Costal right metastasis of prostate adenocarcinoma

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Summary
Prostate cancer is one of the most frequent cancers in man and it's incidence is growing constantly due to early diagnosis that is now being made by determining levels of PSA in the general health controls. The most common site of metastasis is bone, and these lesions are frequently symptomatic, causing pain, debility, and functional impairment. Skeletal metastases in men with prostate cancer are usually osteoblastic although increases in bone resorption have been consistently demonstrated. A 49 years old man with a recent diagnosis of prostate cancer was admitted to Emergency Department for right thoracic pain. The physical examination showed pain of mechanical characteristics corresponding to the 5th-7th ribs. The chest radiography showed absence of the 6th rib.

Key words: prostate cancer, bone metastases, lysis costal.
Introduction
The incidence of prostate cancer has increased in recent years due in part to early detection through the determination of the prostate specific antigen (PSA). Its most common histology is adenocarcinoma (ADC). A number of different factors have been implicated in its aetiology, notable among which is the role of hormones, especially androgenic hormones. A case is presented of a young male affected by ADC of the prostate who sought medical attention due to costal pain and who was diagnosed with tumourous lysis in a costal arch.

Clinical case
A 49 year-old male with history of cranioencephalic trauma, which was resolved leaving cognitive-behavioural after-effects, and prostate ADC. His first admission was due to persistent lumbosciatica developing over two months, combined with bilateral costal pain with neuropathic characteristics. The diagnosis at discharge was disseminated ADC of the prostate. The complementary examinations showed the existence of multiple bone metastases (M1), as well as the presence of a lump in the right posterior costal arch. The PSA was 13,000 U/l and the alkaline phosphatase (AP) 478 U/l. The bone gammagraphy showed evidence of pathological deposits in the cranium, dorsal vertebrae, right humerus, lesser trochanter, right femoral diaphysis and the left ischial spine, but with no deposits observed in the rib cages to suggest blastic lesions. The biopsy of the costal lump was positive for M1s for ADC of the prostate, which was confirmed with a biopsy of the posterior prostate. During admission the patient showed a disturbance in gait, for which reason a magnetic resonance (MR) scan was carried out of the dorsal spine which showed a medullar compression secondary to epidural M1 in vertebra DVII, with radiotherapy indicated (he received a total dose of 30 Grays). The patient was treated with 50 mg/day of bicalutamide, a quarterly subcutaneous injection of 10.8 mg of gosorelin and zoledronic acid (2 doses i.v. of 4 mg/month diluted in 50 cc of physiological serum) with a satisfactory outcome. Gait rehabilitation was initiated and discharge was 33 days after admission. 23 days following his discharge the patient attended casually due to the appearance of pain in the right hemithorax. The physical examination showed pain on palpation from the 5th to 7th rib. A blood analysis was carried out which showed calcium levels of 7.14 mg/dl, C-reactive protein of 3.4 mg/dl and AP of 1,297 UI/l. An X-ray of the right rib cage showed an absence of the posterior arch of the 6th rib (Figure 1). The patient was re-admitted to the Oncology Unit where the treatment continued. Now, after four years of follow up, he is in a hormone-resistant phase with the appearance of blastic polytopic bone M1s.

Discussion
The level of the presence of bone M1s in necropsy studies of patients who have died due to prostatic neoplasia is 90%. The growth of prostate cancer in the bone promotes bone turnover, which produces osteoblast M1s with underlying lytic lesions. The Wnt3 system has been implicated in the osteoblast activity, while the osteolytic activity may be due to an inhibition of Wnt3 activity and the participation of the OPG-RANKL system. The percentage of tumorous cells which express OPG and RANKL increases significantly in patients with bone M1s. A combination of both mechanisms could explain the lysis in the rib of this patient. Given the coexistence of the osteoblast and osteolytic mechanisms in the genesis of the M1s, we do not believe that the predominance of one of these mechanisms could have had an influence on the development of the disease in this patient. In terms of treatment, in recent years different drugs which act on bone metabolism have been evaluated for the treatment of neoplastic bone affectations. In the case of prostate cancer, the existence of lytic M1s has resulted in the evaluation of the bisphosphonates. Thus, the simultaneous administration of zoledronic acid combined with hormone treatment in patients with bone M1s at the time of diagnosis may delay the progression of the disease, a fact which may explain the long-term survival of the patient under discussion. However, this effect is not extendible to other bisphosphonates. Another drug which has been shown to be effective is denosumab which has turned out to be even more effective that zoledronic acid. Finally, it should be noted that the appearance of hormone-resistance could be the consequence of the development of the tumour into neuroendocrine...
prostate ADC, a more aggressive sub-type. In this case, the demonstration of an overexpression of the protein Aurora A kinase may be of use in indicating this possible transformation.

Bibliography