Unusual bone metastasis to the rib and the tibia of a follicular variant of papillary thyroid carcinoma

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Abstract

Usually differentiated thyroid cancer is a slow growing tumor with low metastatic potential. We present the case of female patient of 26-years-old who underwent thyroidectomy, followed by 3.7 GBq of 131 I. The post-therapeutic whole-body scan showed intense uptake in the left part of posterior thorax and a faint radioactivity in the upper right tibia. A Chest CT-scan and a localized knee MRI confirm that they are bone metastasis in the middle portion of the 8th right rib and in the upper tibial metaphysis.

KEY words: thyroid papillary carcinoma, bone metastasis

Background

The incidence of distant metastasis is lower in case of papillary carcinoma (3.5–3.8% of cases) [1]. The most common site of distant metastases is the lung, followed by the bone [2].

Case report

This 26-year-old patient had no significant medical history. She had undergone a total thyroidectomy without regional lymph node dissection. Histological examination revealed a multifocal follicular variant of papillary carcinoma, well-differentiated. The TNM classification was pT1bmNxMx.

Four weeks later she received, with thyroid hormone withdrawal, 3.7 GBq of 131 I as a treatment; no symptoms ensued. At this time, the serum thyroglobulin level was 273 ng/mL, TSH was 32.8 µIU/ml and antithyroglobulin antibody level was less than 20 IU/mL.

The post-therapeutic whole-body scan (Figure 1) showed intense uptake in the left part of posterior thorax and a faint radioactivity in the upper right tibia. A whole-body bone scanning was performed and matched with whole body iodine scan (Figure 2). The intense uptake was localized exactly inside of a photopenic focus on the middle portion of the 8th right rib. Chest CT-scan (Figure 3) revealed an osteolytic lesion in this focus. A localized knee MRI (Figures 4 and 5) was done showing a T1 low signal intensity with bright T2 signal in the upper tibial metaphysis.

The patient underwent a resection of the middle portion of the 8th right rib. Pathological examination (Figure 6) confirm that it was a metastasis of thyroid carcinoma.

Figure 1. A post-3.7 GBq of 131 I whole-body scan showing 2 uptake in the left part of posterior thorax and in the upper right tibia
Case report

Discussion

Only about 20% of patients with DTC show a metastatic evolution [3]. The bone metastasis represent only 9% of patients [3]. In 50–80% of cases, there are multiple bone metastases [4].

According to different studies, bone metastases are more common in patients with follicular carcinomas (15.2–33.7%) than in those with papillary carcinomas (0.6–6.9%) [5]. Distant bone metastases are rare in patients with differentiated thyroid malignancy with the sternum, ribs, and spine being the most frequent sites of osseous metastases [6]. In our case, the patient present an uncommon association of rib and tibial metastasis.

Figure 2. A matching of a wholebody bone scanning and a whole body iodine scan showing that the intense uptake was localized exactly inside of a photopenic focus on the the middle portion of the 8th right rib

Figure 3. CT scan revealed an osteolytic lesion in the the middle portion of the 8th right rib

Figure 4. A knee MRI showing a bright T2 signal in the upper tibial metaphysic

Figure 5. A knee MRI showing a T1 low signal intensity in the upper tibial metaphysic

Figure 6. Histological examination confirm that it was a metastasis of thyroid carcinoma
References


