Plasmacytoma of the cervical spine

Differential diagnosis

Plasmacytoma of the cervical spine is likely to be misdiagnosed as cervical degenerative disease because of the similar clinical features and the sometimes negative findings of plain radiography.

If CT or MRI is conducted in the early period of the disease, the lesions can be detected early.

It is difficult to distinguish plasmacytoma from other osteolytic tumors from radiological results alone. To distinguish it from other diseases, a percutaneous biopsy of the spine is needed, if possible under the guidance of fluoroscopy or CT in consideration of this procedure's risks. A final diagnosis still depends mainly on pathological examination, especially IHC and immunofixation electrophoresis. Monoclonality and/or an aberrant plasma cell phenotype should be demonstrated. Useful markers include CD19, CD56, CD27, CD117, and cyclinD1 [1) 2)].

Treatment

Although radiotherapy is the treatment of choice for plasmacytoma of the spine, the evidence of its efficacy has been mainly based on small retrospective studies

Some patients suffer from tumor invasion into the spinal canal, causing extremity dysfunction or paraplegia as a result of spinal cord or nerve root compression. In these conditions, most spine surgeons believe that radiotherapy cannot be a substitute for surgery.

A life-threatening instability may occur early and require surgical treatment.

Surgery

Although surgery (partial or complete resection and radiotherapy versus radiotherapy alone) did not influence the 10-year probability of local control, it aims at relieving spinal cord and nerve root compression through excision of the tumor and reconstruction of spinal stability.

Intraoperative modification of use and stabilization of the Axon system (Synthes) for occipito-cervical fusion in a patient treated oncologically due to plasmocytoma is presented. Pathological fracture, range of the process and damage of anterior cervical fusion necessitated the use of occipito-cervical stabilization. Different anatomical conditions within the occipital bone in the form of its thinning was observed. Fixing with screws was impossible due to the bone structure. In consequence, modification of stabilization with an ad hoc elaborated technique (burr holes in the occipital bone and stabilization with titanium wire) was implemented [3)].

Outcome

Patients, especially those with plasmacytoma of the spine, will probably eventually develop multiple myeloma (MM) in the future, with a median delay of 2 to 4 years. There is no effective method to prevent plasmacytoma from progressing to MM, and there is no consensus in the literature about

these adverse prognostic features [4].

Case series

Four patients (one female, three males), mean age 58 years. There was one lesion of C1 and three of C2. Two patients with neck pain received vertebroplasty (C1 and C2, respectively) and RT as primary management. Both developed secondary instability of the CCJ after 12 and 5 months, respectively, and required occipitocervical stabilization (OCS). The other two patients underwent OCS and required no additional surgery and no signs of instability at follow-up. Forty-nine cases of OCS were published previously. Spinal stability was achieved significantly more frequently by OCS than by less invasive or medical interventional treatment options (p=.001; two-sided Fisher exact test).

Based on personal experience, we favor OCS in this location [5].

Case reports

2015

A patient with plasmacytoma of the axis vertebra who underwent decompressive surgery with reconstruction via a posterior approach. The patient was referred because of quadriparesis with severe neck pain. Magnetic resonance imaging revealed a relatively demarcated, highly enhanced mass lesion in a destructed axis, with spinal cord compression. Computed tomography revealed a 5.6×4.3 cm adrenal mass at the left retroperitoneal space.

Park et al suspected the axis lesion to be a metastatic paraganglioma from the adrenal mass. The patient underwent total excision of the tumor under an operative microscope with occipitocervical fixation. Histopathologically, the tumor was shown to be a plasmacytoma. Following the operation, the patient recovered without significant complications. This was a rare case of plasmacytoma in the axis, mimicking metastatic paraganglioma [6].

A 14-year-old boy, without neurological involvement, presented with cervical pain and a palpable posterior neck mass. Cervical spine radiographs showed an osteolytic lesion at C1 compressing the cervical spinal canal and instability of the craniocervical junction. After a complete study, the patient was diagnosed with solitary plasmocytoma. A sequential treatment was instituted that consisted of radiotherapy after craniocervical junction stabilization with an halo-jacket, followed by occipitocervical stabilization with instrumented arthrodesis that was accompanied by resection of the residual C1 tumor and, finally, with consolidation of the oncological treatment with further radiotherapy.

The treatment of choice for a cervical solitary plasmocytoma consists of a combination of chemotherapy, corticosteroids, radiotherapy, and immunotherapy, but the main neurosurgical problem is the craniocervical instability as occurred in other tumor of the cervical column [7].

2012

Its presentation with a unilateral vocal fold palsy has been previously described [8].

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