



CLINICAL CASE, RESECTION OF BONE METASTASIS IN THE OLECRANON, AFTER EXCISION OF RENAL CARCINOMA OF PRIMARY ORIGIN

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SUMMARY

Introduction: Bone is a common site of metastasis, after cancer has spread to the bone, it can rarely be cured, however it can often be treated to stop its proliferation. Bone metastasis is much more common than primary bone cancers, particularly in adults.

Objective: to describe the present clinical case objectively and to make an analysis of the subject.

Methodology: an objective description of the clinical case and a review with analysis of a total of 17 articles, including review and original articles, as well as clinical cases, of which 12 bibliographies were used because the other articles were not relevant for this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: bone metastasis, bone tumor, oncologic surgery, renal carcinoma.

Results: renal cell carcinoma represents about 2-3% of malignant neoplasms in adult individuals. Most of the cases occur between 50-70 years of age. One third of the tumors metastasize (synchronous metastases) and another third manifest themselves in the future (metachronous metastases), even up to 20 years after nephrectomy. In order of manifestation, the most common findings in renal cell



carcinoma are: hematuria (59%), pain (41%), fever (7%), anemia (21%) and weight loss (33%). In order of involvement, renal cell carcinoma metastasizes to the lung (60%), bone (20%), liver (8%), adrenal glands and brain (5%), and other organs can also be affected.

Conclusions: Bone is a common site of metastasis, being called metastasis the capacity of a tumor cell to move from the primary tumor and adhere to tissues of a distant organ by hematogenous, lymphatic or contiguous route. After the cancer has spread to the bones, it can rarely be cured, although it can often be treated to stop its proliferation. Bone metastases are now much more common than primary bone cancers, particularly in adults. The clinical management of metastatic bone disease in renal cell carcinoma deserves more attention than it has been given so far. A multidisciplinary approach is required for the management of affected individuals with bone metastases, and each patient's case must be individualized, since not all affected individuals can undergo the same surgical procedure or treatment.

Key words: metastasis, cancer, bone, tumor, renal carcinoma.

INTRODUCTION

Bone is a common site of metastasis and generally shows a short-term prognosis in individuals with cancer. After cancer has spread to the bone, it can rarely be cured, however it can often be treated to stop its proliferation. Bone pain is the most common form of cancer pain, is usually poorly localized, is worse at night and is not necessarily relieved by sleep or bedtime. Most skeletal metastases are caused by breast and prostate cancer. Bone metastases are now much more common than primary bone cancers, particularly in adults. Diagnosis is based on signs, symptoms and complementary imaging. New classes of drugs as well as other interventional approaches give affected individuals a better quality of life and increase life expectancy. A multidisciplinary approach is required for the management of affected individuals with bone metastases. Bone metastases can be subdivided into osteolytic, osteoblastic or mixed, according to the primary mechanism of interference with normal bone remodeling. Hypercalcemia is the most frequent metabolic complication in these malignancies. Pathological fractures occur in 10-30% of all individuals with cancer, with the proximal parts of the long bones being the most common fracture site, the femur bone being the most involved with approximately 50%(1-3).

METHODOLOGY

An objective description of the clinical case and a review with analysis of a total of 17 articles, including review and original articles, as well as cases and clinical trials, of which 12 bibliographies were used because the information collected was not sufficiently important to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: bone metastasis, bone tumor, oncologic surgery, renal carcinoma.

The choice of bibliography exposes elements related to renal carcinoma, bone metastasis, oncologic surgery.

DEVELOPMENT

Clinical Case

This is a 73-year-old male patient who presented with moderate pain, without irradiation, in the right elbow approximately 1 year ago, where he evidenced a mass. The patient also reports pain between the ribs and hip of mild intensity, sporadic fever and weight loss. Patient denies trauma and denies allergies.

The affected individual comments that he sought medical understanding in multiple institutions with various diagnostic and therapeutic hypotheses, all with conservative approach with alternating results of remission and recurrence.

Figure 1. Ectoscopy of the right elbow, presence of a mass.



Source: The Authors.

Symptoms of pain persisted and the patient went for a new consultation. A new physical examination revealed a painful mass in the right elbow with decreased range of motion without neurovascular involvement, and a protrusion in the abdomen. The patient reports other non-specific symptoms such as headache, tiredness and early satiety. Pain control was performed and radiographic studies were performed showing findings compatible with an aggressive behavior of the lesion showing results suggestive of tumor, so he was sent to the orthopedic oncology service.

Figure 2. Anteroposterior radiograph of right elbow, with presence of lesion compatible with tumor.



Source: The Authors.



Figure 3. Lateral radiograph of right elbow, with presence of lesion compatible with tumor.



Source: The Authors.

Patient was referred to the oncological orthopedic oncology sub-specialist for suspected tumor lesion in the right elbow. Complementary examinations and oncological staging were

performed. Examinations with presence of blood in urine observed under the microscope, the red blood cell count showed polycythemia, perhaps due to high levels of erythropoietin.

In addition, the affected individual underwent a cintigraphy, computed tomography and magnetic resonance imaging for staging. The patient presented with a diagnosis of renal cancer with single bone metastasis in the right elbow.

In the first instance the patient underwent biopsies for confirmation, as it was an aggressive lesion, an excision of the renal mass and adjuvant treatment was performed.

Figura 4. Axial cutting. Left kidney presents increased volume at the expense of expansive lesion that covers the middle and upper third involving the renal sinus. Left kidney it presents heterogeneous contrast enhancement measuring 7.5 x 6 cm. In addition more than 4 cortical cystic lesions being the largest of 20 mm.



Source: The Authors.

Figura 5. Coronal section. Left kidney presents increased volume at the expense of an expansive lesion that covers the middle and upper third involving the renal sinus. It presents heterogeneous

contrast enhancement measuring 7.5 x 6 cm. In addition more than 4 cortical cystic lesions being the largest of 20 mm.



Source: The Authors.

In the second instance, a surgical resection with oncologic margins of the tumor tissue in the right elbow was programmed, in addition, due to the location of the lesion, a resection of the compartment with tumor involvement was planned, accompanied by an autologous radial transposition graft. The need for osteosynthesis with a blocked plate for radial humeral arthrodesis was assessed, with resection of the entire soft tissue compartment in addition to teno-muscular transposition for coverage of the oncological resection site and surgical neurolysis of adjacent noble neurological structures for prophylaxis of lesions, especially of the ulnar nerve.



Figura 6. Coronal section. MRI of the right elbow, showing mass and compartment involvement.



Source: The Authors.

Figura 7. Axial cutting. MRI of the right elbow, showing mass and compartment involvement.



Source: The Authors.

Figura 8. Sagittal section. MRI of the right elbow, showing mass and compartment involvement.



Source: The Authors.

It should be emphasized that the surgical procedure is of great size and complexity, due to the fact that the patient is a carrier of a

malignant bone tumor, so that if the intervention is postponed, the affected individual could have a worse prognosis.



Figure 9. Tumor mass of the right elbow after extirpation.



Source: The Authors.

Our patient did not approve the performance of locked plate osteosynthesis for radial humeral arthrodesis so he underwent bone tumor resection with margins, grafting, interposition arthroplasty, transposition of more than one tendon and neurolysis of the ulnar and anterior interosseous. Neurovascular deficits were not investigated at the time due to anesthetic block. The surgery was performed without interurrences, a drain was left which was removed after two days. The material was sent for anatomopathological study and the prognosis of complications such as infection, post-traumatic arthritis, pathological fracture, deep vein thrombosis, transient or permanent neurovascular deficit, among others, was strongly warned. In addition, the patient was oriented on postoperative care, such as keeping the injured region elevated, the use of a type of bandage, moving the fingers and joints, taking the medication properly, recommendations for the care of the healing, alarm signals for immediate return in case of fever, intense pain, exaggerated inflammation, paresthesia and pallor of the fingers, and a return consultation was also scheduled.

Figure 10. Image of the immediate postoperative period with the drainage system in evidence.



Source: The Authors.

The immediate and mediated postoperative outcome were satisfactory for the affected individual, the patient continued his treatment with a multidisciplinary approach.

DISCUSSION

Renal cell carcinoma accounts for about 2-3% of malignant neoplasms in adult individuals. Most of the cases occur between 50-70 years of age. One third of tumors metastasize (synchronous metastases) and another third manifest themselves in the future (metachronous metastases), even up to 20 years after nephrectomy. Some investigations show reports of up to 31,000 new cases per year, with a mortality of 2.3%, being more common in men with a 1.5:1 ratio. Bone radiology does not exclude the coexistence of metastasis. Other bibliographies recommend early diagnosis of bone metastases with scintigraphy as opposed to conventional radiology. The main signs and symptoms of the condition are pain, hematuria and palpable flank mass in approximately 9% of affected individuals. In order of manifestation, the most common findings in renal cell carcinoma are: hematuria in 59%, pain in 41%, fever in 7%, anemia in 21% and weight loss in 33%. Nowadays, about 40% of the cases are diagnosed by chance, by means of an abdominal ultrasound, and in approximately 30% of the cases metastasis is identified at the time of diagnosis. The great clinical diversity and evolution of the tumors, as well as the relative number of related paraneoplastic syndromes, sometimes lead to this tumor being called the "internist's tumor". In order of involvement, renal carcinoma metastasizes to the lung (60%), bone (20%), liver (8%), adrenal glands and brain (5%), and other organs can also be affected(4,5).

A metastasis is the ability of a tumor cell to spread from the primary tumor and adhere to tissues of a distant organ by hematogenous, lymphatic or contiguous routes. The main sources of bone metastases are: breast, prostate and lung cancer. These usually occur in individuals over 50 years of age, showing a predilection to metastasize to the axial skeleton(6).

Skeletal metastasis is common in advanced renal cancer, leading to debilitating skeletal complications including severe pain, increased fracture rates and spinal cord compression. Bone metastases arising from renal cancer are highly osteolytic and very destructive. Continued development of antiresorptive drugs is improving the clinical management of metastatic bone disease in various tumor types and significantly improving quality of life. Zoledronic acid bisphosphonate is now approved for use in advanced renal cell carcinoma, showing a greater benefit in terms of reduction of skeletal-related events compared to bone metastases originating from other tumor types. Several drugs directed at specific targets in the bone metastasis pathway have now been developed, such as denosumab, a fully human monoclonal antibody against nuclear factor kappa B receptor activator ligand. The incidence of renal cell carcinoma is increasing at approximately 2% per year and recent advances in targeted antiangiogenic therapy for advanced disease are expected to lead to longer survival times. In cases similar to this



one, interposition arthroplasty may be preferred as a life-saving alternative for young individuals(7,8).

The primary objective in surgical cases of bone metastases is to restore the function of the compromised region. Trying to give the following effects: the partial or total disappearance of pain by means of bone stabilization ensuring the best function that can be given, not interfering in the management of the primary cancer, showing immediate and lasting results due to the fact that these are individuals with limited life expectancy, preventing or reducing the anxiety and depression generated by pathological fractures in individuals who are already alerted by the diagnosis of a serious disease(9-11).

Modifications in the surgical treatment of bone metastases have been generated by a greater multidisciplinary approach to metastatic cancer, in addition to the thought that a specific type of surgery does not work for all affected individuals. So individual goals are generally set in the treatment of the compromised determining surgical procedures. Advances in radiation similar to adjuvant therapy and more targeted chemotherapies have developed less invasive surgical approaches, showing faster recoveries, in addition to lower surgical morbidity(12).

CONCLUSIONS

Bone is a common site of metastasis, being called metastasis, the ability of a tumor cell to spread from the primary tumor and adhere in tissues of a distant organ by hematogenous, lymphatic or contiguous route. After the cancer has spread to the bones, it can rarely be cured, although it can often be treated to stop its proliferation. Bone metastases are now much more common than primary bone cancers, particularly in adults. The clinical management of metastatic bone disease in renal cell carcinoma deserves more attention than it has been given so far. A multidisciplinary approach to the management of affected individuals with bone metastases is required, and each patient's case must be individualized because not all affected individuals can undergo the same surgical procedure or treatment.

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Conflict of Interest Statement

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