Rare presentation of metastatic Papillary Thyroid Carcinoma with cribiform type in pelvic bones.

Abstract.
The papillary thyroid carcinoma is the most common endocrinologic neoplasm. Only the 10% of all patients have metastasis, however as high as 50% of all will have metastasis at the moment of the diagnosis. Lung and bone being the primary organs affected, only 5% are in other areas of the body. The Gold Standard for the diagnosis is the high-resolution ultrasound of the thyroid complementing with fine needle puncture-aspiration assessment, which help us in the decision making.

Keywords: Cribriform, metastasis, muscle, carcinoma, papillary, thyroid.

Introduction.

Papillary thyroid carcinoma is the most frequent malignant tumor in thyroid neoplastic processes, representing 85-95% of all cases, with a higher incidence in women[1]; Worldwide, 230,000 cases were reported in women and 70,000 cases in men, this pathology has taken on clinical relevance since the incidence has tripled in the last 10 years[2]. The morular cribriform variant (MCV) is a low-incidence histological subtype, corresponding to 5% of all papillary carcinomas, associated with the Wnt gene mutation, closely related to subjects affected by familiar colonic adenomatous polyposis; the sporadic ones represent only 2% of this histological lineage[3]. 90% of patients comes to the doctor with localized cervical metastases and only 10% suffer distant metastases, which usually have a poor survival, since 70% are usually refractory to treatment with radioactive iodine[4].

In 50% of cases, distant metastases are found at the time of diagnosis[4]. The most frequent location is usually in the lung (50%), bone (25%), both (20%) and in other sites (5%)[4].

The gold standard for the diagnosis of this entity is high-resolution ultrasound and fine needle biopsy (FNB)[5]. Among the findings are microcalcifications known as psammoma bodies, the most specific characteristic of malignancy, with a positive predictive value of up to 95%[5]. The rest of the characteristics are evaluated using the scale proposed by Horvath et al. in 2009, known as TI-RADS (Thyroid Imaging Reporting and Data System) (Table 1), which has a sensitivity of 85% for the detection of malignant tumors[6].

Hipoecogenicity
Microcalcifications

Partially cystic nodule and lobulations of the solid component.
Irregular edges.
Invasion of the perinodular thyroid parenchyma
Configuration taller than wide.
Intranodal vascularization.

Table 1. TI-RADS6 malignancy criteria.

Computed axial tomography with contrast medium is the method of choice to identify locally or advanced disease, involving the cervical and thoracic lymph nodes, as well as distant metastases[7]. Another improved method used is positron emission tomography (PET) with F18-fluorodeoxyglucose (FDG), as it helps to better delineate areas of metastasis to solid organs and lymph nodes[7].

The definitive diagnosis is made through fine needle biopsy[7]. According to the WHO (2023), using the BETHESDA classification, papillary thyroid carcinoma is defined as a malignant epithelial tumor characterized by the transformation of follicular cells into papillary cells, with characteristic nuclei showing pleomorphism (ground glass appearance, irregular contours, and nuclear grooves); the cribriform pattern is characterized by the formation of nuclear tubules and branching[8].

Case presentation

A 62-year-old male patient, who came to the clinic due to disabling pain in the left sacroiliac region that extended to the entire pelvic limb, underwent a pelvic x-ray (Figure 1), visualizing a lesion with soft tissue radiopacity located in the leftgluteal region, without involvement or dependent of adjacent bone structures.

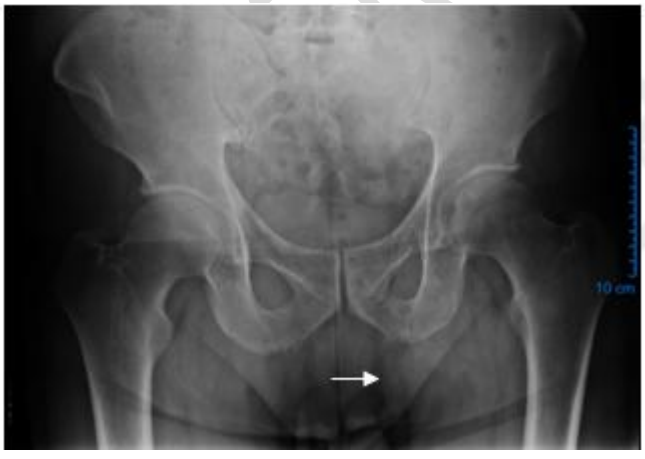


Figure 1 Anteroposterior X-ray of the pelvis, where a radiopaque image is visualized (→) compared to the rest of the soft tissues, ovoid, lobulated, located in the left gluteal region, which respects the cortical bone.

With this finding, it was considered a sarcoma type tumor of the gluteal region, it was decided to perform a tomography(Image 2) visualizing a lesion dependent of the muscle planes in the left gluteal region, which causes destruction of the femur cortex, as well as sacral vertebrae and ipsilateral iliac spines, extending towards the sacroiliac joint. Given this result, a Tru-cut biopsy was taken (Figure 2) where metastatic papillary carcinoma with cribriform pattern areas was reported.

Discussion

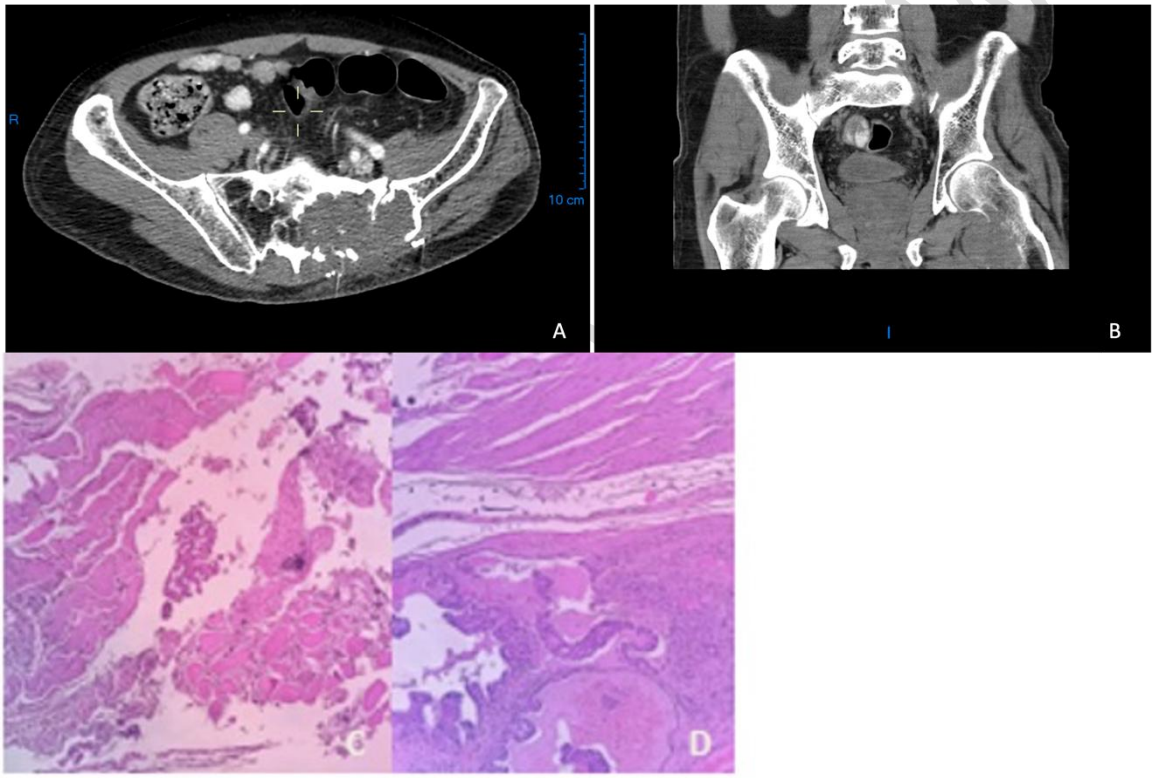
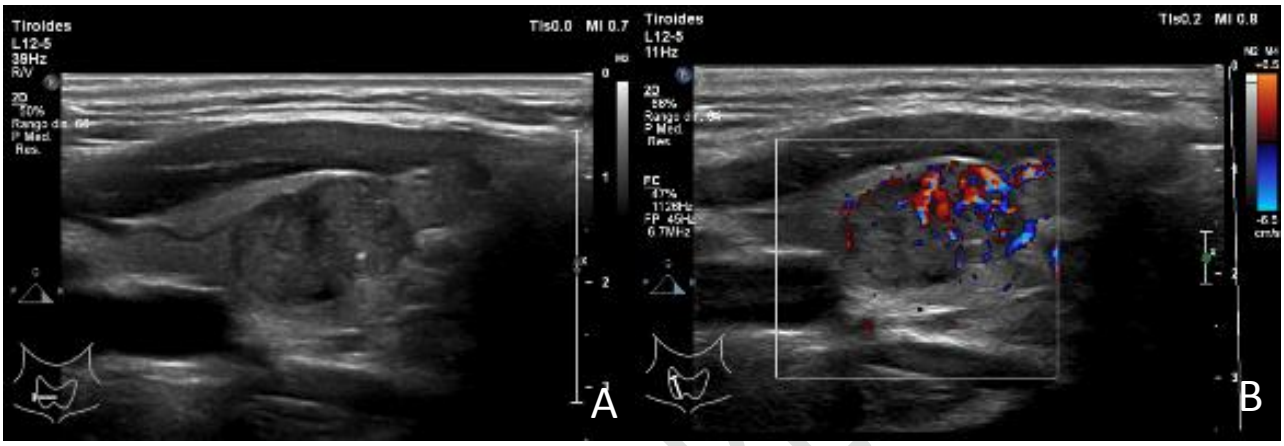


Figure 2A corresponds to a contrast-enhanced axial section tomography in the portal venous phase at the level of the pelvis where we can visualize a hypodense tumor, without enhancement, associated with lysis of the sacrum bone and left lower iliac spine. B corresponds to a tomography in coronal section in the portal venous phase at the level of the pelvis where we can see () hypodense, ovoid, circumscribed tumor, which causes lysis of the lesser trochanter and surgery neck of the left femur. C and D correspond to histological slides with hematoxylin and eosin staining, as well as parafilin with a diagnosis of metastatic papillary carcinoma characterized by a cribriform pattern with scant necrosis.



However, the tomography shows a nodular mass in both lobes of the thyroid gland, an ultrasound approach was decided (Figure 3) where a heterogeneous nodule was found,

Figure 3 A corresponds to B-mode ultrasound of the thyroid in sagittal section where a heterogeneous nodule of predominantly hypoechoic can be seen with thick calcifications inside, lobulated, circumscribed, taller than wide, projecting a posterior sonic shadow and B corresponds to showing significant central vascularity and peripheral to the application of color Doppler.

With the diagnosis of TIRADS 4 and with the measurements of the nodule, it was concluded that it was necessary to perform BAAF, resulting in papillary thyroid carcinoma (Image 4), with tall cell and oncocytic patterns (Hürthle cells).

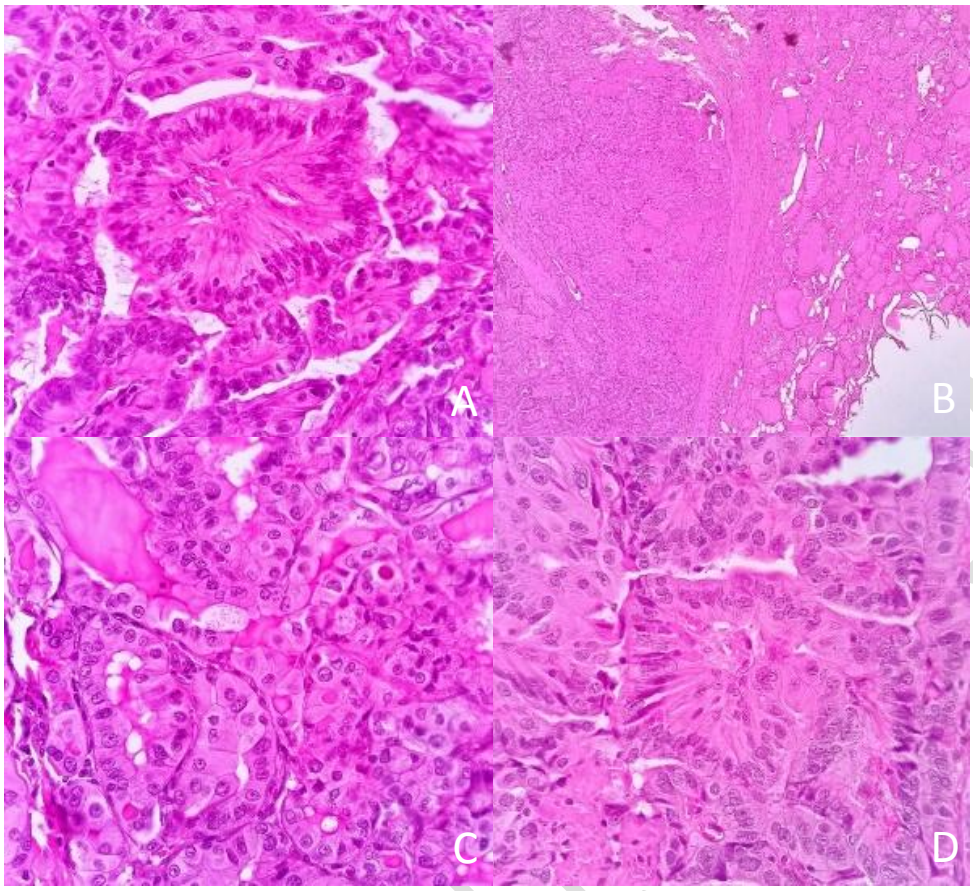


Figure 4 correspond to histological sections stained with hematoxylin and eosin. On the left side we visualize an infiltrating neoplasm that corresponds to papillary carcinoma. B and C show papillary clusters lined by characteristic tall neoplastic follicular cells such as chromatin bars and nuclear pseudoinclusions. D follicular groups of neoplastic cells with abundant, eosinophilic and granular cytoplasm are observed, corresponding to Hürthle cells

Conclusion:

Papillary thyroid carcinoma is the most frequent endocrinological malignancy, representing up to 95% of which up to 50% will debut with distant metastases, with the lung and bone being the most affected organs[1]; The relevance of this case lies in the fact that metastases to muscle planes are extremely rare, because the cribiforme pattern tends to have rare behavior, that's why the muscle metastases was possible[3]; which is why it initially made us think of a sarcoma. However, based on the findings of the extension study, it was possible to determine that it corresponds to thyroid tumor metathesis, once we have the biopsy, and the classification of BETHESDA was made, the relevance of this case and the rare presentation was confirmed[8]. In the case of tumors of muscle planes that do not present typical characteristics of primary tumors, a possibility of metastasis should be considered[5].

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