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PROSTATE CANCER METASTASIS TO THE MANDIBLE: CASE REPORT
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G. E. PARKINS and G. O. KLUFIO

SUMMARY

Prostate cancer is recognised to be the commonest type of malignancy in the male in many parts of the world. Prostate cancer has a propensity to metastasize to bone, however metastasis to the jaw is uncommon and indeed among metastatic tumours of the jaws which are a rarity, only about 9% originate from a prostatic primary. We report a case of histologically proven metastatic prostate cancer to the right mandible which necessitated a hemi-mandibulectomy in order to improve the patient's quality of life.

INTRODUCTION

Prostate cancer is now the commonest type of malignancy in the male in many parts of the world (1). In patients with clinically detected prostate cancer, about 10–20% of them are found to have metastatic disease on presentation (2). Distant spread may also follow progression of the disease after initial therapy (3). Although prostate cancer has a propensity to metastasize to bone (4,5), the sites of predilection are usually the vertebrae, ribs, long bones and the skull. Metastasis to the jaw is uncommon (6). Indeed among metastatic tumours of the jaws which are a rarity, only about 9% originate from a prostatic primary (7). The most commonly affected bone is the mandible (60–80% of cases) with the most frequent location being the molar region (6,8).

In about 30% of cases, the oral lesion provides the first indication of the presence of a previously undiscovered primary cancer (6-8). The purpose of this report is therefore to highlight the occurrence of this rare condition and also emphasize the need to consider metastatic neoplasm in the differential diagnosis of jaw lesions.

CASE REPORT

A 64-year-old man presented initially in March 1999 with lower urinary tract symptoms suggestive of bladder outlet obstruction. Digital rectal examination (DRE) showed an enlarged prostate gland (approx.100 g) which felt largely benign except for a small nodule in the right lobe. Laboratory investigations showed an elevated prostate specific antigen (PSA) of 28ng/ml. His basic haematological and biochemical profiles as well as urinalysis and urine culture were normal.

Histopathological examination of a digitally guided transrectal tru-cut biopsy of the prostate showed prostatic adenocarcinoma with a Gleason score of 8. Shortly thereafter he developed acute urinary retention and had to be catheterised. Staging investigations including chest X-ray, liver function test, abdominal ultrasound and skeletal survey were normal. An abdomino-pelvic computerised tomographic (CT) scan could not be done because the machine was non-operational at the time of the patient's initial evaluation.

In January 2001, he underwent transvesical prostatectomy to relieve his outflow obstruction and bilateral total orchidectomy for hormonal control of his cancer. Prior to the orchidectomy, the side effects of androgen deprivation therapy including loss of libido, erectile dysfunction, hot flushes and body composition changes were discussed in detail with the patient. The operation was undertaken after the patient and his spouse upon due consideration and counselling had consented to it. Postoperatively he did well and subsequently resumed normal work and activity. By May 2001, his PSA had dropped to 1.5ng/ml. He was reviewed at regular intervals thereafter. In February 2003, his PSA was noted to be 5.5ng/ml. He was asymptomatic at the time and DRE showed no abnormality. In view of the essentially normal rectal findings, it was decided to await a repeat of the serum PSA before any further action. However in July 2003, he reported at our Maxillofacial surgery clinic with a four month history of a right jaw swelling. There was associated toothache at the onset and initial management at a peripheral health centre had resulted in two of his teeth on the same side being extracted. The swelling was hard and involved the whole body of the right mandible. An incisional biopsy of the mass was found on histopathological examination to be metastatic adenocarcinoma. A CT scan done subsequently, showed spread also to the right mastoid and the parietal brain. His PSA at this stage was 13.8 ng/ml. He was then put on the antiandrogen bicalutemide 150mg daily, to maximise his androgen deprivation therapy.

He successfully underwent a right hemi-mandibulectomy and reconstruction using titanium plate in September 2003. This was the patient's choice of management option to improve his appearance.

A removable partial denture was also provided. He remained well until March 2004 when he presented with a three day history of bleeding from the right ear. Again DRE on this occasion was essentially normal. Serum PSA and testosterone levels were 26.5 ng/ml and 4.3 nmol/l (normal: 8–35) respectively. Subsequent ear, nose and throat consultation showed extention of the mastoid secondaries into the external auditory canal. The ear lesions were managed conservatively first with magnesium sulphate wick and then otosporin ear drops producing symptomatic relief.

At his last review in December 2004, he was well and free from ear bleeding. However he succumbed finally to the disease in November 2005.

DISCUSSION

Metastatic tumours to the oral region are uncommon and account for approximately 1% of all malignant oral tumours. Although the method of spread is haematogenous, the exact mechanism of tumour metastasis from distant sites to the jaw bones is not fully understood. It has been suggested that some tumour cells are more "selective" in metastatic colony formation, hence they bypass nearby proximal organs and selectively settle in a specific distal organ (9). Another possible explanation is that active bone marrow which could be present in the posterior area of the mandible in some patients may serve to attract tumour cells (10). The primary site of metastatic tumours show some gender variation. In the male, the lung, followed by the prostate are the most common primary sites while the breast is the most frequent site in females (8,11).

This case report has demonstrated the initial difficulty in diagnosing a metastatic jaw lesion. Firstly because its presentation may mimic odontogenic infections or even benign tumours clinically (6), and secondly it may be the first manifestation of an undiagnosed malignancy (6-8). Our patient's initial presentation with toothache and swelling resulted in his initial management in a peripheral hospital by tooth extraction. In a review of 390 cases from the English language literature, Hirshberg *et al* (8) found that majority of male cases presented in the fifth and seventh decades of life. It is therefore reasonable to consider metastatic disease in the differential diagnosis of all males in that age bracket presenting with symptoms of pain and swelling or paraesthesia (numb chin syndrome or mental nerve neuropathy) (12).

From the urological standpoint, a couple of features of this case are worth noting. The decision to manage his acute urinary retention (following his transrectal biopsy) by an open prostatectomy was based on the fact that he had a big gland (approx. 100g) on DRE which felt clinically benign except for a small nodule in the right lobe. The other notable feature is that from the time his PSA began to rise after achieving a PSA nadir of 1.5 ng/ml following androgen deprivation therapy, to the time the jaw lesion appeared, his prostatic remnant felt essentially normal on DRE, with no evidence of local tumour progression. It is difficult to explain the lack of abnormal rectal findings in the presence of metastatic spread of the disease. Perhaps the metastatic potential of the tumour did not allow enough time for palpable local changes of progression to occur after the tumour had escaped from hormonal control.

Most researchers agree that the prognosis for this type of oral cancer is grave with average time of survival after diagnosis being less than 10 months (11,12). At the time of the jaw secondary, our patient's prostate cancer had undoubtedly become hormone refractory. Treatment of hormone refractory prostate cancer has been largely unsuccessful in prolonging survival although some recent studies have shown some promise with the use of taxanes (13). Despite our patient's unfavourable prognosis, a hemi-mandibulectomy was deemed appropriate because of local symptoms in order to improve his quality of life.

In conclusion, metastatic disease to the jaws although rare, must always be considered in the differential diagnoses of common oral symptoms such as pain, swelling and paraesthesia, especially in the elderly. Operative intervention may be necessary in some patients in order to improve their quality of life.

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