Research Article

Low-Grade Fetal Adenocarcinoma: A Rare Tumor of the Lung

Onur Derdiyok*

ABSTRACT

Fetal adenocarcinoma of the lung (FLAC) is a rare tumor. It constitutes 0.1% to 0.5% of all pulmonary neoplasms. Rarely, most of the world literature on FLAC comes from case reports and case series. FLAC is an adenocarcinoma developing in the fetal lung at pseudoglandular stage (8-16 weeks of gestation). In this study, we presented a case of left upper lobectomy due to fetal adenocarcinoma.

INTRODUCTION

Fetal adenocarcinoma of the lung is a very rare tumor. It constitutes 0.1% to 0.5% of all pulmonary neoplasms. Rarely, most of the world literature on fetaladenocarcinoma comes from case reports. There are few case series in this subject [1]. Due to histopathology and differences in clinical course, FLAC is also divided into low-grade (L-FLAC) and high-grade (H-FLAC) forms. L-FLAC shows low nuclear atypia and significant formation of morule and has a pure structure. H-FLAC typically exhibits at least 50% fetal morphology and is often associated with other types of traditional lung adenocarcinoma [2]. In this study, we presented a case of left upper lobectomy for L-FLAC in the light of literature.

CASE PRESENTATION

A 25-year-old male patient was admitted to our clinic with complaints of left shoulder pain. Vital findings were stable in physical examination. Her physical examination and medical history did not have a distinctive feature. Laboratory parameters were not abnormal. Thorax computer tomography (CT) and Positron emission tomography (PET/CT) revealed a mass in the lingular segment of the left lung in the upper lobe with a size of 12x7.5 cm (SUDmax 28.8) (Figure 1). Fiberoptic bronchoscopic (FOB) examination revealed no endobronchial lesion and was normal. No signs of malignancy were detected in the aspiration and brush samples taken. Acute bacilli (ARB) was not observed. Transthoracic fine needle aspiration was performed but the diagnosis could not be obtained. In the left upper lobe, a 13 cm diameter pulmonary nodule was palpated in the thoracotomy. The pathological examination of the frozen material was reported as a malignant lesion and left upper lobectomy was performed. The fetal adenocarcinoma of the pathologic lung was reported (Figure 2). Chemotherapy and radiotherapy treatment was performed and no pathology was detected during the 6 months follow-up.

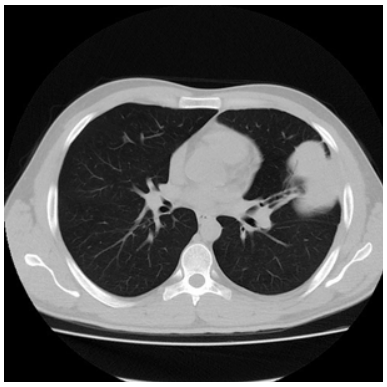

Figure 1) *Thorax computer tomography of the left lobe of the upper lobe in the lingular segment of the subpleural 12x7,5 cm mass*

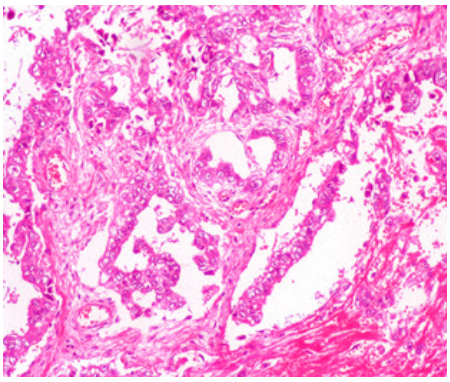

Figure 2) *Columnar tumor cells (H & E x 10) forming acinar structures in endometrioid morphology in histopathological image.*

DISCUSSION

Fetal adenocarcinoma of the lung is a rare, malignant pulmonary tumor, classified as a variable subtype of pulmonary invasive adenocarcinoma. According to the multidisciplinary classification made in 2011 and the World Health Organization (WHO) classification 2015, fetal adenocarcinoma was divided into two subgroups: International Lung Cancer/American Thoracic Society/European Respiratory Society (IASLC/ATS /ERS). These two subtypes have different clinical-pathological features and mutation changes [3]. L-FLAC, ie, low-grade fatal adenocarcinoma, is pathologically characterized by immature epithelium morphologically similar to 10-15 weeks of fetal lung [4,5]. L-FLAC was first reported by Kradin et al in 1982 as a pulmonary blastoma subtype [6]. Now, in general, L-FLAC is considered to be composed of pure epithelium without other components, whereas pulmonary blastoma is performed in a two-phase view of both carcinoma and sarcoma components. High-grade fetal adenocarcinoma consists of low-grade fetal adenocarcinoma (at least 50%) and conventional adenocarcinoma (such as acne type, papillary type, micropapillary type, lepidic type and solid type), even high-grade neuroendocrine carcinoma with necrosis and pathological mitoses [3,5]. However, it is still controversial whether high-grade fetal adenocarcinoma is a prominent variant of lung cancer or simply a morphological model of traditional adenocarcinoma [7]. Most of the previously reported L-FLAC cases are asymptomatic and usually present in the third or fourth year of life with mild female predisposition. Whether smoking history is important in L-FLAC is controversial. The youngest patient was a 6-year-old child. These two cases of L-FLAC were a 31-year-old male with a smoking history and a 21-year-old non-smoker male. Besides young age and gender, they do not show the effect of smoke. Histologically, L-FLAC is a completely epithelial malignancy and consists of well-differentiated glands sorted by fake columnar cells with single or clear cytoplasm. Therefore, L-FLAC is similar to fetal lung structures and scumoid morules that always

Department of Thoracic Surgery, Süreyyapaşa Chest Disease and Thoracic Surgery, Education and Research Hospital, İstanbul, Turkey

Correspondence: Onur Derdiyok, Department of Thoracic Surgery, Süreyyapaşa Chest Disease and Thoracic Surgery, Education and Research Hospital, İstanbul, Turkey, E-mail: onur_derdiyok@hotmail.com

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mimic endometrial adenocarcinoma in differential diagnosis, especially in female patients. Clinical evaluation and immunohistochemistry may be helpful [8]. Lkhoyaali reported a case of neoadjuvant chemotherapy and a 12% reduction in tumor mass. Zaidi reported a case in which treatment of neoadjuvant CMT mitomycin, ifosfamide and cisplatin for a stage T4 NO M0 patient successfully reduced the tumor before surgical resection. In addition, Kyung reported a locally advanced stage patient who was treated with concurrent chemoradiotherapy with docetaxel and gave a partial tumor response [9]. In the literature, 19 patients were treated with chemotherapy and/or radiotherapy; and 10 of these patients underwent adjuvant chemotherapy. To date, there is no evidence for the efficacy of chemotherapy and radiotherapy in L-FLAC patients and there is no standard or recommended chemotherapy regimen. When technically feasible, surgery is preferred because it increases the survival of patients, even in patients with surgical relapse [10].

CONCLUSION

In conclusion, fetal adenocarcinoma should be considered in differential diagnosis of lung tumors.

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