



### ***How do I diagnose Bronchocentric Granulomatosis***

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**Differential diagnoses:** Aspiration, Pneumocystis carinii pneumonia, Tuberculosis, Aspergillosis

**Side findings:** Intra-vascular thrombosis, mild anthracosis

#### **Abstract**

A 42 years old male patient developed acute cough with fever and severe wheezing. He was non-asthmatic, non-smoker, and not exposed to asbestos. Clinical investigation indicated acute organizing pneumonia in the left lower lobe without sign of response to applied antibiotic treatment. Resection of the lower left lobe was performed. A circumscribed lesion measuring 25 mm in maximum diameter displayed microscopic with centrally necrotized bronchi of medium and larger size surrounded by chronic lymphocytic granulomatous inflammatory infiltrates. No verification of fungus, tuberculosis or parasites in the suitable stains. Normal count of asbestos fibers (5 fibers/gr wet tissue). Expression of galectin 1, 3, 8 and their binding sites only in the affected bronchi in accordance with inflammatory changes, i.e., only secondary involvement of peripheral lung tissue. Post surgical evaluation of the patient's history revealed an infection of *Saccharomyces carlsbergensis*, *Schizosaccharomyces pombe* and *Dictyostelium discoideum*. *Saccharomyces carlsbergensis* is known to be saprophyte in the sputum of patients displaying with infections of the lower airways, and it might be considered as participating factor in the development of bronchocentric granulomatosis. The post surgical follow up of the patient was inconspicuous.

**Virtual Slides:** [www.diagnosticpathology.eu/vs/2015\\_1\\_56/](http://www.diagnosticpathology.eu/vs/2015_1_56/)

#### **Anamnesis/History**

The 42 years old man suffered from fever, cough, severe wheezing and expectoration for 10 days prior to his hospitalization. He was a non-smoker. No pulmonary infections or involvement due to other diseases is known. Treatment with antibiotics did not improve the patient's condition, and the left lower lobe that displayed with a circumscribed central localized lesion was resected, especially to exclude a malignancy. Intra-operative tissue examination could



exclude a malignant tumor growth. The post-surgical course was inconspicuous, and no recurrence was reported in a 5 years post surgical period.

### **Gross - microscopic findings**

The left low lobe measured 15 x 12 x 10 cm (272 gr) and exhibited a grayish white circumscribed lesion of 25 mm in maximum diameter at a distance of 72 mm from the resection boundary. No other lesions could be detected.

### **Microscopy**

The lesion was composed of several centrally necrotic small areas that were identified as centrally necrotic medium sized and larger bronchi. Surrounding tissue was involved and showed organizing fibrotic areas surrounding the necrotic bronchi. PAS and Feulgen stain were negative, i.e. no fungus, asperillum, parasites or tuberculosis could be found. Asbestos fibers could not be found.

### **Expression of markers**

Galectin 1 expression: pos; Galectin 1 binding: na Galectin 3 expression: neg; Galectin 3 binding: na Galectin 8 expression: neg; CD 20: pos;

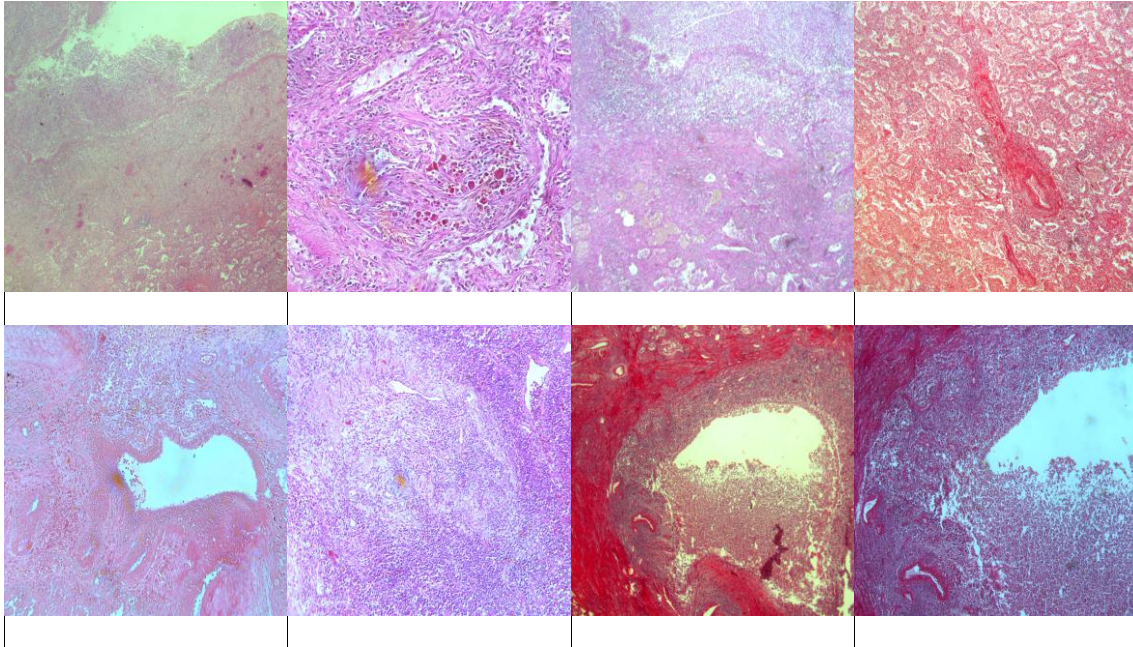
### **Discussion**

Bronchocentric granulomatosis is considered to be a specific graft-versus-host reaction in a group of patients that displays with a history of asthma. Thus, in certain patients it fulfills the criteria for hypersensitivity reaction of the air conducting lung structures. However, only part of the described patients possess a history of asthma or asthmoid bronchitis, another group such as our case, does not fulfill these considerations. In addition, Aspergillum or fragments of aspergillum could be demonstrated in the asthma group. Again, despite intensive exploration of the excised lobe no fungus or fragments of fungus could be noted. The diagnosis bronchocentric granulomatosis was stated because of the characteristic history, the microscopic findings and the course of the disease. In addition, the performed investigations of galectin expression are consistent with the diagnosis. They clearly indicate that the severe acute lymphocytic granulomatous inflammation started from the medium sized and larger bronchi, and spread only a few millimeters into the adjacent lung parenchyma. In addition, the expression pattern of the galectins is frequently seen in immunocompromised or graft-versus-host reactions, and less often in chronic infectious diseases such as tuberculosis

### **Hallmarks of Diagnosis**

Acute onset of disease, fever, necrotizing bronchitis, expression pattern of galectins, unsuspecting peripheral lung parenchyma.

**Images** (for full size images see supplements)



**Keyword - Diagnosis:** [Bronchocentric Granulomatosis](#)

**Keyword - differential diagnosis:** [Aspiration](#)

**Keyword - side findings:** <http://www.ncbi.nlm.nih.gov/pubmed/?term=>

**Keyword - organ:** [Lung](#)

**Keyword - methods:** [Galectin](#)

**Keyword - others:** <http://www.ncbi.nlm.nih.gov/pubmed/?term=>

### Online References (PubMed)

1. [Bronchocentric Granulomatosis](#)

2. [Aspergillosis](#)

3. [Aspiration](#)

4. [Galectin](#)

5. [Pneumocystis carinii](#)