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Case Report

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OVARIAN METASTASIS OF AN INSIDIOUS ALK POSITIVE BRONCHIAL CANCER DISCOVERED BY A POST ANTI-COVID 19 VACCINATION REACTION: CASE REPORT

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SUMMARY

Suspicious ovarian masses always require a histological and immunohistochi-mic study to make a determination of primary or secondary status, especially in the case of bronchial cancer given the rarity of its extension to the gonads, the context of the current COVID-19 viral pandemic has disrupted the entire health system, especially in cancer, where it continues to surprise us with its positive or negative impact without being able to determine the physiopatho-logic involved in both directions. **Clinical case:** We report a case of a metastatic bronchial adenocarcinoma in the lymph nodes, ovaries and bones discovered following the appearance of post-vaccination cervical adenitis after the 2nd dose of anti-COVID 19 vaccine, in an asymptomatic young woman. Imaging revealed an advanced broncho-pulmonary process with multiple secondary metastasis, it is histologically a PDL1 negative pulmonary adenocarcinoma with a positive ALK rearrangement to fluorescent in situ hybridization (FISH). **Conclusion:** Two issues were raised by this clinical case: the primary or secondary origin of the ovarian masses, and the pathophysiological relationship between the appearance or discovery of cancer and the introduction into the body of the coronavirus or one of its component during vaccination.

KEYWORDS: COVID 19, bronchial ADK, vaccine, side reaction.

INTRODUCTION

Cancer management has been greatly impacted by the pandemic situation caused by the new Chinese COVID-19 virus causing disruptions in the care process, from diagnosis to treatment.

This impact has been more important in bronchial cancers, because this virus attacks the respiratory tract with sometimes very similar symptoms and imaging.

The presence of metastases comforts the differential diagnosis between these two pathologies, however, some locations make it difficult to confirm the primitive or secondary nature as is the case with ovarian masses always requiring histological and immunohistochemical diagnosis.

The discovery of vaccines has mitigated the severity of this pandemic and its impact in oncology after more than a year of battle, and their widespread use has helped improve the pandemic situation and reduce the incidence of serious and deadly forms. In this context, we report the case of a patient who presented with a reactive adenitis following COVID-19 vaccination, resulting in the discovery of an indolent ovarian, lymph node and bone metastatic bronchial adenocarcinoma (ADK).

Clinical Observation

This is a 41-year-old female patient with a medical history of rheumatoid arthritis on TNF, who developed cervical swelling a few days after receiving her second dose of COVID-19 vaccine. The masses were inflammatory and mildly painful, prompting her to consult an otorhinolaryngologist who requested a cervical ultrasound showing calcified supraclavicular lymphadenopathy mistakenly taken for lymph node tuberculosis. Cervical MRI found bilateral supraclavicular lymphadenopathy with necrotic and calcified center. The lymph node cytopuncture returned in favor of lymph node localization of a carcinomatous process little differentiated whose immunohistochemical profile was oriented towards a pulmonary, gynecomammary or thyroid origin.

All tumor markers were negative outside of CA 125 and LDH.

The PET CT scan performed to complete the staging assessment and look for the primary tumor revealed a pathological nodular active focus of the right middle lung

lobe, associated with multiple bilateral parenchymal micronodules and reticulo- medial infiltrates discretely active micronodulars (Figures A, B and C), with hypermetabolic bilateral ovarian pathological masses, more voluminous on the right (Figure D). Active bilateral and mediastinal supraclavicular pathological lymph node sites, and secondary active bone involvement in the right humerus, dorsal spine and sacrum (Figures E and F). To determine the histological type and primitive or secondary nature of ovarianmasses, the patient benefited from a hysterectomy with bilateral annexectomyand ommentectomy whose anatomopathological and immunohistochemical studies returned in favor of an ovarian localization of a well differentiated adenocarcinoma (ADK) of pulmonary origin (CK7+, CK20-, TTF1+, Anti ACE+, Anti WT, Anti inhibine, Anti calretinin, Anti PAX8, Anti P53, Anti P16, and anti-estrogen receptor were allnegative).

Therefore, a stage VI metastatic ovarian, lymph node and bone bronchial ADK was concluded.

The PDL1 status was negative at 0%, and the search for oncogenic addictions had detected a rearrangement of the ALK gene.

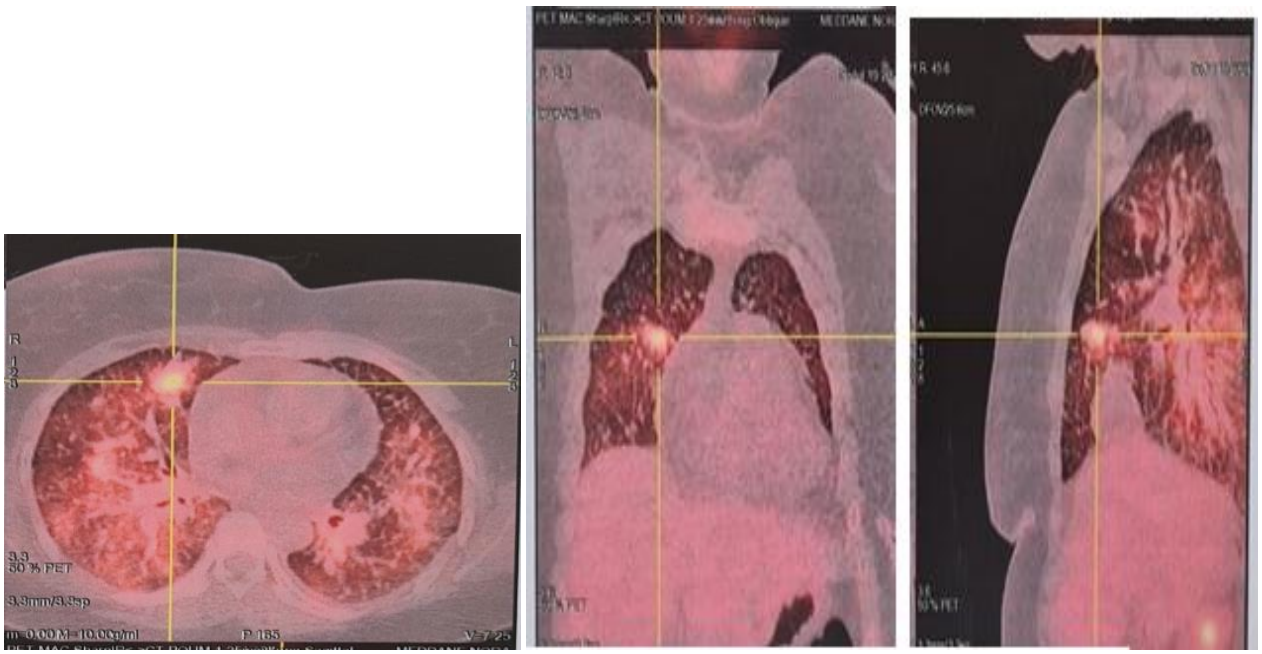
The patient was then put on Alectinib at a dose of 600mg twice a day with good clinical tolerance.

The evaluation PET scanner at 3 months showed a very good therapeutic response with a near disappearance of the pulmonary process, a total disappearance of the pulmonary micronodules and osteocondensation of the bone lesions.

The patient is still well balanced on Alectinib with good tolerance and a follow- up of twelve months.

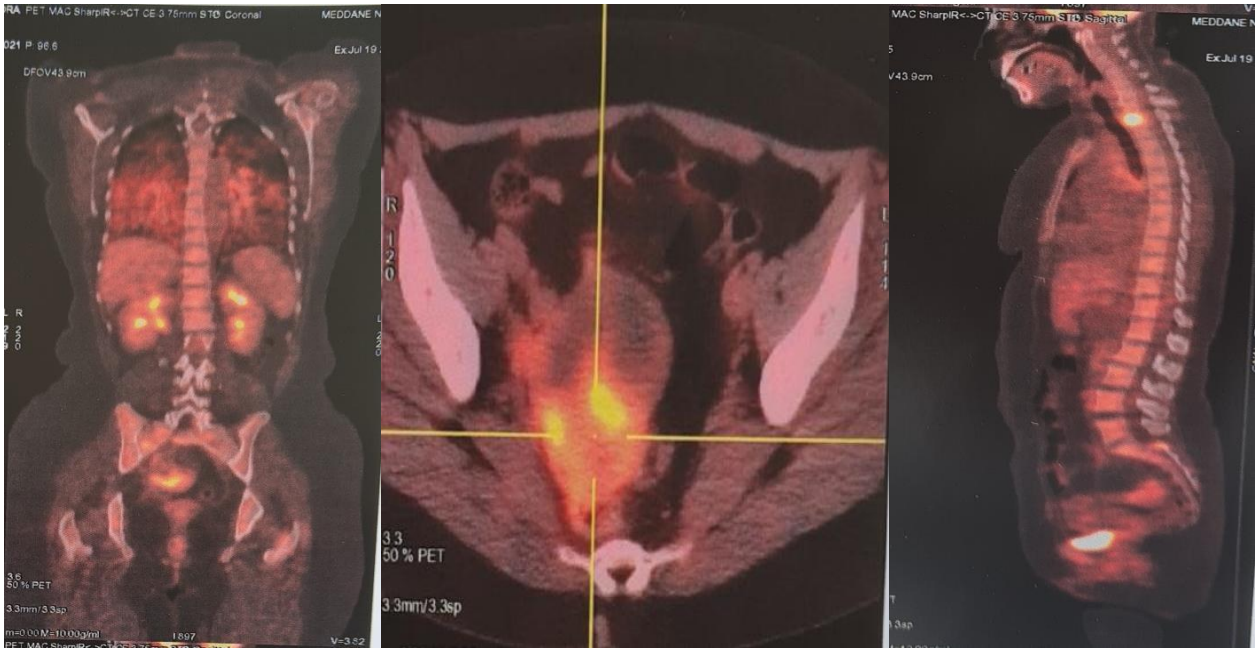
DISCUSSION

Inflammatory reactions following the introduction of the coronavirus are responsible for the cytokinetic storm described in severe forms of infection,[1] these same reactions lead in some cases to the awakening and activation of the immune system and the triggering of a specific immune response responsible for tumor degression in some cancer patients.In our patient's case, it was the vaccine that triggered the immune response and increased volume of the cervical nodes that contained slow-developing tumor cells, leading to the discovery of insidious bronchial cancer until there asymptomatic. Ovarian metastases are often the prerogative of the gynecologic-mammary and gastrointestinal primitives.[2] The lung origin of these metastases is exceptional.[3] with only about thirty cases reported in the literature.[4,5] The analysis of these described cases of ovarian metastases of bronchial primitives finds an average age of 47 years with extremes ranging from 26 to 76 years. Metastasis was precessive in six cases, synchronous in 16 cases and metachronal in 15 cases. It was often unilateral () Ovarian mass size exceeded 5cm long axis in most cases.



(A) (B) (C)

Figures A, B and C: Transverse (A) and sagittal (B) and profile (C) sections of the initial PET scan showing intense pathological pulmonary hypermetabolism related to the bronchial primitive.



(D) (E) (F)

Figures D, E and F: PET scan sections showing pathological ovarian hypermetabolism (D), with the Reconstruction sections (E, F) showing all the hypermetabolic lesions discovered on the assessment extension.

The etiopathogenia of ovarian metastasesis often related to a direct extension by adjacency from a neighboring organ cancer(colon, uterus), or by transtubal migration of an endometrial tumor, by dissemination through the peritoneal fluid or by vascular invasion.[6] The mechanism of invasion of the gonads from a pulmonary primitive isnot well elucidated; however, the absence of capsular invasion as well as the presence of vascular or lymphatic orvenous invasion argue in favor of lymphatic and hematogenic extension. The latter is predominant as evidenced by the high frequency of metastases in young women whose ovaries are well vascularized.[7]

The clinical expression of ovarian metastases is not always obvious, they canbe incidentally discovered, as in our case. Or symptomatic, manifesting as a palpable mass, pelvic pain or menometrorrhagia.[7,8,9,10,11,12] Magnetic resonance imaging currently represents the reference examination for better characterizing ovarian masses: cystic lesions appear in T2 hypersignal and T1 hyposignal, while tissue lesions are of intermediate signal and are most often enhanced after gadolinium injection.[13] The histological type and the primary or secondary nature of these lesions are provided by the histological examination of the surgical specimen.

Small cell carcinoma is the most frequent inthe described cases of bronchial cancer with ovarian metastases with 43%, followed by adenocarcinoma (32%), the other histologies are much rarer.[5]

The prognosis of these cancers is most often reserved, due to the extent of metastases and the scarcity of ovarian localization secondary to bronchial cancers.

In our clinical case, the patient had a multi- metastatic bronchial ADK with a positive ALK rearrangement, based on the latest update of the ALEX trial data comparing alectinib and crizotinib, overall survival with alectinb was not achieved compared to 57.4 months for crizotinib, after a median follow-up of 48.2 months.[14]

CONCLUSION

Ovarian metastases of the bronchial primitives are rare. They underline the aggressiveness of this entity. The presenceof oncogenic addictions improves the prognosis thanks to the new targeted therapies currently on the market.

The relationship of the COVID-19 virus or its vaccine with the discovery or progression of cancers has yet to be determined in light of clinical evidence suggesting the presence of a causal link and interference of immune reactions between these two entities.

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