

Glands In Pleura-Not Always A Malignancy

Farhan Khan, Rabia Zafar and Tammey Naab*

Department of Pathology, Howard University, Washington, DC, USA.

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*Corresponding author: Tammey Naab, Department of Pathology Howard University, 2041 Georgia Avenue, NW, Washington, DC, USA. Tel: 202-865-4072; E-mail: tjnaab@gmail.com

Abstract

Normal visceral and parietal pleura contains collagen, elastin fibers, lymphatics, small nerves, and blood vessels and is lined by a monolayer of mesothelium. The presence of epithelial cells in pleural tissue is a concern for a malignant process. We report a case of a 76 year old African American female, presenting with complaint of bleeding per rectum. The Computed Topography (CT) scan of the abdomen and pelvis showed rectosigmoid wall thickening, a large fluid attenuated mass within the pelvis, and a right middle lobe lung nodule. Image guided drainage of the pelvic mass revealed neutrophils and gram negative rods but no evidence of malignancy. Colonoscopy with biopsy of the sigmoid mass revealed invasive moderately differentiated colonic adenocarcinoma. Fine Needle Aspiration (FNA) of the lung nodule showed clusters of malignant cells with rare acinar configuration and intracytoplasmic mucin. The tumor cells were positive for TTF-1 and CK7 and negative for CK20; these findings were consistent with primary lung adenocarcinoma. The core needle biopsy of the lung nodule did not show evidence of carcinoma. A well defined cluster of benign epithelial cells with glandular configuration and a separate gland lined by ciliated columnar epithelium were identified in pleura. These benign glands expressed CK7 and TTF-1. The benign mesothelial cells lining the pleura were positive for CK5 and CK7. This case study highlights the importance of recognizing this benign condition, especially in patients with co-existing malignancy, in order to avoid a false positive diagnosis of malignancy involving pleura.

Keywords: Pleura; epithelial inclusion; mesothelium; lung adenocarcinoma;

Introduction

The normal constituent of pleura is fibrous connective tissue composed of mainly elastic and collagen fibers, along with lymphatic, nerves and blood vessels. The lining of this connective tissue is single layer of mesothelium. A small amount of serous fluid is normally present between the parietal and visceral layers of pleura. Epithelial cells do not constitute normal component of pleura; thus, their presence raises the possibility of malignancy. We report a case of 76 year old African American female who was diagnosed with synchronous primary colon adenocarcinoma and primary adenocarcinoma of the right lung. The benign epithelial inclusions lined by columnar epithelium with glandular configuration were identified in the pleura during biopsy of the right lung nodule. This case study highlights that the finding of epithelial cells within the pleura does not always indicate metastasis, extension of primary lung carcinoma, primary

mesothelioma, or endometriosis.

Case History

We report a case of a 76 year old African American female, presenting with rectal bleeding. The Computed Topography (CT) scan of the abdomen and pelvis showed rectosigmoid wall thickening, a large fluid attenuated pelvic mass, and a right middle lobe lung nodule [Figure 1]. Image guided drainage of the pelvic mass revealed neutrophils and gram negative rods but no evidence of malignancy. The patient was started on broad spectrum antibiotics. Colonoscopy with sigmoid mass biopsy revealed invasive moderately differentiated colonic adenocarcinoma. CT guided Fine Needle Aspiration (FNA) and biopsy of the lung nodule were performed. FNA showed clusters of malignant cells with rare acinar configuration and intracytoplasmic mucin. The tumor cells were positive for TTF-1 and CK7 and negative for CK20, consistent with primary lung adenocarcinoma. The biopsy of the lung nodule did not show carcinoma in multiple levels. A well-defined cluster of benign epithelial cells with glandular configuration and a separate gland lined by ciliated columnar epithelium were identified in the pleura, these bland-appearing cells expressed CK7 and TTF-1 [Figures 2 & 3], [Figures 4 & 5]. The benign mesothelial cells lining the pleura were positive for CK5 and CK7 [Figure 6].

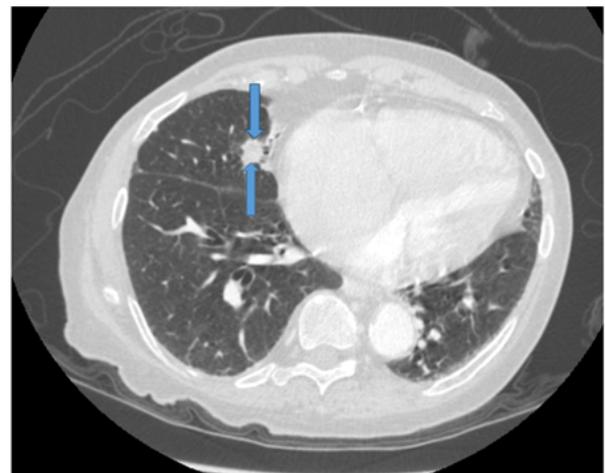


Figure 1: CT scan showing right middle lobe lung nodule: Blue arrows outline the mass

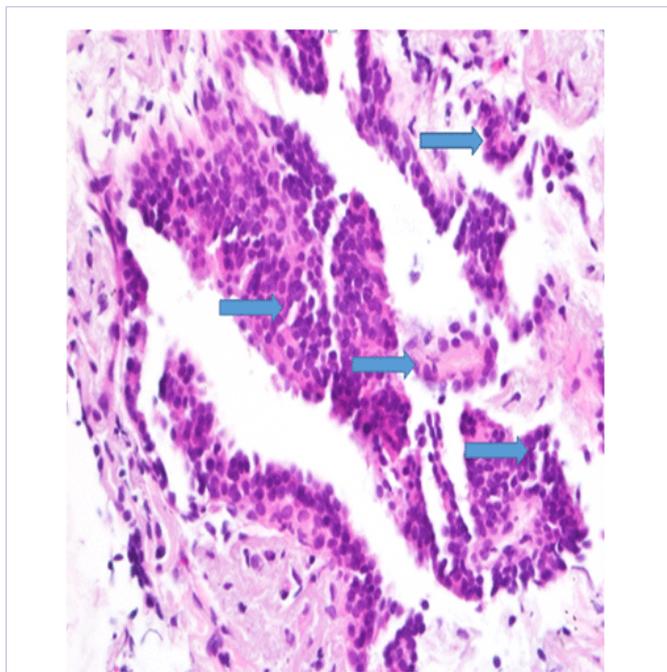


Figure 2: Benign epithelial cells with gland formation, H & E (x400); highlighted by blue arrows

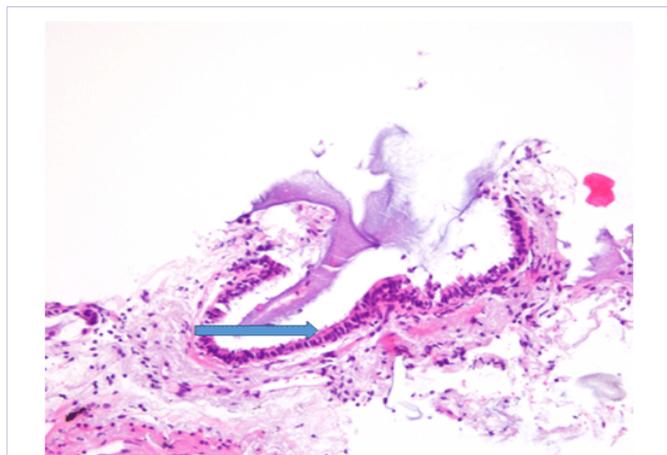


Figure 3: Benign glands lined with ciliated columnar epithelium, H & E (x200); highlighted by blue arrow

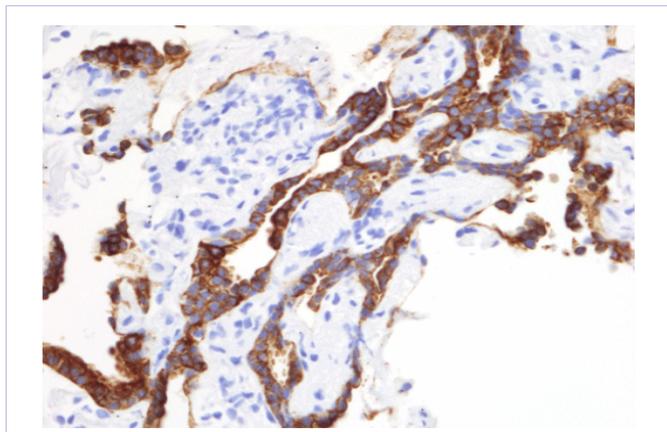


Figure 4: Benign glands express CK7 immunostain, H & E (x200)

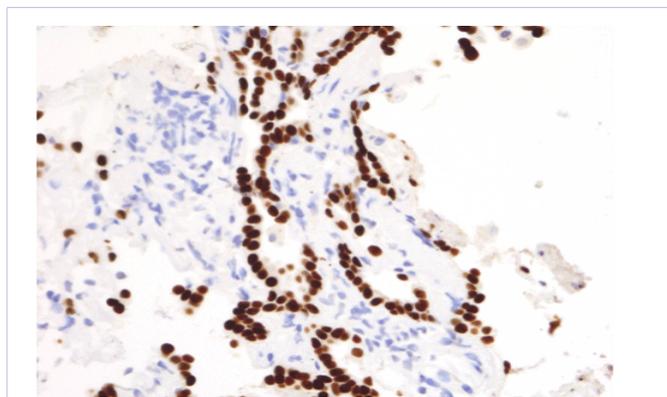


Figure 5: Benign glands express TTF-1 immunostain, H & E (x200)

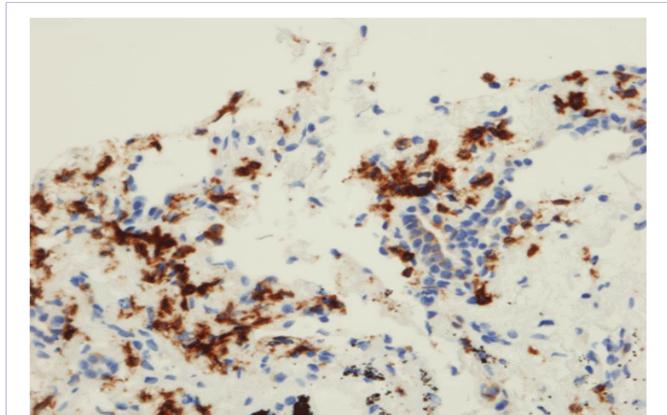


Figure 6: Benign mesothelial cells express CK5 immunostain, H & E (x200)

Discussion

Histological finding of glands within pleura is concerning for the presence of metastasis, advanced primary lung adenocarcinoma or primary mesothelioma since pleura normally consists of connective tissue with interspersed nerves, lymphatics and blood vessels and a lining of mesothelial cells. The most common type of malignancy involving the pleura is adenocarcinoma characterized by the presence of malignant glands in the pleura. It is often accompanied with malignant pleural effusion and dyspnea. The most common causes of malignant pleural effusions include primary lung adenocarcinoma (35%), metastasis from breast carcinoma in females (23%) and lymphoma (10%) [4, 5 & 6]. The metastasis from gastrointestinal tract and gynaecological tract are rare in pleura. Although benign causes of glands in pleura are rare, endometriosis (endometrial implants in pleura) is the most significant cause [7 & 8].

Epithelial and/or non epithelial inclusions are most commonly reported in lymph nodes [1- 3, 11, 14, 15 & 19]. Patients with endometriosis may have endometrial glands in pelvic and para aortic lymph nodes [20]. Ectopic glands are relatively rare above the diaphragm, most commonly found in cervical and axillary lymph nodes. Ectopic glandular breast tissue and cystic structures

lined by squamous epithelium are found in axillary lymph nodes [12 & 13]. Ectopic thyroid tissue is found occasionally in cervical lymph nodes. Among non epithelial implants, the most common are mesothelial inclusions in mediastinal lymph nodes peritoneum as well as below the diaphragm in abdominal lymph nodes [15-18]. Peritoneal endometriosis and surface epithelial inclusions of ovary are some examples of extranodal glandular inclusions.

Conclusion

There is no specific immunostain to distinguish benign glands from primary lung adenocarcinoma in pleura. Careful evaluation of morphology is the key to establish the diagnosis. This case study highlights the importance of considering the presence of benign glands in pleura in order to avoid the false positive diagnosis of advanced malignancy or stage IV metastatic disease from non pulmonary cancers. This might be particularly challenging in patients with synchronous lung and non-pulmonary carcinoma.

Conflict of Interest

The author(s) declare that there is no conflict of interest regarding the publication of this paper.

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