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### Orthoplastic treatment of a giant-cell tumor invading the femoral condyles and the surrounded tissues – Case presentation

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**Abstract:** We present you the case of a 34 years old male patient that was first diagnosed in our emergency department with a fracture of the distal femur and important soft-tissue changes visible on the X-ray examination. After further examinations we discovered an aggressive giant-cell tumor vascularized by three major arterial pedicles starting directly from the femoral artery. The patient felt the local deformation a few years earlier but had never been for a medical consult. The onset of his problems was the fracture and the important changes of the soft-tissue he observed with this occasion, including the changes on the major vessels, muscles and nerves.

**Material and Methods:** First we immobilized the fracture with a cast and set up the initial biopsy for a histopathology examination. We also did an MRI examination, an arteriography and a scintigraphy test as well. All the results highlighted an aggressive giant-cell tumor looking like an aneurysmal cyst that invaded the both femoral condyles and extended on the anterior part of the knee and thigh. Even if this kind of tumor is generally classified as benign, the fast growing rhythm and the aggressive soft-tissue invasion demonstrate a malign potential of the tumor.

After an interdisciplinary approach of the patient and a meticulous preoperative planning we decided to make an extensive total resection of the tumor followed by a complex reconstruction surgery for the bone. The skeletal instability was first resolved with a condylar LCP plate and the bone defect was measured and filled with PMMA cement in order to create a biomembrane. After two months we've done the final surgery of the patient removing the cement and using a vascularized fibular graft that was fixed in good alignment with the femur.

**Results:** The patient started partial weight-bearing motion 3 months after the last surgery when the radiological aspect showed thicken of the fibular bone graft. A very stable fixation of the vascularized graft allowed the bone to heal even if the surrounded soft-tissue was almost completely destroyed by the tumor and removed during the excision.

**Discussions:** After we diagnosed the tumor the options for the surgical type of treatment were: the middle thigh amputation, the tumoral prosthesis or the oncological resection with soft tissue and bone reconstruction.

**Conclusions:** The follow up of this case demonstrated that using an interdisciplinary approach of the patient with the Plastic Surgery team we manage to remove the tumor within oncologic limits and achieved bone healing with good stability of the distal femur.

This way the patient could walk again and after 1-year follow-up we didn't see no signs of tumor recurrence.

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