fluoroscopic guide in the context of the lesion, the coblation of pathological tissue using radiofrequency and subsequent injection of cement (PMMA).

Results Immediate post operative has shown a marked improvement in pain that persists at short-term follow-up (average 6 months). No fractures in the treatment site were observed and major complications were not reported.

Conclusions The coblation and cementoplasty of the secondary lesions of the pelvis has proved to be a valuable palliative treatment approach. This treatment allows a main reduction of pain with improved mechanical characteristics of the affected skeletal segment. The analgesic effect appears to be explained by the thermal shock that follows coblation after injection of PMMA, which polymerizes at a temperature of 70°. The cement is inserted in the trabecular bone of the pelvis and causes a significant increase of mechanical resistance to load, contributing to pain relief and improving the quality of remaining life.

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Multiple myeloma: pathogenesis of the osteolysis and critical aspects in the orthopaedic management

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Multiple myeloma (MM) is a malignant tumor formed by the proliferation of B-lymphocytes and plasma cells synthesizing monoclonal immunoglobulins. It is mainly characterized by osteolytic lesions, pathological fractures, hypercalcemia, progressive renal failure, anemia and immunodeficiency that can show different clinical patterns. The skeletal complications, represented by pathological fractures, bone pain and spinal cord compression, derive from the osteolysis caused by uncoupling of the activity of bone cells, due to osteoclastic hyperactivation and osteoblastic inhibition. Such activity, mainly regulated by the RANK/RANKL/OPG system, is altered by an excessive production of RANKL (Receptor Activator of Nuclear factor κ β Ligand) with contemporaneous inactivation of OPG (Osteoprotegerin). Furthermore the action of other cytokines is also possible, such as Macrophage Inflammatory Protein-1α (MIP-1α), Wnt System, Vascular Endothelial Growth Factor (VEGF) and Transforming Growth Factor-β (TGF-β), that can act either altering the RANKL/OPG pathway or directly influencing bone cells [1]. In fact, the main localization of myelomatous cells at the level of the lytic lesions emphasizes the importance of their direct interaction with the stroma cells, and the significance of the factors released, both locally and systemically. Although osteolytic lesions can affect any skeletal site, they are mainly localized at the level of the axial skeleton (spine, skull, ribs and pelvis) and of the proximal regions of long bones (femur and humerus). X-rays of the whole skeleton and further radiological investigations such as CT, MRI and PET, are essential instruments that allow estimation of the skeletal involvement both at diagnosis and during treatment [2]. The treatment includes chemotherapy, a new generation of non chemoterapeutic drugs, autologous or allogenic stem cells transplant, bisphosphonates, radiotherapy and surgery [3]. The last one includes not only fracture treatment (i.e. vertebro-kyphoplasty or intramedullary nailing), but also the prevention of impending fractures and the treatment of the possible neurological compressions. Beside the new therapies that aim to restore the molecular status as before the neoplasm, the support of orthopaedic treatment is essential to eliminate pain and to treat and prevent pathologic fractures, in order to improve the quality of life of the patient.

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Multidisciplinar treatment and clinical outcome of 27 patients affected by chordoma. The Regina Elena National Cancer Institute "Sarcoma Group" experience

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Objective Adequate surgery still remains the mainstay of treatment of chordoma; however, some interesting clinical data of response with molecularly targeted therapies were reported.

Material and methods We described the clinical outcome of a series of chordoma patients followed at Regina Elena National Cancer Institute of Rome by a dedicated multidisciplinary team including orthopaedic surgeons, oncologists, radiotherapists, pathologist and radiologists (Sarcoma Group).

Results Twenty-seven patients with sacral (n = 12), spine (n = 14), and skull base (n = 1) chordoma were evaluated from 2004 to 2010. Sex: 19 male, 8 female. Median age at diagnosis: 65 years (range: 40–77). Six patients (22%) had a primary disease, 16 (59%) a recurrent disease, and 5 (19%) a metastatic spreading. Surgery was the primary treatment in 24 out of 27 (89%) patients. Surgical margins were wide in 6 (25%) and intralesional in 17 (75%) patients; in 3 out of 4 in-house treated patients, wide margins were obtained. Seventeen out of 18 (94%) patients with intralesional margins underwent local progression at a median time of 20 months with a 2-year local progression-free survival of 48%. The 5-year metastasis-free survival rate was 80%. Twenty-one patients with locally advanced/metastatic disease expressing platelet-derived growth factor receptor (PDGFR) beta were treated with imatinib mesylate in the context of a multicenter phase II trial and of a drug expanded access protocol. A RECIST stabilization of disease was the best response observed in 19 out of 21 evaluable cases. Pain relief with reduction in analgesics use was obtained in 6 out of 11 (54%) symptomatic