Metastatic Tongue Carcinoma Presenting as Knee Arthritis

Hirotaka Koizumi¹, Hisaya Nakajima¹, Kuniaki Shimizu², and Mamoru Tadokoro¹

(Received for Publication: July 23, 2004)

Abstract

We present an unusual case of knee monoarthritis caused by metastatic tongue carcinoma. A 74-year-old male underwent a partial glossectomy for squamous cell carcinoma and six months later, he presented with a painful swollen left knee. Computed tomography showed a destructive change to the juxtaarticular bones. The diagnosis of “metastatic carcinomatous arthritis” was established by the histological demonstration of squamous cell carcinoma in the synovium and bones. The patient died of pneumonia 6 weeks following the knee biopsy. Arthritis secondary to metastasis is a poor prognostic finding, and a strong clinical suspicion is important to make the diagnosis.

Key Words
tongue carcinoma, metastatic carcinomatous arthritis

Introduction

Metastatic carcinomatous invasion of the joints is very rare¹,² and the resulting arthropathy, designated “metastatic carcinomatous arthritis” (MCA), can mimic rheumatoid arthritis, infectious arthritis or gout.³ We here report a case of a patient who presented with knee monoarthritis due to tongue carcinoma metastasis.

Case Report

A 74-year-old male underwent a partial glossectomy and neck dissection for squamous cell carcinoma (T2 N0 M0: stage II). Six months later, he underwent additional surgery for locally recurrent cancer and nodal metastasis in the neck, followed by chemo- and radiotherapy. One week after the second operation, he presented with a painful swollen left knee. Plain radiographs and computed tomography revealed a destructive change to the distal femur, proximal tibia, and patella (Fig. 1). Arthroscopy showed synovial proliferation and bone defects in the medial femoral condyle and patella. A biopsy of the synovium and bone was then performed, showing diffuse infiltration of squamous cell carcinoma (Fig. 2). The synovium also suffered from lymphocytic infiltration, stromal fibrosis, and vascular proliferation. The synovial superficial cells were widely replaced by the metastatic carcinoma. Subsequent whole body scintigram showed no additional bone metastasis (Fig. 1e). Chemo- or radiotherapy was not performed on the knee joint metastasis because of poor general conditions of the patient. The patient died of pneumonia 6 weeks and 13 months following the knee biopsy and initial surgery, respectively. An autopsy was not performed.

Discussion

Tumor involvement in synovial or juxtaarticular tissues has been well documented for leukemias and lymphomas, but metastatic invasion of these areas by carcinoma is uncommon. To our knowledge, only 30 cases of MCA have so far been described (including this case study)²-⁴ and in most cases it was monoarticular with only a few examples

¹ Department of Diagnostic Pathology, 2 Department of Orthopedic Surgery, St. Marianna University School of Medicine, 2-16-1 Sugao, Miyamae-ku, Kawasaki 216-8511, Japan
of polyarticular onset. Arthritis was the first manifestation of these cancers in 12 of the patients. The knee was the most commonly involved joint, followed by the shoulder. The primary tumor was most often in the lung, gastrointestinal tract, and only 4 cases of tongue carcinoma have been shown to cause MCA.

Adenocarcinoma was the most common histological type in these cases, followed by squamous cell carcinoma. A diagnosis of malignancy is made by cytologic examination and/or synovial biopsy and in 12 of these cases this diagnosis was established solely by joint fluid cytology. As demonstrated by this case study, MCA usually carries a poor prognosis, with the mean survival time being less than 5 months.

The mechanism of synovial invasion remains unclear and direct hematogenous dissemination to the synovium appears to be extremely rare. Concomitant hematogenous dissemination to the synovium and juxtaarticular bone has been reported by some authors but it appears more likely that metastasis to juxtaarticular bone occurs first, with synovial involvement occurring as a secondary event. The present case, which shows metastasis both in the synovium and bone, is compatible with the latter two hypotheses.

In conclusion, the onset of monoarthritis in a patient with carcinoma should be indicative of a synovial metastasis. Cytologic studies of the synovial fluid and/or synovial biopsy yields critically important information regarding the presence of a metastatic lesion in such cases.

Acknowledgement

Dedicated to the memory of the late Professor Eio Atari.

---

Table 1. Summary of MCA Cases Secondary to Tongue Cancer

<table>
<thead>
<tr>
<th></th>
<th>Case 1 (ref. 5)</th>
<th>Case 2 (ref. 6)</th>
<th>Case 3 (ref. 7)</th>
<th>Present case</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age, sex</strong></td>
<td>55, male</td>
<td>36, male</td>
<td>67, female</td>
<td>74, male</td>
</tr>
<tr>
<td><strong>Tongue cancer</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical diagnosis</td>
<td>No*</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Tumor size (cm)</td>
<td>2.0 X 2.0*</td>
<td>-</td>
<td>-</td>
<td>2.2 X 1.5</td>
</tr>
<tr>
<td>Treatment</td>
<td>No</td>
<td>-</td>
<td>OP, RT</td>
<td>OP, CT, RT</td>
</tr>
<tr>
<td><strong>MCA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint</td>
<td>Sternoclavicular</td>
<td>Knee</td>
<td>Sternoclavicular</td>
<td>Knee</td>
</tr>
<tr>
<td>Histology</td>
<td>SCC</td>
<td>SCC</td>
<td>SCC</td>
<td>SCC</td>
</tr>
<tr>
<td>Diagnostic mean</td>
<td>Cytology</td>
<td>Cytology</td>
<td>OP sample</td>
<td>Biopsy</td>
</tr>
<tr>
<td>Treatment</td>
<td>RT</td>
<td>-</td>
<td>OP</td>
<td>No</td>
</tr>
<tr>
<td>Prognosis</td>
<td>Dead</td>
<td>-</td>
<td>Dead</td>
<td>Dead</td>
</tr>
<tr>
<td>Survival (months)**</td>
<td>2</td>
<td>-</td>
<td>5</td>
<td>1.5</td>
</tr>
<tr>
<td>Autopsy</td>
<td>Yes*</td>
<td>-</td>
<td>-</td>
<td>No</td>
</tr>
</tbody>
</table>

MCA: metastatic carcinomatous arthritis, OP: operation, CT: chemotherapy, RT: radiotherapy, SCC: squamous cell carcinoma. Clinical examinations failed to identify the primary site of MCA (i.e., occult cancer), and autopsy revealed tongue carcinoma. ** Survival time after MCA was diagnosed.
References


Fig. 2. Metastatic squamous cell carcinoma in the synovium and bone. The diffusely invaded carcinoma formed mass (a, X 20; b, X 100), replaced superficial cells (c, X 150), and induced lymphocytic infiltration and vascular proliferation in the synovium (b, c). The cancer invasion was also seen in bone marrow (d, X 200; asterisk indicates lamellar bone). Hematoxylin & eosin.
膝関節炎として発症した転移性舌癌の一例

小泉 宏隆1 中島 久弥2 清水 邦明3 田所 衛1

抄 録

転移性舌癌により膝関節炎を発症した極めて稀な症例を経験した。症例は74歳男性。舌原発扁平上皮癌に対し舌癌部分切除術を施行された。6ヶ月後、疼痛と腫脹を伴う左膝関節炎が発生し、CTにより傍関節骨の破壊性変化が確認された。関節鏡下に行った滑膜・骨生検にて扁平上皮癌の浸潤が認められ「転移性癌性関節炎」と診断されたが、6週後に患者は肺炎で死亡した。転移性関節炎は一般に予後不良な微候で、非癌性関節炎との鑑別が重要と考えられた。