

Non-sebaceous Lymphadenoma of the Thymus: a Case Report

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Case Report

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Abstract

Background: non-sebaceous lymphadenoma (NSL) is a rare benign tumor with a predominant lymphoid background within which is embedded solid or duct-like structures squamous epithelial nests, lacking of sebaceous differentiation. Non-sebaceous lymphadenoma most commonly arises within the salivary glands. However, Non-sebaceous lymphadenoma arises in the thymus have not been reported.

Case presentation: A 53-year-old female patient, computed tomography (CT) scan of the chest for patient showed a nodular (19 ×13 × 16-mm) in the anterior mediastinum, and with mild homogeneous enhancement on contrast-enhanced CT. The patients underwent total thymectomy with removal of the anterior mediastinal nodule by thoracoscope via below the costal margin of the Xiphoid process. Microscopically, the tumor was composed of epithelial nests and prominent lymphoid stroma, with a capsule and clearly demarcated from the surrounding thymus tissue. The epithelial nests are arranged in solid nests or duct-like structures, lacking of sebaceous differentiation and cytological atypia. The pathological diagnosis was lymphadenoma, non-sebaceous type. There were no signs of recurrence 6 months after the surgery.

Conclusions: There are very few reported cases of non-sebaceous lymphadenoma occurred in thymus in the medical literature. So accurate understanding of the histopathologic diagnosis of this rare tumor is important to avoid unnecessary overtreatment.

Background

NSL is a rare benign tumor with a predominant lymphoid background within which is embedded solid or duct-like structures squamous epithelial nests. The epithelial cells lack sebaceous differentiation.

In 1991, Auclair et al.[1] first reported several cases of a large lymphoid component called cystadenoma. He then applied the term lymphadenoma to salivary gland tumors with a prominent lymphoid component[2]. Subsequently, in 1996, this tumor was identified as a variant of sebaceous lymphadenoma lacking sebaceous differentiation. NSL is classified as a subtype of lymphadenoma in the World Health Organization's classification of 2005[3].

Currently, As far as we know, only 11 studies have been reported non-sebaceous lymphadenoma[4–14], NSL most commonly arises within the salivary glands, such as parotid gland and submandibular gland. However, to date, NSL arises in the thymus have not been reported. Here, we present for the first time a case of NSL in the thymus.

Case Presentation

A female, 53-year-old patient was referred to our institution with a cough and sputum for half a month. CT scan of the chest showed a nodular soft tissue density shadow (19 ×13 × 16-mm) in the anterior mediastinum (Fig. 1a-b). The nodule was a well- demarcated and contrast-enhanced CT showed mild

homogeneous enhancement (Fig. 1c-d). There is no mediastinal lymphadenopathy. No effusion was observed in bilateral pleural cavities. The nodule was suspected to thymomas. In addition, CT showed bronchiectasis in both lower lungs with infection. The patient was referred to the Department of Thoracic Surgery for further evaluation and surgical treatment. She was well with no significant past medical history. She had not lost weight or had night sweats in the previous few months. There was no accompanying symptoms such as myasthenia gravis and drooping eyelids. Physical examination revealed that there was no significant cervical, axillary, or inguinal lymphadenopathy. There was no relevant family history.

To further determine the diagnosis and treatment, the patients underwent total thymectomy with removal of the anterior mediastinal nodule by thoracoscope via below the costal margin of the Xiphoid process. None of the anterior mediastinal nodule was adherent to the surrounding tissues. Postoperative course was uneventful and there were no signs of recurrence 6 months after the surgery. Informed consent for publication was obtained from the patient.

The solid tumor nodule was 30 × 20 × 15 mm in size, and well-demarcated in non-neoplastic thymus tissue. There was no signs of necrosis or hemorrhage. After fixation in formalin, the tumor showed white to yellow color on cut section. On section, a cyst 1.5 cm in diameter is seen. There was light yellow viscous fluid in the cystic lumen. Microscopically, the tumor was clearly demarcated from the surrounding thymus tissue and with a capsule (Fig. 2a). The tumor was composed of epithelial nests and prominent lymphoid stroma (Fig. 2b,c,d). The epithelial nests are arranged in solid nests or duct-like structures (Fig. 2b,c,d). Duct-like structures were lined by the flat, cubic, or columnar epithelial cells with eosinophilic cytoplasm (Fig. 2c,d). There were a large number of eosinophilic amorphous secretions in the center of some duct-like structures. No sebaceous differentiation and significant cytological atypia or mitotic activity was observed in the epithelial cells (Fig. 2d). There was numerous lymphocytes with germinal centers in the stroma (Fig. 2b,c,d). The final pathological diagnosis was lymphadenoma, non-sebaceous type. The patient had no adverse events and was discharged in a stable condition.

By immunohistochemistry, tumor cells in the areas with columnar epithelial differentiation strongly expressed CK, CK19 and CK18 protein (Fig. 3a,b,c). CK5/6, P63 was present in the periphery of epithelial component (Fig. 3d,e). SMA was negative in epithelial component (Fig. 3f). Occasional cells were positive with proliferation antigen Ki67 in epithelial component (Fig. 4a). T cell marker CD3 and B cell marker CD20, CD79α were expressed in most of the lymphoid stroma cells (Fig. 4b,c,d). CD21 showed a distinct germinal center (data not shown). However, lymphoid stroma cells showed negative staining for TdT and CD1α (Fig. 4e,f).

Discussion And Conclusions

NSL is a rare benign tumor occurring most commonly in the salivary glands. The most common location is the parotid gland, and the second is submandibular gland. NSL may also occur in the thymic gland, albeit rarely. Weissferdt et al.[15] documented two cases of sebaceous lymphadenoma in the thymus. In

both of their cases, they were able to observe the non-sebaceous differentiation areas. In our this case, NSL was first confirmed in the thymus glands. The histopathological features present in our this case were similar to those described for non-sebaceous lymphadenoma of the salivary glands, mainly the presence of epithelial islands embedded in a lymphoid stroma containing germinal centers. These epithelial islands were distributed in the form of cystic or tubular structures. Besides, we were able to observe normal thymic tissue in the edge of the lesions confirming the tumor origin to thymus. Currently, the diagnostic criteria for NSL in the literature mainly include the following: (1) Solid, glandular, or cystic squamous epithelial nests without significant cytological atypia; (2) no sebaceous differentiation; (3) significant lymphoid infiltrate.

At present, the etiology and pathogenesis of NSL are not fully understood. The lymphocytic markers demonstrated a staining pattern consistent with reactive lymphoid hyperplasia in the stromal background. Some studies have suggested that lymphoid stromal components are lymphoid tissues associated with reactive tumors[1, 3, 16], but the histological origin of the epithelial component of tumors is unclear. Immunohistochemical studies supported the epithelial origin of these structures by showing positive staining for CK, CK18 and CK19. Studies have shown that CK19 is mainly distributed in luminal cells [14], but this pattern was not evident in our case. In addition, we found that the staining intensity of CK18 was higher in inner cells than outer cells. CK5/6, P63 was present in the periphery of epithelial component. The expression of CK5/6 in our case was the same as in previous studies[14]. CK5/6 and P63 have been shown to be typically expressed in complex epithelial basal cells [17]. These indicates that the epithelial component of the tumor is stratified ductal epithelium. Shaodong Yang et al.[14]called it as "intercalated duct phenotype". Expression of SMA is a marker of myoepithelial cell differentiation, but was not detected in our case. This suggests that no myoepithelial cells are involved in the tumor epithelium, a conclusion that is consistent with previous studies [17].

The differential diagnosis the present case included not only other salivary gland lesions, but also thymic epithelial neoplasm. In present case, we can see few mucous-secreting cell in lumen. Therefore, the most important differential diagnosis is mucoepidermoid carcinoma (MEC) among salivary gland-type lesions. Lack of cellular atypia and the presence of prominent lymphocytes containing germinal centers in the stroma set it apart from MEC. Among the thymic epithelial tumors, the most important differential diagnosis is lymphoepithelioma-like carcinoma. The absence of atypical and mitotic activity in the epithelial cells. The absence of invasive growth with desmoplastic stroma, and presence of distinct ductal differentiation in lymphadenoma can distinguish it from lymphoepithelial carcinoma. The second differential diagnosis is squamous cell carcinoma. There are two hallmarks for the diagnosis of thymic squamous cell carcinoma: the clear-cut cytological atypia in the large epithelial cells that are arranged in nests and cords, and the broad zone of fibrohyaline-stroma separating the tumour cell nests. Since this case occurred in the thymus, the thymoma must be retained in the differential diagnosis. In particular, micronodular thymoma with lymphoid stroma may be confused with a thymic lymphadenoma[18]. However, in micronodular thymoma the epithelial nests are solid and do not show tubular or cystic structures. In addition, the epithelial nests in micronodular thymoma are usually formed by spindle cells, while in non-sebaceous lymphadenoma the epithelial nests are commonly of squamous type cells.

Briefly, we showed a rare case of primary thymic non-sebaceous lymphadenoma. To our knowledge, this is the first report case for non-sebaceous lymphadenoma occurred in thymus in the medical literature. So accurate understanding of the histopathologic diagnosis of this rare tumor is important to avoid unnecessary overtreatment.

Abbreviations

NSL: non-sebaceous lymphadenoma; CT: computed tomography; MEC: mucoepidermoid carcinoma;

Declarations

Ethics approval and consent to participate

Not applicable

Consent for publication

Written consent for publication and any additional related information was taken from the patient involved in the study.

Availability of data and materials

All the data regarding the findings are available within the manuscript.

Competing interests

The authors declare that they have no competing interests.

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Author's contribution

SW analyzed the patient data and were the major contributors in the preparation of the manuscript. YB and XX performed the literature search and analyzed part of the patient data. GG drafted the manuscript. All the authors have read and approved the final version of this manuscript.

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Not applicable

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Figures

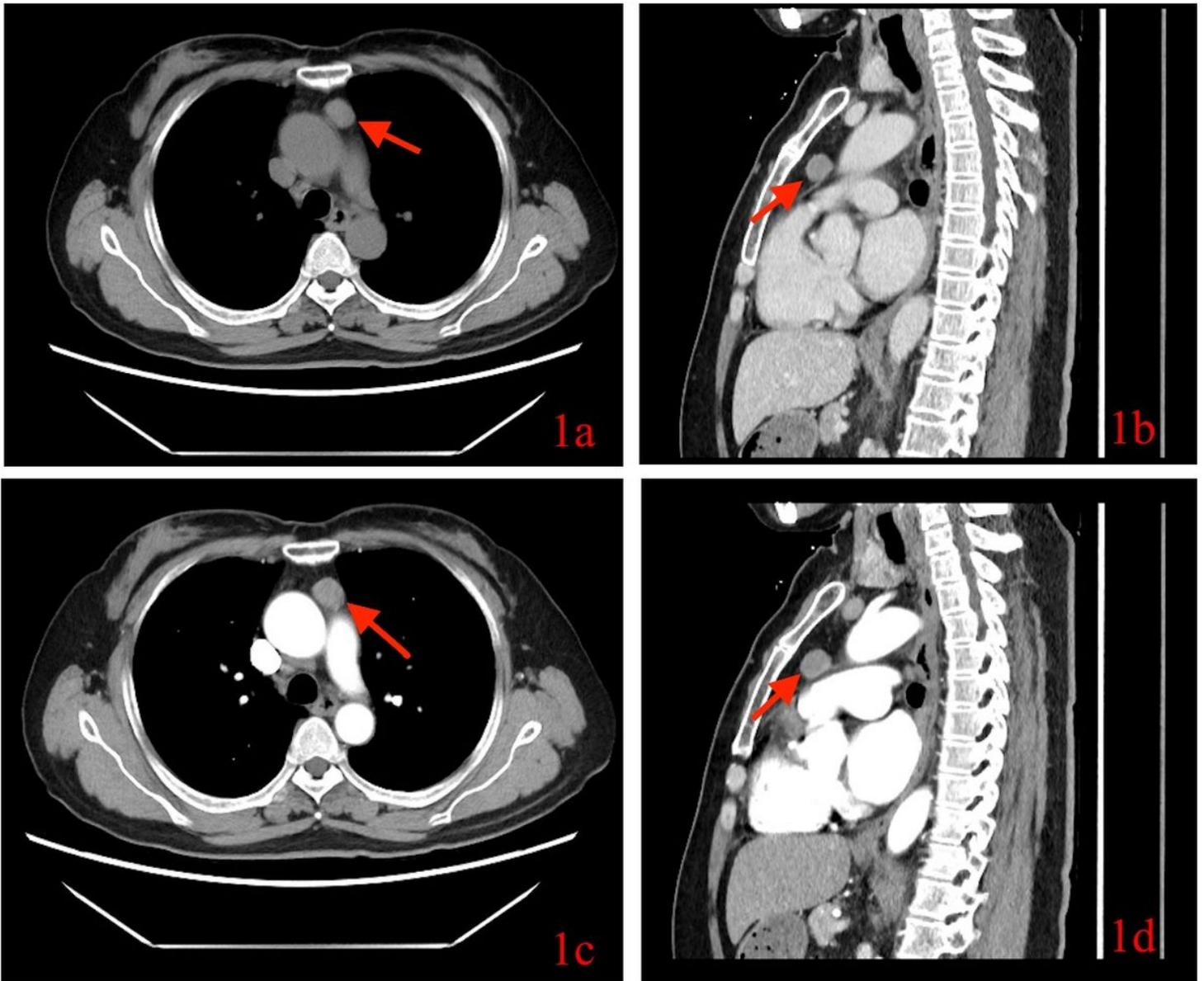


Figure 1

Computerized tomography scan of the chest showed a well-demarcated solid nodule in the anterior mediastinum (red arrow). (a) Transverse and (c) enhanced scanning, and (b) sagittal and (d) enhanced scanning.

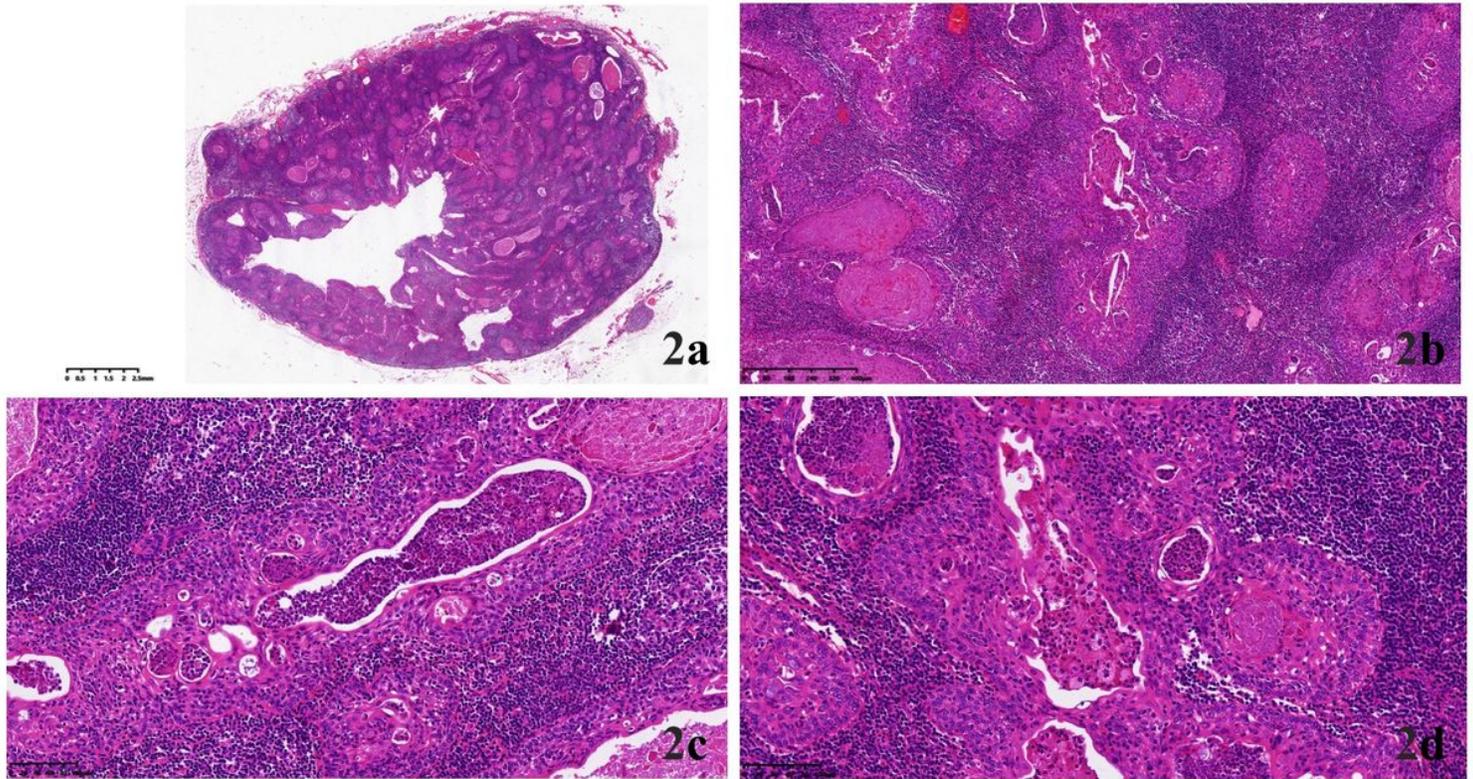


Figure 2

Whole slide presentation of the tumor tissue (a). The epithelial nests with solid and duct-like structures accompanied by a significant lymphoid stroma(b), Duct-like structures were lined by the flat, cubic, or columnar epithelial cells with eosinophilic cytoplasm(c). No sebaceous differentiation and significant cytological atypia or mitotic activity was observed in the epithelial cells(d).

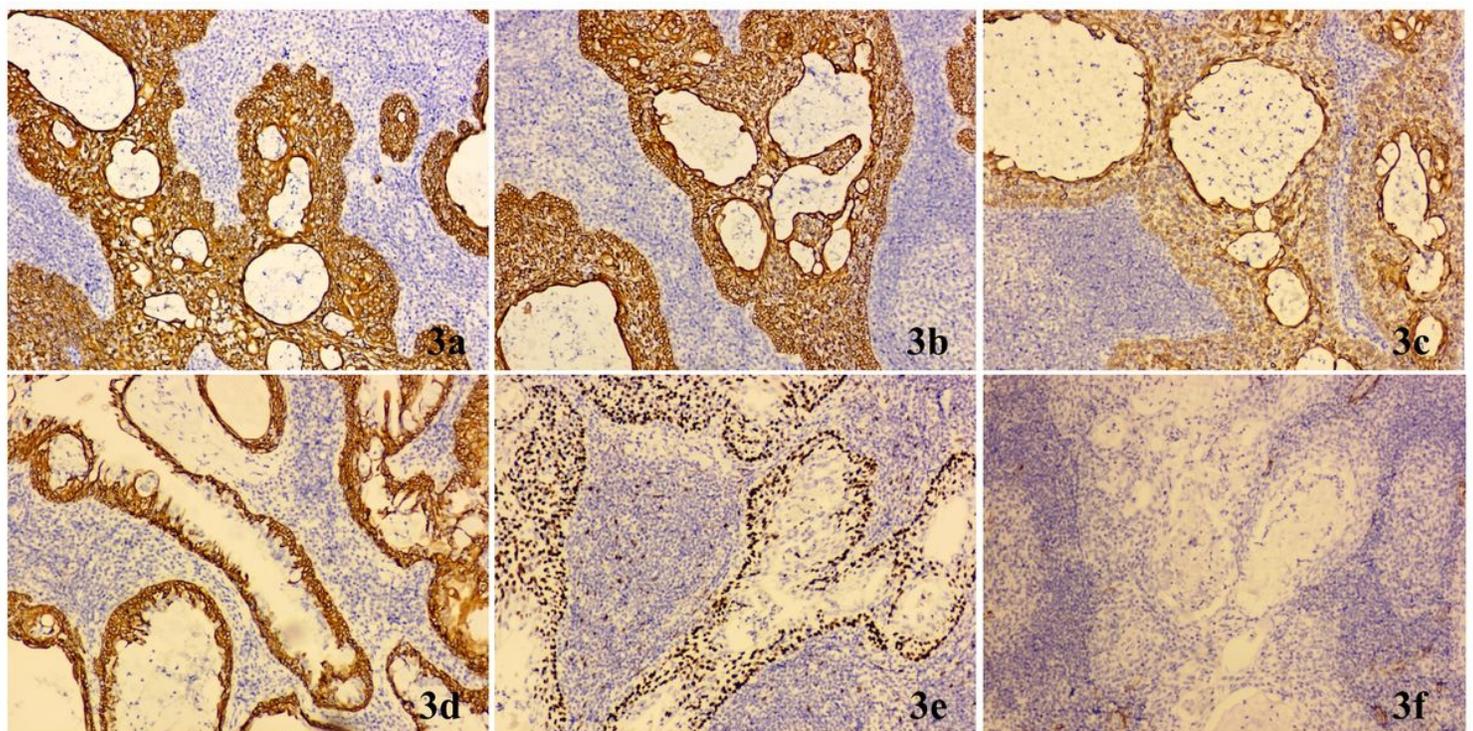


Figure 3

Epithelial cells strongly expressed CK(a), CK19(b) and CK18(c) protein. CK5/6(d), P63(e) was present in the periphery of epithelial component. SMA was negative in epithelial component (f) (magnification×100).

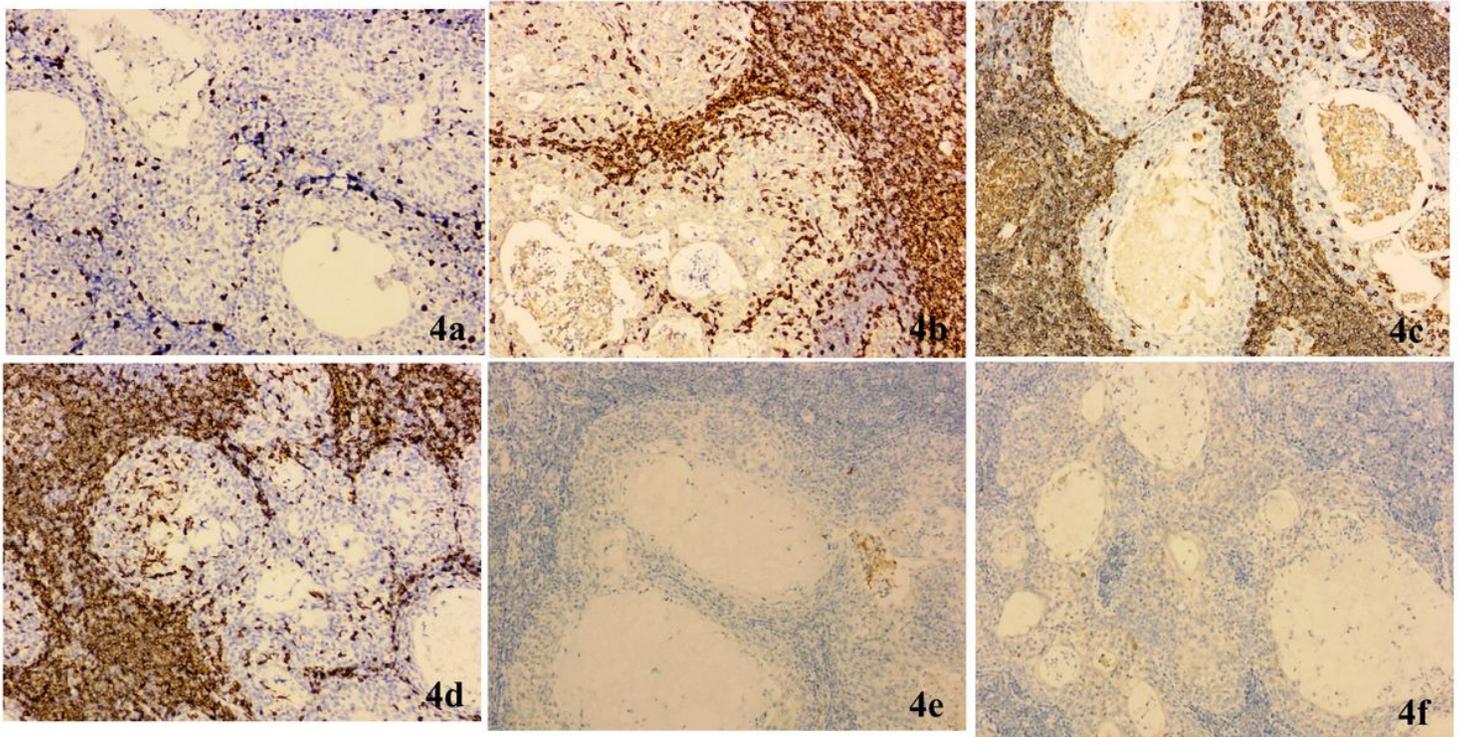


Figure 4

The expression of Ki67 in epithelial component (a). T cell marker CD3(b) and B cell marker CD20(c), CD79α(d) were expressed in the lymphoid stroma cells. lymphoid stroma cells showed negative staining for TdT(e) and CD1α (f) (magnification×100).

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