A Horse of a Different Color: A Pictorial Review of Organizing Pneumonia

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Disclosure statement

We have no actual or potential conflicts of interest in relation to this electronic exhibit.
Learning Objectives

- Etiology
- Clinical presentation and epidemiology
- Pathology
- Imaging findings on plain radiograph
- Imaging findings on CT
- Differential diagnosis
- Treatment and patient outcomes
Etiology

Inflammatory response to lung injury.

- Idiopathic:
  - Cryptogenic Organizing Pneumonia

- Infection
- Collagen vascular disease
- Immunological disorders
- Drug reactions
- Aspiration
- Toxic inhalation
- Radiation
Presentation of Cryptogenic Organizing Pneumonia

- Cough
- Dyspnea
- Fever
- Weight loss
- Age 55-60
Pathophysiology

1. Process of **organization** occurs after injury to the alveolar basement membrane, alveolar epithelial cell or capillary endothelial cell.

2. Lung injury includes - non specific causes such as infection, collagen vascular disease, drug reaction etc.

3. Organization involves leakage of protein rich exudate into the alveolar space, fibroblast proliferation and formation of intra-alveolar buds of granulation tissue.

4. The process can spread to adjacent alveoli through pores of kohn.

5. Buds of granulation tissue also extend into adjacent bronchioles.
Chest radiograph findings

- Bilateral patchy consolidation
- Subpleural and lower lung zone predominance
Patchy bilateral consolidations involving the left lower lobe and right upper, middle and lower lobes.
HRCT FINDINGS
Single or multiple bilateral areas of consolidation, ground glass opacities or nodules.

Figure demonstrates consolidation in the right middle, right lower and left lower lobes.
Biopsy Proven cryptogenic organizing pneumonia

CT guided biopsy of the left lower lobe. Pathology showed lung parenchyma with organizing pneumonia and cellular interstitial infiltrate.

Same patient. Bilateral multifocal areas of consolidation and nodular opacities.
Distribution

- Along bronchovascular bundles.

- Diffuse, focal or unilateral.
Distribution

- Subpleural, peripheral and lower lobe predominance.
Perilobular Opacities

Polygonal opacities with poorly defined margins bordering the interlobular septa/secondary pulmonary lobules.
Reverse Halo Sign

Focal ground glass opacity with surrounding ring of consolidation.
Imaging Differential Diagnosis

- Lymphoma
- Infection
- Collagen vascular disease
- Vasculitis
- Sarcoidosis
- Bronchoalveolar carcinoma
- Chronic eosinophilic pneumonia - cannot be definitively differentiated on HRCT
Diagnosis of exclusion:

Combination of pathological/radiological appearance and clinical presentation.

Exclusion of recognizable causes.
Treatment

-Corticosteroids for 6-12 months
Prognosis

- Usually good after therapy with Corticosteroid.

- Some cases may progress or relapse (13-58% relapse).

- Presence of reticular opacities on xray or HRCT may suggest poor response to corticosteroids.

- HRCT findings on follow up in those with residual disease most commonly resemble NSIP.

- Upto 45% of histologically proven OP progress to NSIP pattern on follow up CT.
Prognosis explained histologically

Lung Injury

- Mostly intact basement membrane: Potential for repair and return to normal alveolar architecture.
- Highly damaged basement membrane: May lead to fibrosis and findings such as NSIP.
Case: Improvement after treatment with corticosteroids

Before

After


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