery, the patient was diagnosed with ORN of the C1 and C2 vertebra and discharged with 6 weeks of oral antibiotics, Miami J collar, and close clinical and radiological surveillance.

The patient remained stable over the following months with repeat MRI neck imaging 1.5 months later showing no progression of the joint and soft tissue changes. He remains under close review to prevent recognised complications such as secondary osteomyelitis, spinal deformity and spinal cord compression.

ORN of the cervical spine is a rare but serious consequence of radiation therapy for head and neck cancers with documented cases limited to a small number of published reports, with the most common documented side effect being dysphagia. 1-3 The difficulty in diagnosis for this particular patient lies in the lack of clearly identifiable ORN features on his imaging. Studies have compared various MR imaging characteristics of cervical ORN with recurrence of malignant disease, but little is documented in terms of differentiating features of cervical ORN.
from septic arthritis. Clinically, septic arthritis and ORN of the cervical spine share presenting local symptoms of neck pain and stiffness, however septic arthritis would also present systemically with fever, raised inflammatory markers and possible neurological deficits. Such deficits may also be seen in advanced stages of ORN. Radiologically, however, these diagnoses have overlapping features, with similar appearances of contrast enhancement locations within cervical vertebrae, surrounding soft tissue appearance and joints space narrowing. This case highlights several important points: the long-term morbidity of radiotherapy, the importance of multidisciplinary team working and the differential diagnosis, corroboration of clinical findings with imaging.

Learning points

- Osteoradionecrosis in the cervical spine is a rare complication of radiation therapy treatment for head and neck cancers.
- Features of cervical osteoradionecrosis can be difficult to distinguish from other pathologies such as malignancy recurrence and septic arthritis.
- Patients with suspected or confirmed cervical osteonecrosis require close review and imaging surveillance to promptly identify any deterioration in the stability of the bone.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

REFERENCES