Case Report

SOFT TISSUE PLASMACYTOMA: SURGERY, RADIOTHERAPY OR IMMUNOCHEMOTHERAPY?

Abstract

Soft tissue plasmacytoma is a rare tumour. It belongs to the extramedullary plasmacytomas. Diagnosis is based on biopsy, and treatment is mainly based on radiotherapy. Immunochemotherapy followed by autotransplantation, surgery arealso a therapeutic arm.

Wepresent a case of plasmacytoma of fracture site of femur in a young male.

Introduction

Soft-tissue plasmacytomais a rare monoclonal proliferation of plasma cells in soft tissues or organs[1].The relationshipbetween multiple myeloma, solitaryboneplasmacytoma and soft-tissue plasmacytomais not wellunderstood. For someauthors, these 3 entitiesrepresentdifferent aspects of the samedisease[2]. The incidence of soft-tissue plasmacytoma at diagnosis varies from 1.7% to 4.5% [3];with the skin being the mostfrequent site, followed by the liver, pleura and central nervous(CNS) [system 4]. We report an observation of soft-tissue plasmacytoma and attempt to identify the main features of thisentitythrough a review of the literature.

Case presentation :

39-year-old patient with a history of a leftfemur fracture operatedon 2013, treatedwith a screw-plate and orthopaediccement.Presented a painfulswelling of the leftthigh, more marked at the fracture site.Clinicalexaminationrevealed : PS (statural performance) of 1, with a hard, firm, painfulswelling 16cm long on the leftthigh.

MRI of the leftthighrevealed a tumoral mass in the middle third of the leftthighmeasuring 11*8cm by 18cm (Figure 1).
Soft tissue biopsywas consistent with a plasmacytomawith Kappa monotypy; CD138+, MUM1 +, CD45-, ERG-, CD20-, CD3-, CD99-(Figure 2).

The pet scan showed a hypermetabolic tissue process in the lowerhalf of the leftthighwith an SUV max of 9.05, and no suspicioushypermetabolism over the rest of the volume explored (Figure 3).

Bone radiologywas normal, withnormocyticnormochromicanaemia at 8g/dl, normal renalfunction tests and serum calcium levels. Serumproteinelectrophoresisshowed a narrow monoclonal band migratinginto the gamma zone at 30g/l, with Kappa IgG immunoglobulin. Light chainassayshowed a Kappa chain at 117mg/l, and a Lambda chain at 34.7mg/l;with a K/L ratio of 3.38. Myelogram, osteomedullarybiopsy and 24-hour proteinuriawere normal. Multidisciplinary management of our patient involvedtraumatologists, hematologists, radiologists, nuclearmedicinephysicians and radiation therapists. The decision of the RCP was to receiveradiotherapy sessions only on the tumor mass.

Discussion

Multiple myelomais the mostcommon type of malignant plasma cellproliferation.myelomacells can formtumors, calledplasmacytomas.Plasmacytomas can sometimes arise aftersurgery, fromlaparotomyscars or catheter insertions[5], as in our case.
It is possible that the inflammatory process of a woundmayfacilitate the migration of myelomacellsinto the skin, creating a reservoir for proliferation[6].
The appearance of a soft-tissue plasmacytomaalong a surgicalscar 10 yearsprior to diagnosiswasreported in a patient with multiple myeloma [7].
Positive diagnosisisessentiallybased on immunohistochemicalstudies.
MRI isuseful in assessing the nature of the plasmacytoma (bony or extraosseous) and itsextent.
Positron emissiontomographyis the mostusefulwhole-body technique when soft tissue involvementissuspected[8], with a sensitivity of 96% and specificity of 87%.Surgical

resection of plasmacytomaisgenerally not necessary, as thesemalignanttumours are radiosensitive. For the most part, surgical excision isreservedfor cases wherethereis a loss of anatomical structural integrity or spinal cord compression [9]. If surgeryisperformed, itisusuallycarried out beforeradiotherapy and as a complement to definitiveradiotherapy.

Treatment of plasmacytomaisthereforeessentiallybased on radiotherapy. A response rate of 80-90% can beachievedwithradiotherapyalone[10].

Immunochemotherapy has also been proposed to improvedisease control and prevent progression to multiple myelomafollowingradiotherapy, although data are largelyinsufficient[11].

However, VMP or VRD regimenscombinedwithDaratumumabappear to be the treatment of choice for patients who are not eligible for autotransplantation[12].

Intensive treatmentwith VTD or VRD/cisplatin, doxorubicin, cyclophosphamide and etoposide (PACE) isoffered to patients eligible for autotransplantation.

The International Myeloma Group (IMWG) uniformresponsecriteriarequiredisappearance of soft-tissue masses for completeremission (CR) and ≥50% reduction for partial response (PR) [13].

The presence of soft-tissue plasmacytomaisassociatedwithsignificantly shorter progression-free survival and overallsurvival, although the incidence isonly 6% and 10% respectively[14].

Conclusion :

Soft-tissue plasmacytomais a rare tumor;its management ismultidisciplinary. Radiotherapyremains the mainstay of treatment. The risk of local and distant relapse, and of transformation into multiple myeloma, warrants regular monitoring.

References

[1] Weinstock M, Aljawai Y, Morgan EA, Laubach J, Gannon M, Roccaro AM, al. Incidence and clinicalfeatures of extramedullary multiple myeloma in patients whounderwent stem cell transplantation. Br J Haematol. 2015;169:85
[2] Wiltshaw E. The naturalhistory of extramedullaryplasmacytoma and its relation to solitarymyeloma of bone and myelomatosis. Medicine. 1976;55(3):217–238
[3] Blade J, Fernandez de Larrea C, et al. Soft-tissue plasmacytomas in multiple myeloma:J Clin Oncol. 2011;29:3805–1
[4] Buthani M, Foureau DM, Atrash S, Voorhees PM, Usmani SZ. Extramedullary multiple myeloma. Leukemia. 2020;34:1–20.
[5] Reseblum MD, Bredeson CN, Chang CC, Rizzo JD. Subcutaneousplasmacytomaswithtropism to sites of previous trauma in a multiple myeloma patient treatedwith an autologousbonemarrow transplant. Am JHematol. 2003;72:2
[6] Fernandez de Larrea C, Rosinol L, et al. Extensive soft-tissue involvement by plasmablasticmyelomaarisingfromdisplacedhumeral fractures.
[7] Rosinol L, al. Extramedullarymyeloma spread triggered by surgicalprocedures: an emergingentity? Acta Haematol. 2014;132:36–8
[8]Zamagni E, Cavo M. The role of imaging techniques in the management of multiple myeloma. Br J Haematol. 2012;159:499–513
[9]Caers J, Paiva B, Zamagni E, Leleu X, Bladé J, et al. Diagnosis, treatment, and responseassessment in solitaryplasmacytoma: updatedrecommendationsfrom a European Expert Panel. J HematolOncol. 2018;11(1):10
[10] Mendenhall WM, Mendenhall CM, Mendenhall NP. Solitaryplasmacytoma of bone and soft tissues. Am J Otolaryngol. 2003;24:395–9
[11] Holland J, Trenkner DA, Wasserman TH, Fineberg B. Plasmacytoma. Treatmentresults and conversion to myeloma. Cancer. 1992;69:1513–7
[12]Durie BG, Hoering A, Abidi MH, Rajkumar SV, Epstein J, Kahanic SP, al. Bortezomibwithlenalidomide and dexamethasone versus lenalidomide and dexamethasonealone in patients withnewlydiagnosedmyelomawithoutintent for immediateautologous stem-cell transplant(SWOG SO777): arandomised, open--label, phase 3 trial. Lancet.2017;389:519–27

[13]Durie BG, HarousseauJL,et al. International uniformresponsecriteria for multiple myeloma. Leukemia. 2006;20:1467–7
[14]Pasmantier MW, Azar HA. Extraskeletal spread in multiple plasma cellmyeloma:areview of 57 autopsied cases. Cancer. 1969;23:167–74

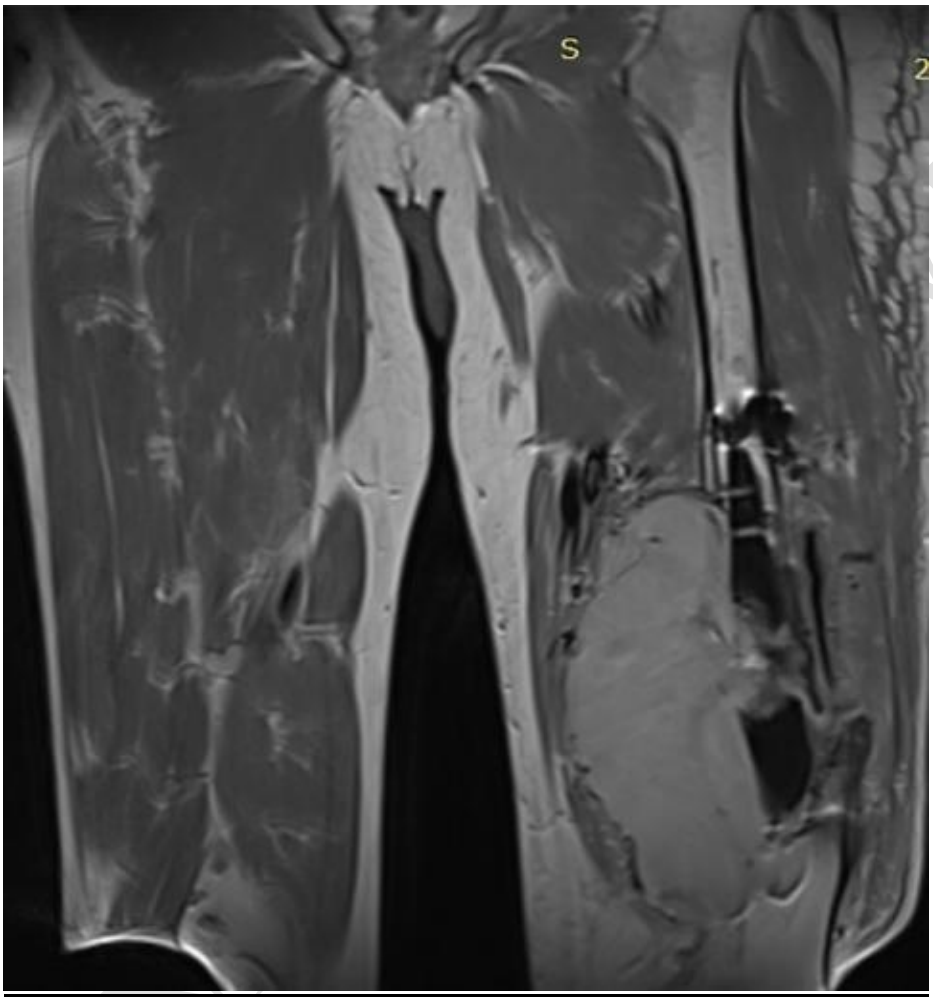

Figure 1: T2 sagittal section of a tumor mass in the middle third of the leftthigh.

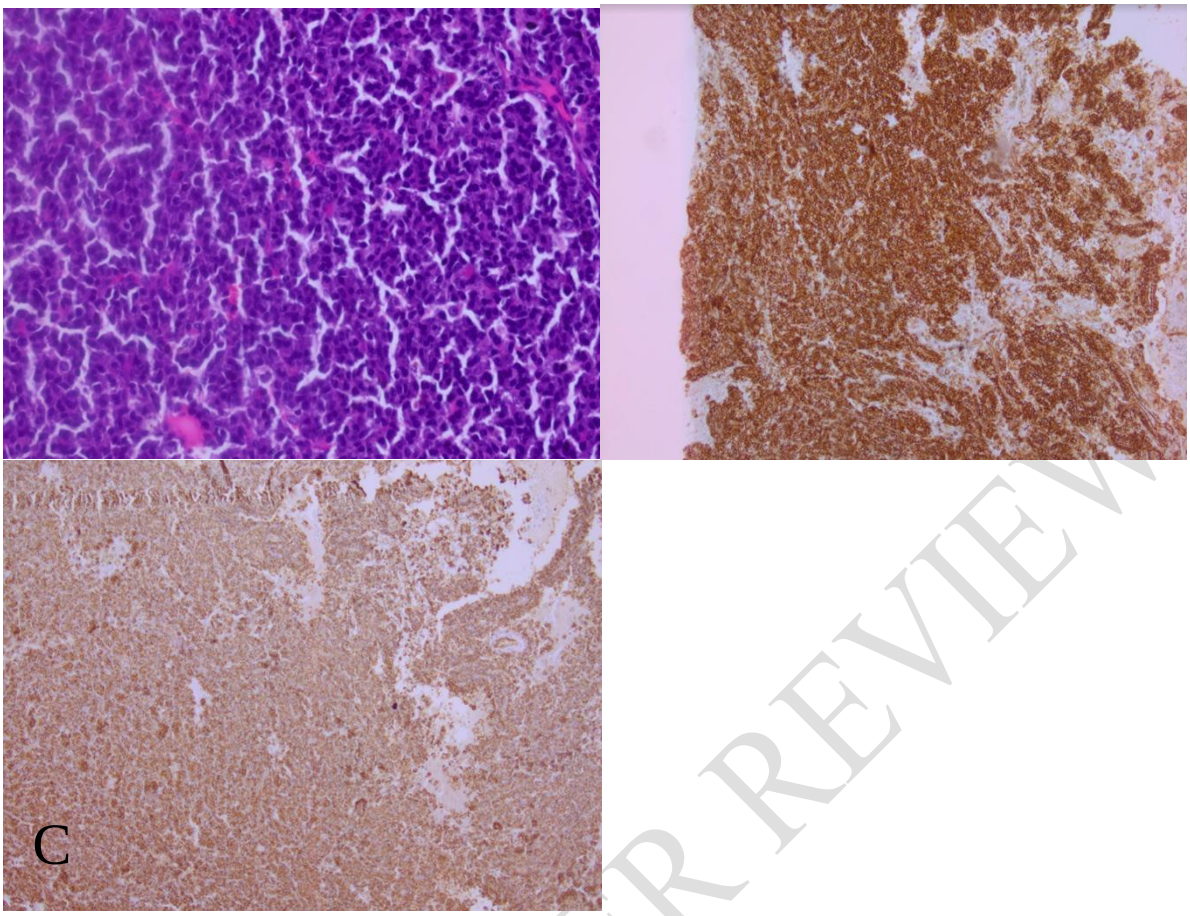

Figure 2: A: Histologicalappearance of plasmacytoma (HES: 10×40): welldifferentiated, monomorphic, plasma cell-like cells.B: Immunohistochemicalappearance (IHC: 10×4): strong, intense, diffuse membrane expression of CD138.C: Immunohistochemicalappearance (IHC: 10× 4): Plasma cellsalso express monotypic IgG Kappa.

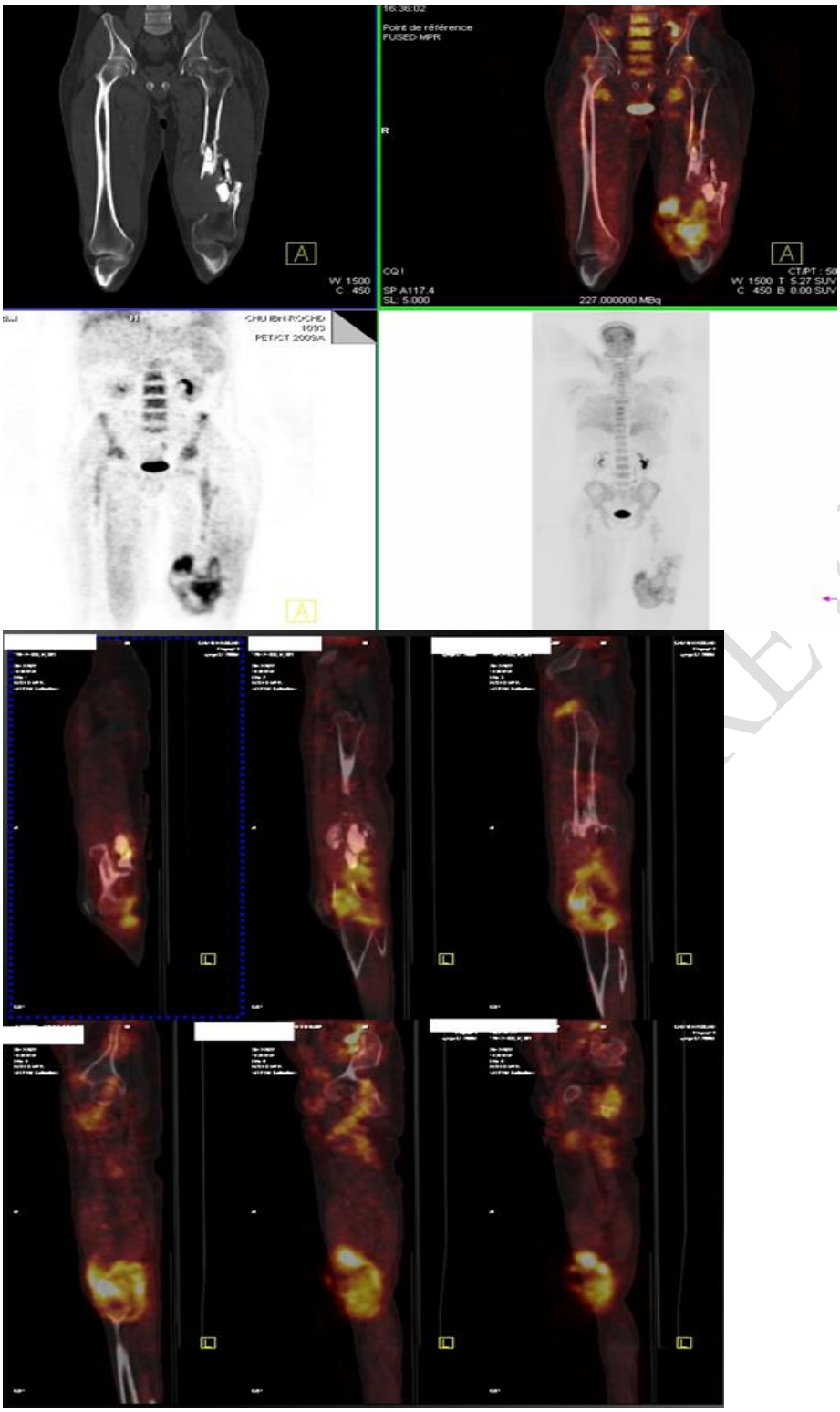

Figure 3: Positron emissiontomography: tissue process of the lowerhalf of the leftthigh.