

SURGICAL TREATMENT IN METASTATIC TUMORS OF SPINE

Mehmet ALTINMAKAS * Can SOLAKOĞLU * V. KIRDEMİR * M. YAMAN *

ABSTRACT:

Most of the spinal tumors are metastatic tumors. These require close follow-up and exact timing for surgery since they could cause destruction of vertebral body, thus creating instability.

We operated 15 cases with metastatic tumors of spine in Orthopaedics and Traumatology Department of Gülhane Military Medical Academy between 1988 and 1994.

Average age of the patients was 45 (range : 20-63). 4 of the cases were female and 11 were male. Average follow-up period was 3 years.

The surgical intervention to this kind of patients should not be much aggressive. Stabilization and decompression without fusion is satisfactory especially in the patients with multiple metastasis. We found it noticeable that the early loosening of transpedicular screws applied close to target vertebral body could be seen at the patients under radiation therapy. It is more safe to keep the fixation long enough in this particular situation.

The histopathological diagnosis of primary origin of the metastatic foci were as follows in our cases: Breast cancer, hypernephroma, plasmocytoma, renal cell ca., lung cancer and adeno ca. We determined the primary pathology of 3 cases with surgery. Oncological treatment must be applied together with the surgical treatment in the metastatic cases.

The aim of the surgical treatment is; to prevent medullary compromise, to cease pain with stabilization, to augment the effect of chemotherapy and radioterapy by way of elimination of tumor and to enable an increased life standart to the patient.

Key Words: *Surgical treatment, metastatic tumor, spine*

Spine is a common place of metastatic tumors. The tumoral metastasis of organs like breast, prostat gland, kidney, thyroid gland and lung are commonly observed in spine and usually the metastatic tumors of spine are relatively much more than its primary tumors.

Besides the treatment of primary tumoral origin, it requires spinal decompression and stabilization since it causes vertebral destruction and spinal instability. Usually the focus below level of T2 is treated by anterior approach and posterior instrumentation is advised above the level of T2. Laminectomy is indicated in case of posterior compression of spinal canal.

The aim of treatment in metastatic tumors of spine is to sustain a comfortable survey without pain and to prevent the development of disabling neurologic deficit.

Since the body of lomber vertebrae is larger than others, the common attraction of lomber site with metastatic tumors can be explained with this positive correlation.

MATERIAL AND METHOD

We applied surgical treatment to 15 patients who admitted with metastatic tumors of spine in the Orthopaedics and Traumatology Department of Gülhane Military Medical Academy between 1988 and 1994. The average age of the patients was 45 (Range : 20 - 63). 4 of the patients were female, and other 11 were male. The average follow-up is 3 years now.

The pathological diagnosis of the patients were as follows: Breast ca, hypernephroma, plasmocytoma, renal cell ca, lung ca and adeno ca.

The patients were throughly evaluated preoperatively with radiological, scintigraphic and biochemical analysis. The treatment of choice and localization of tumor was defined after the CT and MRI of the patient. The foci were below the level of T2 in all of the cases. 8 cases treated with anterior approach, 4 of them treated with posterior approach and combined anterior + posterior intervention is applied in other 3 cases. While Frankel D progressed to E in 5 of the patients, 2 cases with Frankel C progressed to E in the postoperative period. 1 case sustained in Frankel B. Other 5 cases with Frankel E did not show any changes. 2 cases regressed to Frankel C from E in postoperative period because of relaps of tumor. 1 case with

* Orthopaedics and Traumatology Department Of Gülhane Military Medical Academy, 06100 Etilik Ankara - TÜRKİYE

breast ca metastasis died in postoperative 13th month. The common symptoms of the patients were uncontrollable dorsal pain and progressive neurologic deficit. Autogenous rib and iliac crest were used as autogenous grafts and besides that two heterografts and one allograft are used in cases treated with anterior approach. Anterior spinal instrumentation is used in one case. 7 patients were treated with posterior hook and screw systems. We never used bone cement in our cases. The patients were taken under a combined oncological treatment regiment with chemotherapy and radiation therapy in the postoperative period.

RESULTS AND DISCUSSION

Spinal localization rate is about 2.2 to 3 percent in metastatic tumors (Wood) and 60 percent of spinal metastasis are silent. The most common complaint is pain. Pain is due to many factors such as thinning of cortex because of local tumor expansion, stretching of periost with expanded tumor mass, pathological fracture and instability caused by these fractures, radicular pain with tumor mass etc...

Demolished pedicul shadow (winking owl sign) is observed in AP radiography in case of vertebral expansion. Pathological compression fracture is another sign due to erosion of bone. While there is no loss in vertebral height in tumoral processes, there is vertebral fusion together with degeneration of disc in pyogenic cases. AP/L radiography, scintigraphy, CT, myelography and MRI is mandatory in case of suspicion of tumor. These are helpful in determination of surgical technique and prognosis.

Surgical treatment of tumor cases localized in vertebrae is like a double-edged knife. Basic aim of the treatment is elimination of dorsal pain and prevention or decompression treatment is also important since radiation therapy and chemotherapy also go on at the same time.

We observed loosening in posterior transpedicular screws applied close to affected vertebrae in two of the cases. We do believe in the necessity of long instrumentation and find it more safe in cases who treated with radiation therapy preoperatively.

The surgical treatment of metastatic tumors of spine should not be much aggressive. Decompression without fusion and stabilization can be chosen with the clinical evaluation of probable life expectancy of

the patient. This period should be at least 4 to 6 months as given in the literature.

There were multiple metastasis in 4 of our cases. While there was a two level tumor in one of the case, there happened expansion to the neighbor two vertebrae after three months. It did not require additional surgery. Posterior decompression is ideal in one level cases together with posterior compression. Because anterior approach would demolish the already disturbed blood supply of the medulla. The aim of the surgical treatment is to obtain spinal stability thus allowing the patient to return his / her daily activities as soon as possible.

Generally the high degree of neurologic deficit together with older age is disproportional with the expected help of the surgical treatment to the patient. The primary focus can not be found in 12.5 percent of cases as given in the literature. Another usage of surgical treatment is that, it can be used to name the pathological diagnosis in cases with difficulty to diagnose. We used this method in 4 of our cases.

As a conclusion; the prevention of medullary compromise, elimination of pain with stabilization, causing positive effect to radiotherapy with edarication of tumoral focus and enabling a comfortable life during the limited time of patient are the main goals of surgical treatment in the metastatic tumors of spine.

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