Chondrosarcoma with a late local relapse

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Abstract
A 38-year-old woman underwent intralesional surgery (curettage) of low-grade chondrosarcoma of the ischium. Fifteen years later an intermediate grade chondrosarcoma developed in the same region. The patient underwent wide resection of the tumor. Now 5 years after the second surgical intervention, there has been no sign of recurrence or metastasis.

Résumé
Une femme de 38 ans a subi la chirurgie intralésionale (curetage) d'un chondrosarcome de l'ischion. Quinze années plus tard un chondrosarcome du grade intermédiaire ont développé dans la même région. Le malade a subi résection étendue de la tumeur. Maintenant 5 années après la seconde intervention chirurgicale, il n'y a eu aucun signe de retour ou métastase
Introduction
There are varying degrees of malignancy between low and high-grade chondrosarcoma. In high-grade chondrosarcomas, adequate (wide or radical) surgical margins are essential to achieve local control because this tumor usually does not respond to chemotherapy [7,9]. Low or intermediate grade chondrosarcoma is also resistant to chemo- or radiotherapy, however, the metastasis rate is low [9-11]. Although cryotherapy or cementation after intralesional treatment has been reported to provide a high local control rate in low-grade chondrosarcoma [4,8], this method remains controversial among orthopaedic surgeons. The optimal surgical margin for local control of low-grade chondrosarcoma remains unclear. Recently, we treated a case of chondrosarcoma in which local relapse developed 15 years after initial surgery with inadequate surgical margin.

Case-Report
A 38-year-old woman with one-year history of left buttock pain consulted a physician. Plain radiograph showed abnormal findings in the left ischium and she was referred to our hospital. At the initial visit, she could walk normally and the range of motion (ROM) of the left hip joint was not restricted. There was no tenderness, redness, or swelling in the left ischial region. There were no abnormal neurologic findings. On plain radiograph of the left pelvis, there was a radiolucent shadow without a clear borderline between the lesion and surrounding bone (Figure 1) On bone scan, the tumor showed abnormal high-uptake in the ischium. Pulmonary metastasis was not noted on plain radiogram of the chest. The findings of laboratory tests were normal. Based on these findings, the tumor was diagnosed as highly suggestive of benign tumor and the patient underwent intralesional procedure by curettage of the lesion [2]. The histologic findings revealed a low-grade chondrosarcoma with abundant atypical chondrocytes (Figure 2) One year after surgery, there were no abnormalities in local or systemic findings. After this the patient neglected periodic follow-up despite our recommendations. Fifteen years after surgery, the patient noticed a mass in the left proximal femur and the buttock. She consulted a physician and was referred again. On physical findings, 6.5cm x 15 cm elastic tumor was palpated in the left inguinal, the left buttock, and a medial aspect of the proximal thigh. ROM of the left hip was normal except for restriction of flexion. On plain radiograph of the pelvis, a large mass with calcification was noted around the left ischium (Figure 3) On computed tomography (CT), a large tumor was noted in the ischial region (Figure 4) On T1-weighted magnetic resonance (MR) imagings, the tumor showed low signal intensity. On T2-weighted MR imagings, it was a high signal tumor (Figure 5) The tumor was enhanced by intravenous administration of Gadolinium-diethylenetriaminepentaacetic acid. In planning of surgery, tumor invasion of the femoral head was suspected (Figure 3) , so wide excision of the tumor including the left femoral head was planned [2]. After resection of the tumor, the hip joint was reconstructed using a constrained type of prosthesis (Figure 6) The histologic findings revealed an intermediate grade chondrosarcoma with more increased cellularity (Figure 7) than that observed at the initial surgery. Sixteen months after surgery, the patient walked with single crutch. She has slight weakness of the muscle power around the hip and a mild sensory change in the left thigh. Five years after the second operation there is no evidence of local relapse or metastasis.
Discussion
In general, patients with chondrosarcoma who had had a resection with wide margins had a longer duration of survival than did those who had had a marginal or an intralesional resection [7]. However, low-grade chondrosarcoma may show a local relapse during the late postoperative follow-up period. In the report by Evans et al [3], local relapse developed approximately 9 years after surgery in low-grade chondrosarcoma. There are other reports [9] that at 156 and 168 months, a low-grade chondrosarcoma and a chondrosarcoma of an unknown grade developed local relapses, respectively. From these reports, it is generally known that close observation for more than 10 years is mandatory after surgery of chondrosarcoma. The local relapse rate after surgery of chondrosarcoma with inadequate (intralesional or marginal) margin is high [7,9]. Approximately 25% of the grade I chondrosarcoma developed local relapse after intralesional or marginal surgery [6]. Patients with a low-grade chondrosarcoma with a local recurrence after inadequate surgery have decreased rates of survival [5]. There is another report that 71% of low-grade chondrosarcoma developed local relapses after intralesional surgery, however, few of them had metastasis [9]. Local relapses do not always result in metastasis and death. Lee et al reported that local recurrence was not found to have a significant effect on the rates of metastasis and death in the group of patients who had a low-grade chondrosarcoma [7]. In patients with low-grade chondrosarcoma, determining the appropriate surgical margin is a difficult problem. This patient was active for 15 years after the initial surgery and was satisfied with the functional results. If we had tried radical surgery with an adequate margin in the initial surgery, the functional result would be rather impaired. There are reports of good local control after adjuvant local treatment for chondrosarcoma [1, 6]. After cryosurgery, none of 7 patients with low-grade chondrosarcoma developed local relapse [6]. One of 6 low-grade chondrosarcomas developed local relapse after curettage and cementation [1]. These adjuvant methods seem to be effective for local control after inadequate surgery for low-grade chondrosarcoma. If tumor excision with an adequate margin is possible, we should try surgical excision of the low-grade chondrosarcoma of the pelvis with adequate margin. If the surgical field is contaminated, we should try adjuvant procedure to decrease the local relapse rate. After such procedures, good prognosis of patients with low-grade chondrosarcoma can be expected. A very long-term follow-up is mandatory to evaluate the treatment results of patients with a low-grade chondrosarcoma.
Figure 1: Plain radiograph before the initial operation
Figure 2: Histologic findings of the resected specimen

Figure 3: Plain radiograph after local relapse
Figure 4: Computed tomography of the relapsed tumor

Figure 5: T2-weighted magnetic resonance (MR) imagings of the relapsed tumor
Figure 6: Plain radiograph after the second surgery
Figure 7: Histologic findings of the relapsed tumor
References


