Metastasis of Ta low-grade bladder cancer into the lung and paraneoplastic syndrome without local invasion: A case report and literature review

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Bladder cancer is the most common malignancy of the urinary tract. Around 75% of bladder cancer are non-muscle invasive. Of these, roughly 70% present as Ta, 20% as T1, and 10% as Carcinoma in situ.1 Low-grade Ta tumours recur at a rate of 50%–70% remaining superficial, but approximately 5% of cases progress to muscle invasive stage.1 However it is extremely uncommon for low-grade Ta to metastasize without evidence of local invasion.

1. Case report

A 58 year-old man who is smoker since adolescence, was referred to our institution. He was diagnosed with bladder cancer. Thus, he was treated with TUR and a simple mitomycin-C instillation. Pathology result was transitional cell carcinoma Ta low grade. Until 2009, six relapses occurred, all of them was treated by the same way and they had the same pathology result. The patient was performed a URO-TC in 2012 without evidence of diseases. In addition, all urinary tract ecographies was free of disease too.

In February 2014, a lung nodule was founded in a routine chest x-ray. Computed tomography scan demonstrated a 15mm solitary solid lesion with speculated margins in the lateral segment of the middle lobe (Figs. 1–2). PET-TAC showed a high SUV nodule. After that, he was operated. The pathology result was two centimetres M1 lesion of transitional cell carcinoma localized in medium lobe (Fig. 3). Shortly after this diagnosis, he was treated with four cycles of platinum-based chemotherapy.

In October 2014, the patient related ptosis and diplopia with evening deterioration. No pathological evidence was related on TC scan. On the other hand, acetylcholine receptor antibodies were positive, so we was diagnosed with Myasthenia Gravis paraneoplastic syndrome diagnosis. Since 2014 until now, both bladder cancer and Myasthenia Gravis are controlled, without evidence of progression of the disease.

2. Discussion

Risk of metastasis in non-muscle invasive bladder cancer is very low. Thus, there are less than 30 cases reported in literature. The most frequent site of metastasis are lungs. In this way, there are 11 case of non-muscle invasive bladder cancer in the English literature.2–4 Another locations of metastasis described were, bones, adrenal glands, thyroid glands, corpus spongiosum of the penis, ovary and vagina.3,4

To understand how a non-muscle invasive bladder cancer can metastasize we refer to anatomy principles. Thus, because bladder mucosa lack vessels, Ta bladder cancer don’t have any potential for haematogenous or lymphatic metastasis. So, how is it possible?

Some of the hypothesis have been postulated are based on iatrogenic, like intravascular dissemination of tumour cells during TUR or degeneration of the basal membrane caused by intravesicular therapy.2

On the other hand, is well known that sometimes understated tumour mistakes are committed. Still, it is difficult to believe in this case, because nine transurethral resections was made and all of them had the same diagnosis.

In addition, the indolent nature of this type of cancer can allow for cure after metastasis treatment. In that way, some studies...
propose that metastatectomy might increase patient survival up to 5 years.2

Paraneoplastic syndromes are defined as a collection of symptoms and clinical signs develop in cancer patients and they occur in organs or systems non-related with the primary tumour. Additionally, paraneoplastic syndromes may be produced by biologically active substances like hormones, autoimmunity, immune suppression or any other immune disease occurred in neoplastic context or unexplained causes.5

About paraneoplastic syndromes in bladder cancer, they are very uncommon, being usually neurological paraneoplastic syndromes.5 Typically, Myasthenia Gravis appears when the neoplastic is advanced. This disease is characterized by muscle weakness, and it is most commonly worse later in the day or evening or after physical exercise. For this reason, the diagnosis is based in history and physical examination.

We can confirm this entity with some serology test like acetylcholine receptor antibodies. Another important test are electromyography (EMG), repetitive nerve stimulation test, endophonium test and ice test.

In our case, the patient related right ptosis and reduced visual acuity and they get worse at evening. Acetylcholine receptor antibodies test was positive. However, EMG and single fibre EMG Jittler showed normal results. Besides, CT and magnetic resonance were normal indeed.

Our patient was treated with pyridostigmine and prednisolone. Presently, bladder cancer as well as Myasthenia Gravis are controlled.

3. Conclusion

The case presented shows an uncommon entity. Despite the origin of these metastasis is not clear, is well known that are possible to occurred, being lung metastasis the most common.

On the other hand, in few cases of non-muscle invasive bladder cancer with metastasis reported, none of them associate paraneoplastic syndrome. Therefore, in this sense, it is a unique case.

Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.eucr.2017.11.018.

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