Expert's comment concerning Grand Rounds case entitled “Total spondylectomy for solitary bone plasmacytoma of the lumbar spine in a young woman. A case report and review of the literature” (by N. von der Hoeh, S.K. Tschoeke, J. Gulow, A. Voelker, U. Siebolts and C.-E. Heyde)

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The authors rightly point out in their review of the literature that the current treatment of a solitary plasmacytoma of bone (SBP) is local radiotherapy [1]. Guidelines recommend that SBP be treated with radical radiotherapy, encompassing the tumour volume shown on MRI with a margin of at least 2 cm and with a dose of 40 Gy in 20 fractions [2]. As detailed in the above case report and review of the literature, SBPs are highly radiosensitive and the aim of radical radiotherapy is cure. Knobel et al. [3] reported excellent local disease control with radiotherapy alone in their review of 206 patients with SBP. Local relapse occurred in 21 (14 %) out of 148 patients who received radiotherapy alone compared with four (80 %) out of five patients who were treated with surgery ± chemotherapy. The argument for doing a total spondylectomy in

this case, with a solitary malignant but unknown (despite multiple biopsies) vertebral body tumour was understandable. However, the imaging was highly suggestive of an SBP. In addition, if biopsies had diagnosed a SBP prior to starting treatment then the decision to do a total spondylectomy would have been incorrect in our opinion. Even after the first stage procedure in this case, where all of the posterior elements had been removed and the diagnosis established by intra-operative biopsies, we would have argued against the second stage anterior spondylectomy being required. If the authors were concerned about progressive fracture of the L3 vertebral body after the first stage posterior procedure then they could have augmented the vertebral body with cement to strengthen and stiffen it [4]. The use of a balloon to create a void and high-viscosity cement should be considered for augmentation of a VCF in SBP and multiple myeloma (MM) to decrease the risk of cement leakage.

The authors stated that the spine was unstable and therefore surgery was needed. We would argue that spinal stability was not an issue in this case and that prior to any surgical treatment the vertebral body had thickened its cortices to accommodate for the osteolytic defects caused by the tumour. The posterior wall of the vertebral body had been breached but it was largely intact and again thickened. The pedicles and posterior elements were not involved and there was no anterior translation of L2 on L3 or L3 on L4. There was no mass in the spinal canal (consistent with the patient being neurologically intact) and therefore spinal decompression was not required. If this case had been treated conservatively with radiotherapy alone, then I believe the L3 vertebral body would not have collapsed further. If the thickening of the cortices of the vertebral body had not been enough to withstand normal physiological loads then the L3 vertebral body would have

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Fig. 1 Large lytic lesions and posterior wall breaches in the vertebral bodies with fusion of the anterior cortices conferring stability

probably fused to that of L2. We have over 40 cases showing this anterior fusion in our series of myeloma patients. An example is shown in Fig. 1.

The authors supported their treatment rationale in this patient by stating that the aim of surgery and radiotherapy

(as opposed to radiotherapy alone) was to decrease the risk of local recurrence and avoid conversion to MM. This is not supported by the literature. The majority of patients with apparent SBP go on to develop MM. Up to 75 % of patients at diagnosis may have a monoclonal protein in blood or urine, this is usually <10 g/l. We have treated two patients (over 5 years ago) diagnosed with SBP by performing a total spondylectomy and radiotherapy in the way that was described in this paper. One developed recurrence at the site of the original surgery and developed adjacent segment disease and progression to MM requiring cement augmentation for the adjacent level vertebral compression fractures (VCF) (Fig. 2). The other had no recurrence at the site of the spondylectomy but developed MM and required cement augmentation for distant VCF's.

In summary, the treatment of SBP and MM involving the spine is medical, whether that involves radiotherapy, chemotherapy or both modalities. The role of surgery in these diseases should be to relieve pain and prevent deformity caused by VCF's (cement augmentation), decompress the spinal cord or cauda equina if there is a neurological deficit (if no deficit then radiotherapy/chemotherapy can be used to successfully treat an epidural tumour mass and subsequent cement augmentation can alleviate any residual pain from the VCF) and stabilise the spine if it is deemed unstable. Metalwork should be avoided if possible because these patients are rendered pancytopenic during their chemotherapy treatment and if they undergo stem cell transplantation. This immunocompromised state puts them at risk of secondary metalwork infection/loosening and systemic sepsis. In addition, the

Fig. 2 SBP treated with total spondylectomy showing adjacent segment fracture and subsequent cement augmentation for pain relief and prevention of progressive deformity

propensity of adjacent segment disease (in a SBP that progresses to MM or in a de novo MM case) means that metalwork loosening and proximal/distal junctional kyphosis is a real risk in cases that are instrumented.

Conflict of interest None.

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