



## When Knee Pain Isn't Just Arthritis

Daniel Murphy\*

Department of Family and Community Medicine, Texas Tech University Health Science Center El Paso, USA

### Abstract

Acute onset and worsening of knee pain may be related to various pathology. Such findings in a young to middle aged male should raise suspicion for a more conspicuous disease other than osteoarthritis. Obtaining a thorough history and physical will provide valuable insight into the potential etiology of such acute knee pain. Benign vs. malignant conditions could be the source of such complaints. It is important that a thorough evaluation, including imaging, be completed to rule out malignant and/or traumatic injuries. Patients with a history of malignancy should raise significant concern and lead to further evaluation. Bone malignancies such as chondrosarcoma are rare, but aggressive malignancies. Knee pain should never be attributed to osteoarthritis in a middle aged man with a history of malignancy and rapidly progressive complaints.

### Introduction

A 42 year old Caucasian male with sudden and progressive right knee pain in the absence of trauma or osteoarthritis requesting evaluation and pain control. Ambulation has been restricted to the use of a wheelchair due to the severity of pain.

### Case Presentation

A 42 year old Caucasian male presenting to clinic with his girlfriend who complained of right knee pain. Patient has a history of chondrosarcoma which was treated with a right proximal femur resection and placement of a right hip prosthesis. Patient acknowledges that the knee pain was not severe initially, but has noticed progressive worsening. Over the counter medications such as Tylenol and anti-inflammatory have not been effective to manage his symptoms. Initially patient felt he may have injured a muscle in the leg, or tore a ligament in the knee. Patient was self-restricted to the use of a wheelchair due to exacerbated pain with ambulation. He was requesting Tramadol since Tylenol was not effective. Based on his history of chondrosarcoma, X-rays were ordered of the right femur and knee. Findings were consistent with reoccurrence of the chondrosarcoma at the right femoral shaft and later confirmed by biopsy.

After completion of an MRI and bone scan, it was determined that the Chondrosarcoma was limited to the femur (Figure 1-3). The orthopedic surgeon completed a full resection of the femur and knee with a total femur and knee replacement. He is currently undergoing pain control and physical therapy which is working well.

### Discussion

Chondrosarcoma are a heterogeneous group of tumors that arise from chondrocytes

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#### \*Correspondence:

Daniel Murphy, Department of Family and Community Medicine, Texas Tech University Health Science Center El Paso, 9849 Kenworthy, El Paso, Texas, 79924, USA,  
E-mail: [daniel.murphy@ttuhsc.edu](mailto:daniel.murphy@ttuhsc.edu)

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Figure 1: Chondrosarcoma developing around prosthesis.



**Figure 2:** Total femoral prosthesis following removal of chondrosarcoma.



**Figure 3:** Total knee prosthesis following removal of chondrosarcoma.

leading to malignancy involving the cartilage. This group consists of conventional, dedifferentiated, clear cell, and mesenchymal chondrosarcoma. Approximately 85% of all the chondrosarcoma are primary and central. Chondrosarcoma may develop at any age but are most common in older patients. Site of metastases most typically involves the lung [1].

Patients often present with localized pain, decreased range of motion, and overlying tenderness. The presenting symptoms often

mimic a musculoskeletal injury; therefore a high degree of suspicion must be present in the absence of a specific known injury. Soft tissue swelling and night time pain may develop as the malignancy progresses.

Primary central chondrosarcoma are the third most common primary bone malignant tumor. They may arise in any bone derived from endochondral ossification, but most commonly involve the pelvis, ribs, scapula, hip, and shoulder girdle. Low grade tumors appear as lytic erosion with intra-tumoral mineralization, endosteal scalloping, and cortex thickening. High grade tumors demonstrate cortical destruction with soft tissue extension [1].

Grade 1 tumors have a survival rate of 83% vs. 53% for grades 2 and 3. Point mutations involving the Isocitrate Dehydrogenase gene allows for gain of function mutations causing cartilage-forming tumors. This point mutation plays a variable role in the formation of various chondrosarcoma.

Plain radiographs are the preferred initial imaging modality when bone pathology is suspected. If a bone malignancy is of concern, magnetic resonance imaging may be used to stage the tumor and determine if there is involvement of the surrounding tissue. Most high-grade chondrosarcoma can easily be biopsied by fine needle aspiration due to cortical destruction and soft tissue extension [2].

Chondrosarcoma has been found to be resistant to chemotherapy as a result of limited blood supply to the malignant cartilage cells. As a result, this makes it very difficult for the chemotherapeutic agents to reach the malignant tissue. Grade 1 chondrosarcoma involving the long bone are treated with curettage and local adjuvant, whereas grade 2 and 3 are treated with wide surgical resection which has been found to be the optimal treatment for primary and metastatic chondrosarcoma [2].

## References

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