

## Pubic bone metastasis as first manifestation of lung cancer

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**Background.** Pubic bone metastasis as the initial manifestation of lung cancer is very rare, and it may simulate parasymphyseal insufficiency fracture of the pubic bone, which is observed in postmenopausal women and elderly people.

**Case report.** A 65-year-old woman developed pain in the right flank, which extended to the anterior aspect of the thigh. A pelvic X-ray showed osteolytic lesion in the right pubic ramus. Chest radiograph revealed a nodular mass in the right middle lobe of the lung. Transbronchial biopsy of the mass led to the diagnosis of lung adenocarcinoma. The patient was given radiotherapy of osteolytic lesion in her right pubic ramus and the pain was controlled with a combination of morphine sulfate.

**Conclusions.** When unusual bone metastasis is found in the absence of a primary tumor, investigation must include chest radiographs.

*Key words:* pubic bone; bone neoplasms - secondary; lung neoplasms; adenocarcinoma

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### Introduction

Lung cancer is a severe disease often diagnosed a late stage when surgical resection is no longer possible because of local advancement or distant metastasis.<sup>1</sup> Bone metastases from lung cancer may occur early in the clinical course and are usually discovered with severe pain.<sup>2-4</sup>

The spine and ribs are often the earliest sites of bone metastases, whereas the skull, femur, humerus, and scapula are involved later.<sup>5</sup> Pubic bone metastasis as the initial manifestation of lung cancer is very rare. We report a case of particular interest because of unusual bone metastatic site and the relatively slow progression of the neoplasm.

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### Case report

A 65-year-old woman was referred to her orthopedist with pain in the right flank, which extended to the anterior aspect of the thigh for three months. A pelvic radiograph showed an osteolytic lesion in her right pubic



**Figure 1.** Pelvic radiograph showed an osteolytic lesion in the right pubic ramus.

ramus (Figure 1). Because the pain was not controlled with usual analgesic drugs and extended to the thigh, she was referred to the orthopedic division in our hospital. On admission, plain chest radiograph revealed a nodular mass in the right lung (Figure 2), therefore she was consulted to Division of Respiratory Medicine. She had no complaints other than the pain in the right flank and thigh. Chest CT scan showed a 6 cm nodule in right middle lobe with right hilar lymph node swelling. Bone scan showed hot uptake in pubic bone (Figure 3). Transbronchial biopsy of the right middle lobe led to the diagnosis of lung adenocarcinoma. A brain magnetic resonance imaging showed a 2.0 cm



**Figure 2.** Chest plain radiograph on admission revealed a nodular mass in the right middle lobe.



**Figure 3.** Bone scan showed hot uptake in pubic bone.

metastatic lesion in the right temporal lobe for which an osmotherapy and stereotactic radiosurgery were performed. The patient was given radiotherapy for osteolytic lesion in her right pubic ramus and the pain was controlled with a combination of morphine sulfate. The patient was discharged, however, she returned to our hospital because of pathological fracture of the right femur. To control the pain, total hip replacement under general anesthesia was performed. Thereafter she was discharged again. Three months later, right massive pleural effusion was developed and she was admitted to our hospital. Eleven months since the diagnosis of bone metastasis, the patient died of respiratory failure.

### Discussion

Patients may first receive medical attention as the result of skeletal metastasis from an unknown primary tumor. For such individuals, imaging studies may help to identify the primary lesion.<sup>6,7</sup> Some primary tumors tend to result in metastases that are purely lytic in nature, whereas others tend to be associated with varying degrees of sclerosis.<sup>8</sup> Pubic bone metastasis may simulate parasymphyseal insufficiency fracture of the pubic bone, which is observed in postmenopausal women and elderly people.<sup>9-11</sup> The parasymphyseal insufficiency fracture is a commonly regarded form of stress fracture in patients with osteoporosis. Pathologically, lysis and callus formation produce a destructive malignant appearing lesion.<sup>9</sup> In our patient, at the time of initial diagnosis the pubic lesion was recognized on radiography as an insufficiency fracture of the symphysis pubis or a primary bone tumor because of its unusual localization of bone metastasis. Metastatic site other than pubic bone was not found at the time of initial diagnosis.

Among lung cancers, adenocarcinomas are

more heterogeneous in progression than other cell types of lung cancer.<sup>12</sup> Therefore, some cases of lung adenocarcinoma grow very rapidly, and others are slowly progressive.<sup>12</sup>

Our patient had relatively slow progression despite of the first sign of distant metastatic lesion. In patients with advanced lung cancer, the major goal of treatment is recovery of the performance status of the patient and the relief of pain. In a certain percent of cases, however, intensive systemic chemotherapy would be indicated as an adjuvant to local therapy such as radiotherapy and/or surgical procedures. Although the efficacy or duration was limited, radiotherapy at metastatic bone sites and analgesics improved quality of life in our patient.

When unusual bone metastases are found in the absence of a primary tumor, investigation must include chest radiographs. Chest CT scan occasionally may be helpful in diagnosing lung cancer, which is not obvious on plain chest radiograph. Therefore, chest CT scan and bronchoscopy would be undertaken when there is a clinical indication.

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