

Bronchitis dan Bronkiektasis

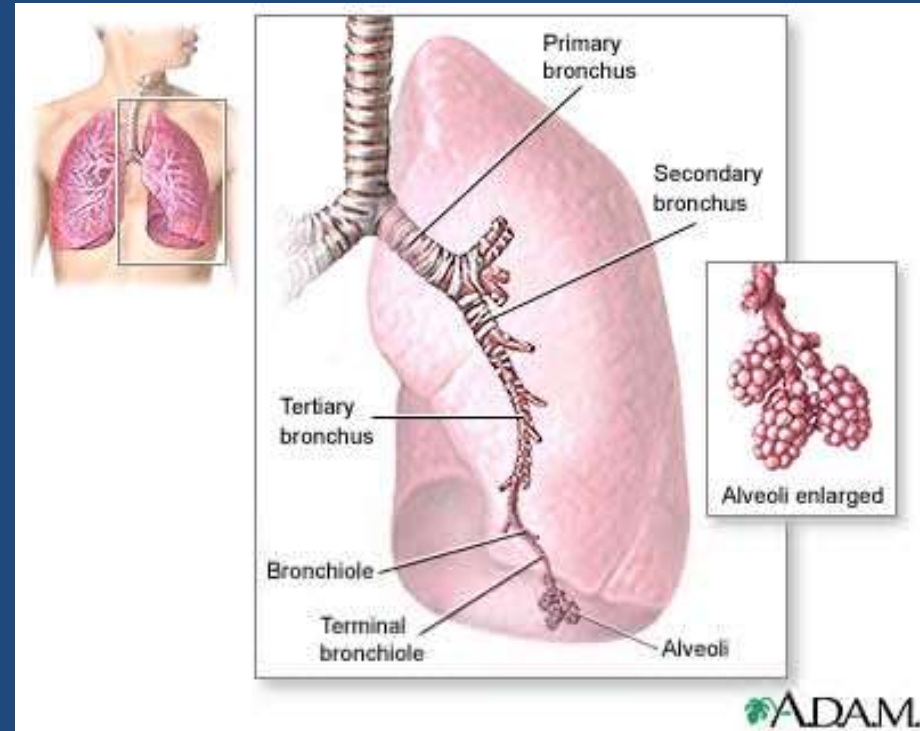
Lusito

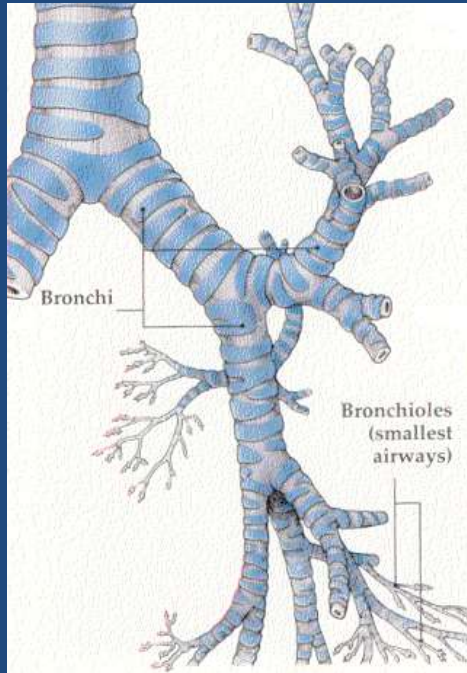
Bagian penyakit dalam FK/RS Sultan Agung

2012

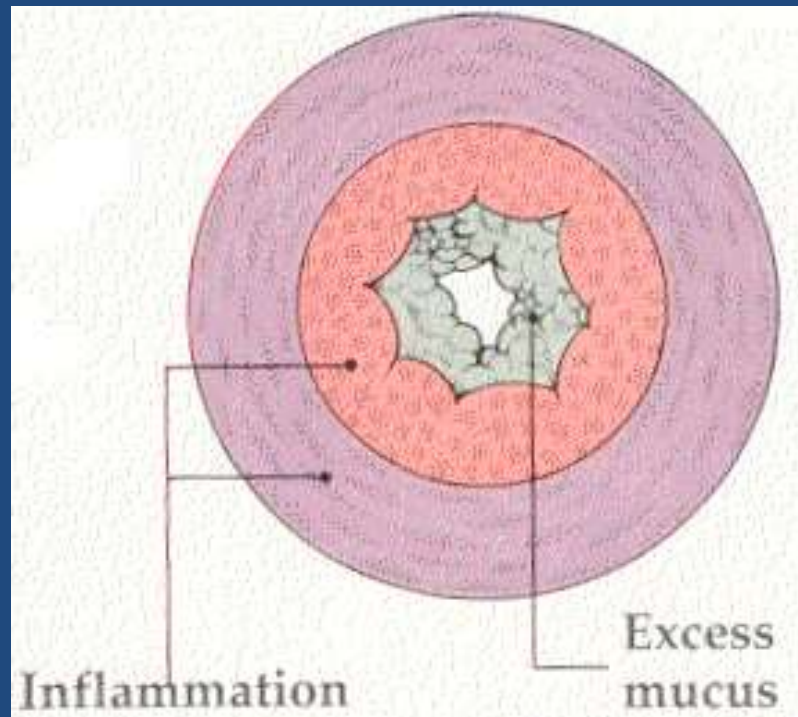
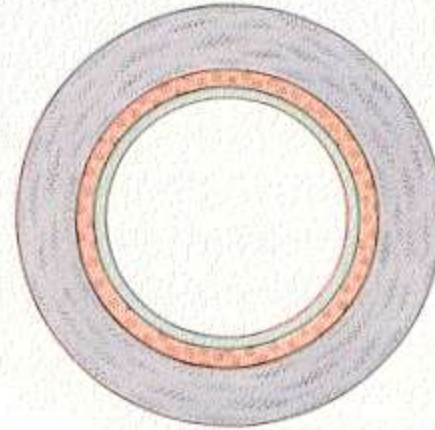
Bronchitis akut

Proses radang akut yang mengenai bronkus dan cabang-cabangnya, biasanya terlokalisir dan sembuh sempurna





Normal bronchus
(cross section)



Etiologi

- Infeksi : virus, jamur, bakteri
- Iritasi bahan kimia dan gas
- Asap
- Alergi

TABLE 1. CONDITIONS ASSOCIATED WITH BRONCHIECTASIS.

Postinfectious conditions

- Bacteria (*Pseudomonas*, *Haemophilus*)
- Mycobacterium tuberculosis*
- Aspergillus* species
- Virus (adenovirus, measles virus, influenza virus, human immunodeficiency virus)

Congenital conditions

- Primary ciliary dyskinesia
- Alpha₁-antitrypsin deficiency
- Cystic fibrosis
- Tracheobronchomegaly (Mounier-Kuhn syndrome)
- Cartilage deficiency (Williams-Campbell syndrome)
- Pulmonary sequestration
- Marfan's syndrome

Immunodeficiency

- Primary
 - Hypogammaglobulinemia
- Secondary
 - Caused by cancer (chronic lymphatic leukemia), chemotherapy, or immune modulation (after transplantation)

Sequelae of toxic inhalation or aspiration

- Chlorine
- Overdose (heroin)
- Foreign body

Rheumatic conditions

- Rheumatoid arthritis
- Systemic lupus erythematosus
- Sjögren's syndrome
- Relapsing polychondritis

Other

- Inflammatory bowel disease (chronic ulcerative colitis or Crohn's disease)
- Young's syndrome (secondary ciliary dyskinesia)
- Yellow nail syndrome (yellow nails and lymphedema)

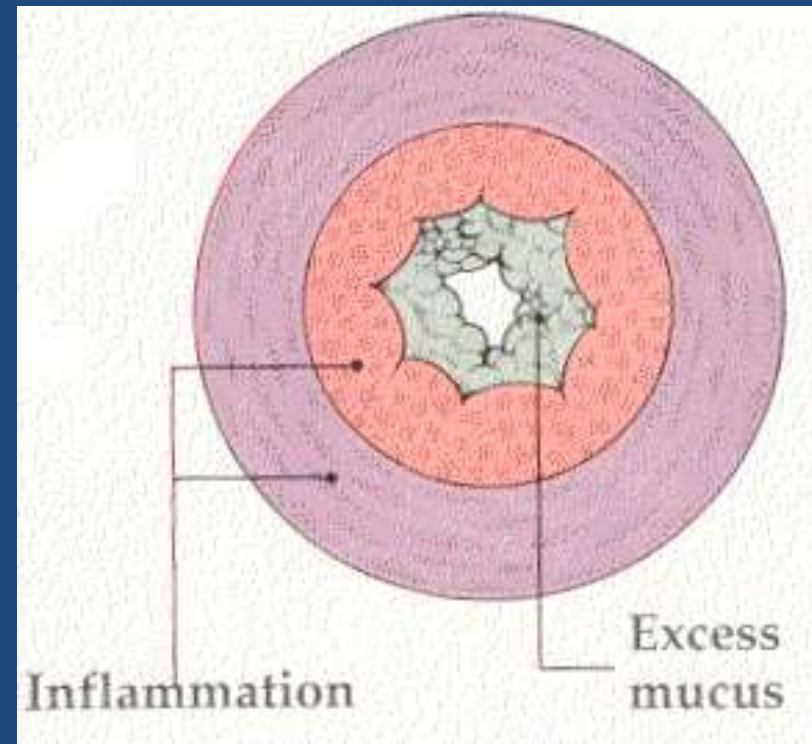
Perubahan Patologi Anatomi

Makroskopis :

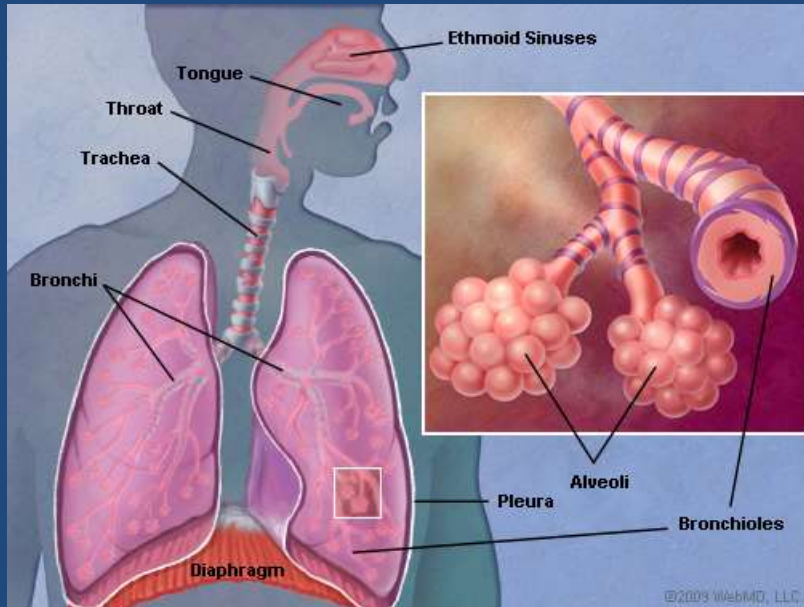
- Mukosa edema dan hiperemi
- Sekret mukopurulen
- Nekrosis ulserasi
- Pembesaran kelenjar limfe

Mikroskopis :

- Mukosa bronkus diselaputi lendir dan leukosit
- Infiltrasi dinding bronkus oleh sel radang
- Deskuamasi sel-sel epitel silindris
- Pembengkakan kelenjar bronkus



Patogenesis



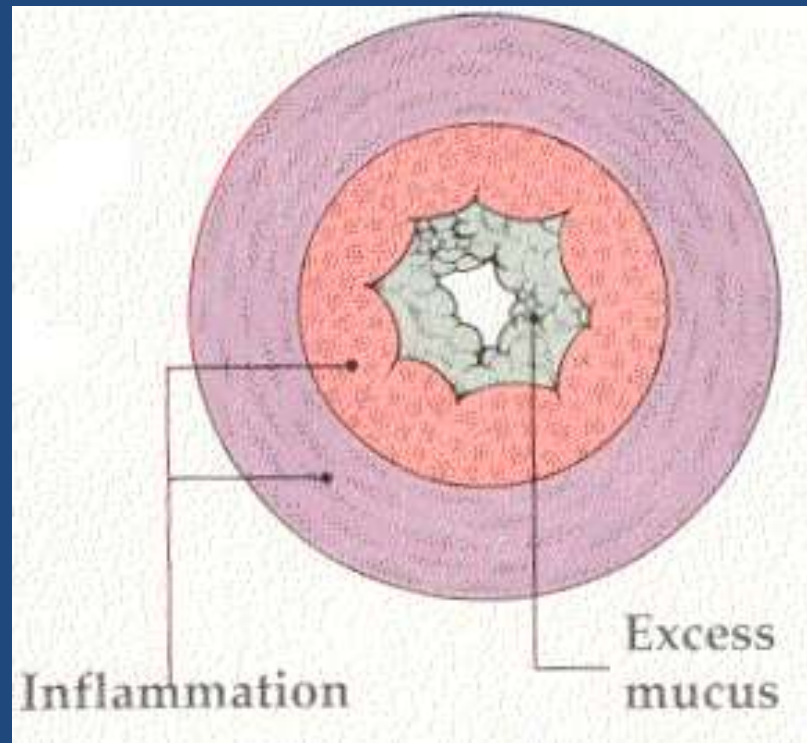
1. Lanjutan infeksi saluran nafas
2. Infeksi primer pada brokhus (*B. pertusis*)
3. Infeksi sekunder terhadap kelainan paru kronik

Faktor predisposisi

1. Pemaparan bahan iritan
2. Reaksi alergi
3. Faktor umur
4. Turunnya daya tahan tubuh
 - Turunnya pulmonary defence mechanisme
 - Turunnya daya tahan tubuh secara umum
5. Turunnya integritas mukosa bronkus

Gejala klinik

1. Gejala infeksi saluran nafas akut
2. Hipersekresi bronkus
3. Batuk
4. Sesak nafas



Pemeriksaan fisik

1. Inspeksi : Flushing, mukosa hiperemis
2. Palpasi : Normal/Menurun
3. Perkusi : Normal/ redup
4. Auskultasi : Suara nafas mengeras/ ronki kering/ronki basah

Pemeriksaan penunjang

1. Laboratorium :

- Leukosit normal/meningkat
- Sputum : Pengecatan gram dan kultur

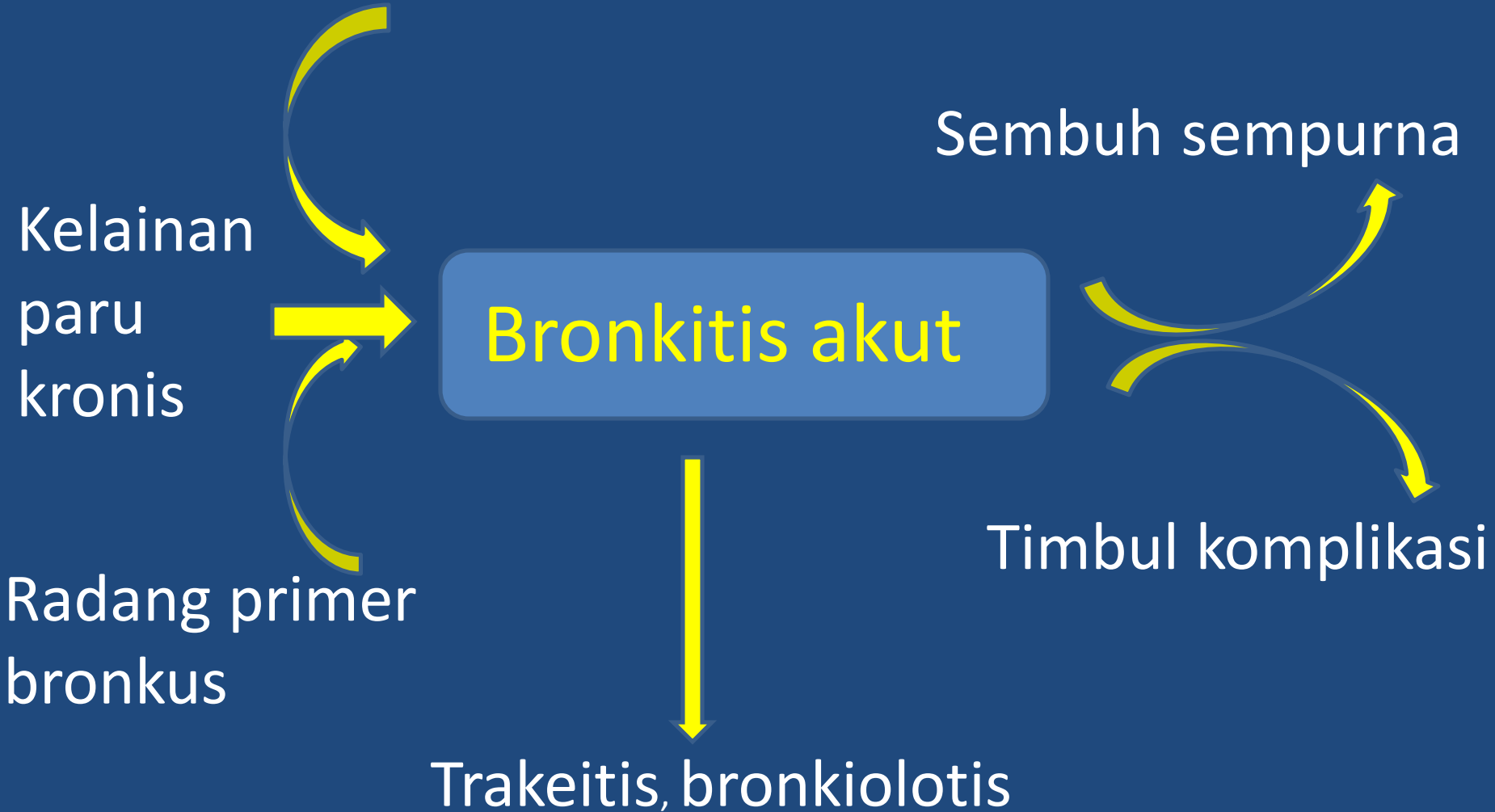
2. Radiologi :

- Normal/hipervaskularisasi/infiltrat

Komplikasi

1. Pneumonia
2. Sepsis
3. Brokiektasis (terutama infeksi B. pertusis)
4. Atelektasis
5. Bronkitis kronis
6. Gagal nafas (pada penderita penyakit paru kronik)
7. Bronkiolitis

Infeksi saluran nafas akut



Penatalaksanaan

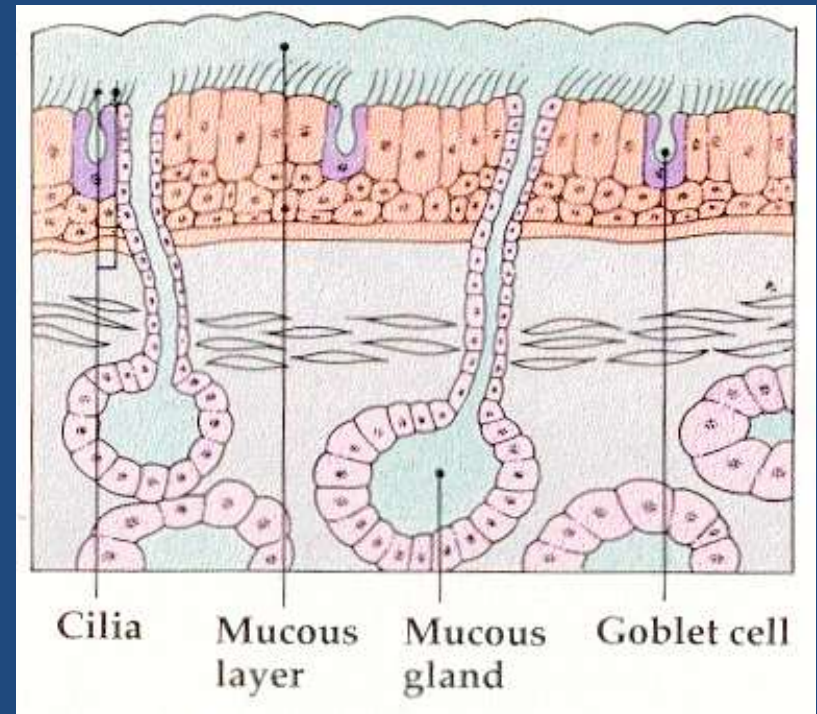
1. Perbaiki keadaan umum penderita
2. Antibiotika (tu kelainan paru kronik)
3. Simptomatik

Bronchitis Kronis

Bronchitis adalah hipersekreksi mukus dan batuk produktif kronis berulang-ulang minimal selama 3 bulan pertahun paling sedikit dalam 2 tahun berturut-turut pada pasien yang diketahui tidak terdapat penyebab lain

Healthy Bronchi

- Mucus produced by goblet cells and mucus glands forms a thin protective layer on the inside of each bronchi.
- The mucus traps inhaled particles and small hair like protrusions called cilia move the mucus upward to be coughed out or swallowed.



Acute Bronchitis

Cilia

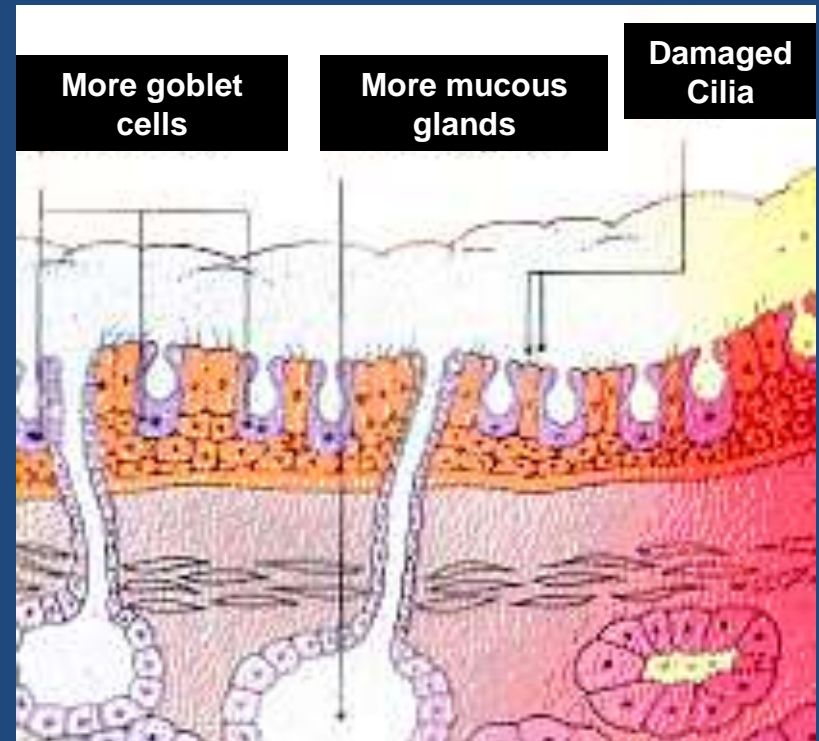
Goblet Cells

- **Limiting the infection**
 - Cilia (fine hairs) lining the airways transport mucus upward, preventing infection of the lung.
 - The infection may spread to the lungs in young children, older people, people with compromised immune systems, or diseased lungs.



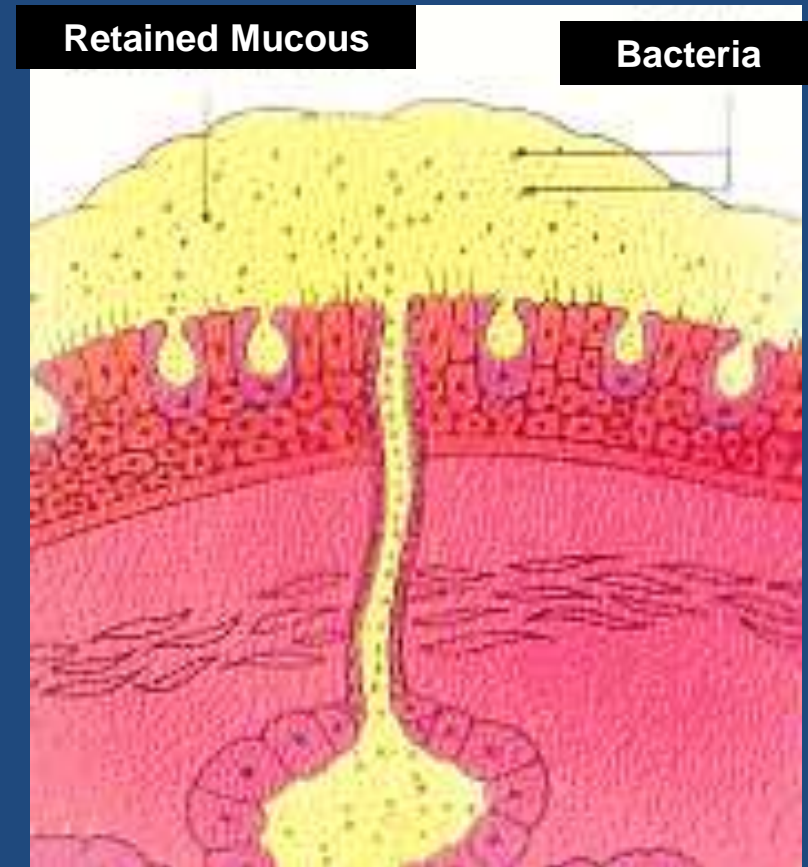
Chronic Bronchitis

- **Repeated infection or inflammation (caused by irritating smoke) causes increased mucus production.**
 - Mucus glands and goblet cells increase in number.
- **Cigarette smoke damages the cilia and reduces their ability to move mucus upward.**



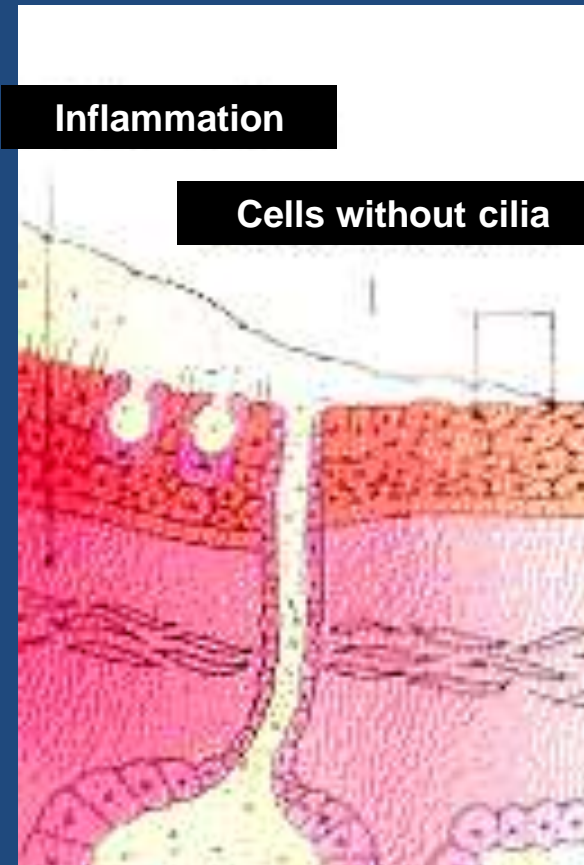
Chronic Bronchitis

- **When cilia can no longer move excess mucus, it stays in the airways, narrowing them.**
 - Retained mucus encourages bacterial growth which increases inflammation.



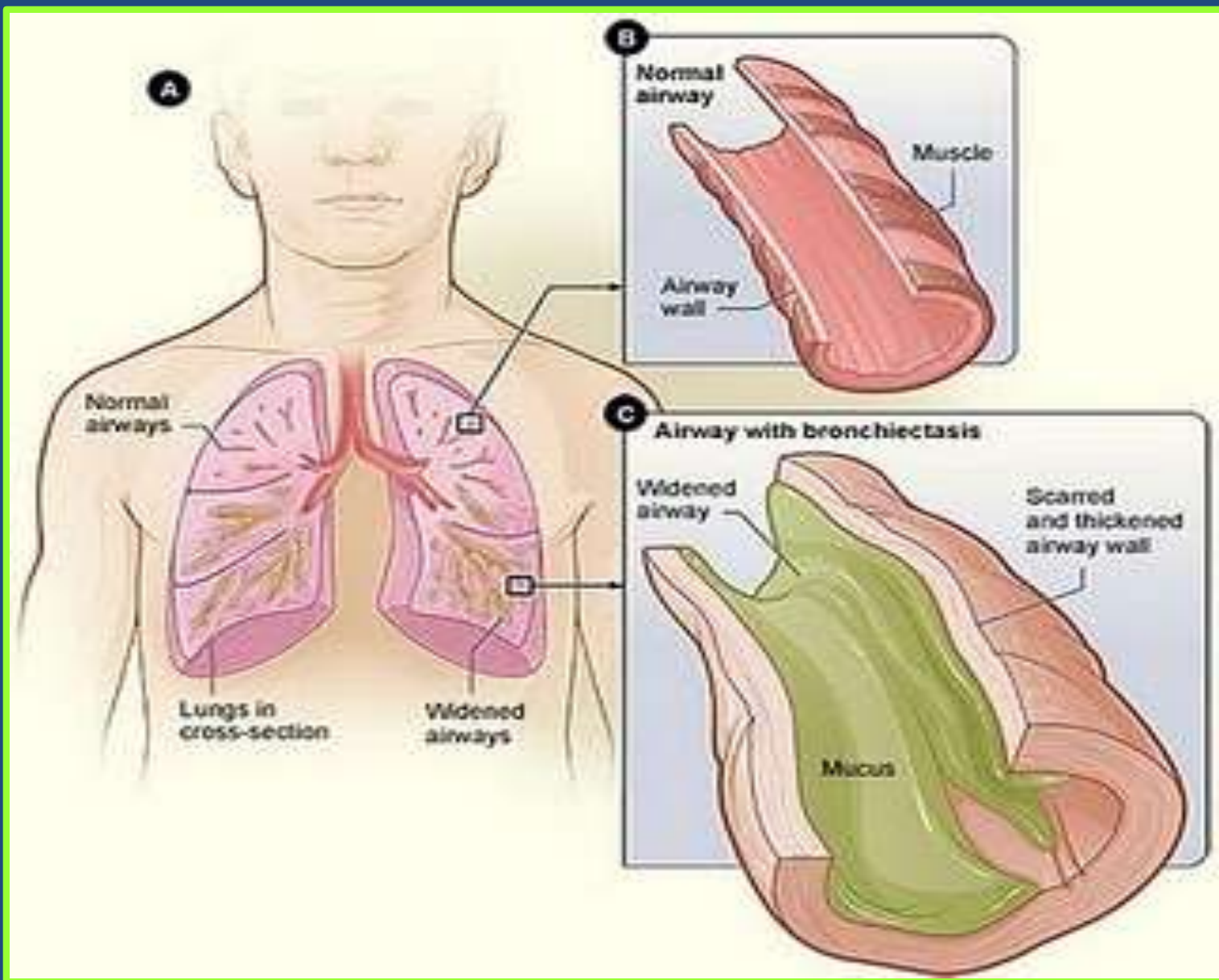
Chronic Bronchitis

- Eventually, the bronchial lining becomes so damaged that the cilia are completely destroyed and chronic inflammation, infection and mucus build-up occur.

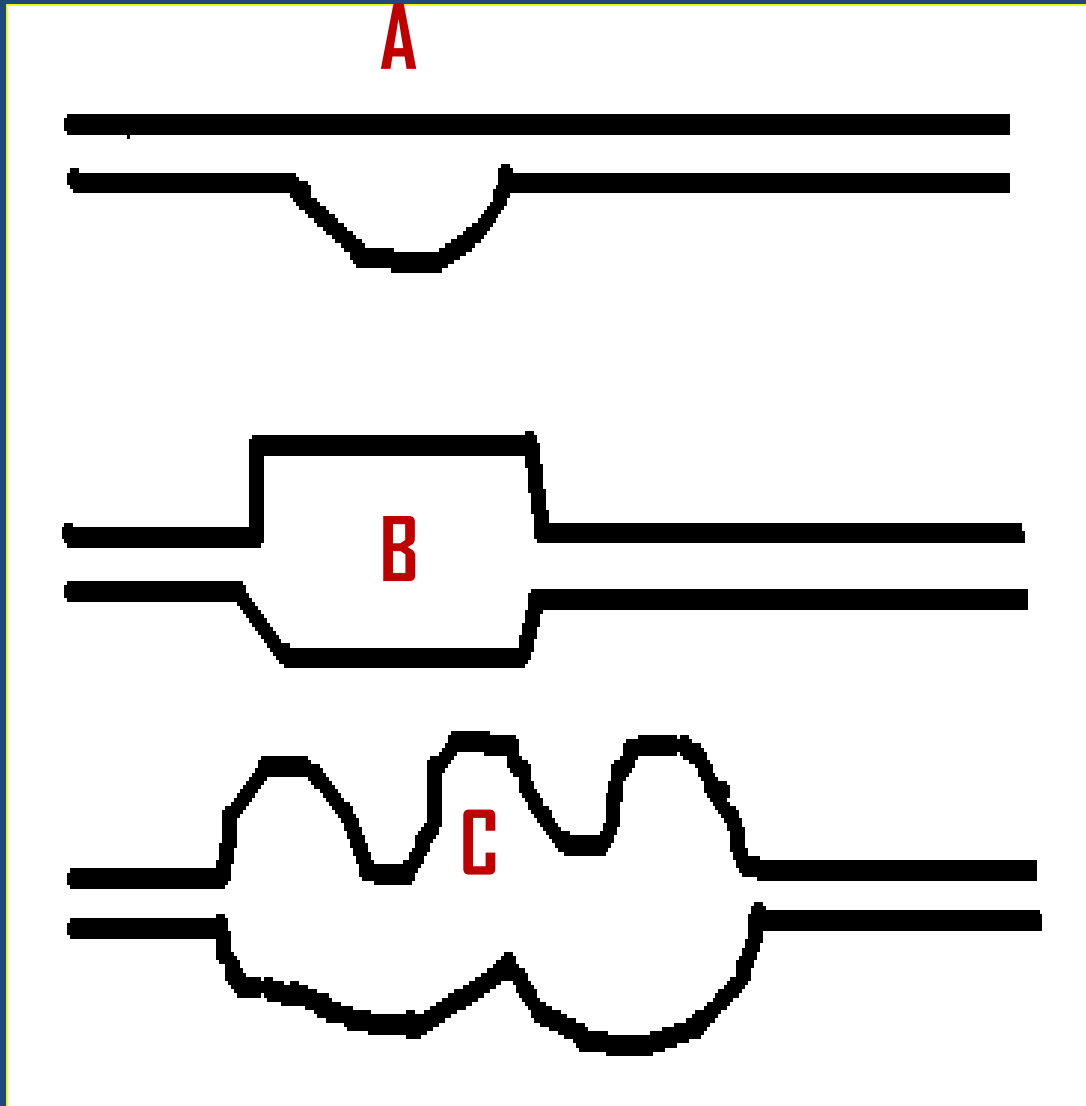


Bronkiektasis

Dilatasi bronkhus yang bersifat **permanen** akibat kerusakan anatomi / struktur dinding pada lumen bronkhus.

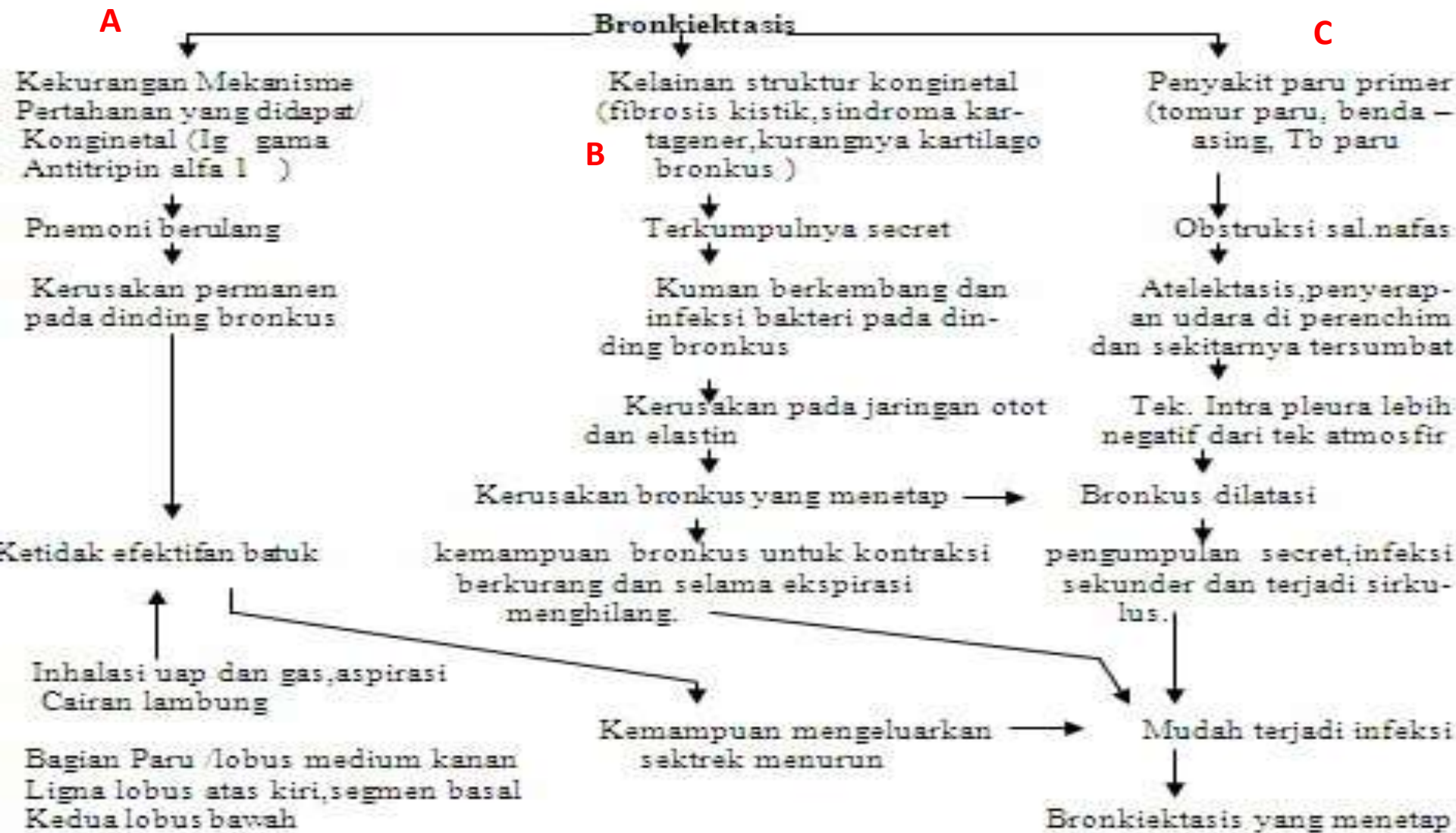


Variasi bentuk pelebaran Bronkhus



- A. Tubuler
- B. Sakuler
- C. Varicose

Patogenesis Bronkiektasis



Gejala Klinis

- ^ Batuk produktif / dengan dahak 3 lapis, jumlah dahak banyak dan bersifat menahun
- ^ Hemoptisis (arteri pada bronkhus / bronkhiolus robek)
- ^ Kurus /astenia (akibat anoreksia)
- ^ Panas (akibat infeksi)
- ^ Sesak napas (akibat obstruksi oleh dahak . Inflamasi)
- ^ Foetor Ex Ore / napas berbau (akibat kuman anaerob)



Dahak 3 lapis (khas pada Bronkiektasis) :

A. Buih

B. Saliva / cairan jernih

C. Pus / Endapan

Profuse mucopurulent

Tanda Fisik

- Kurang gizi dan anemis,
- Dyspneu, sianosis dan jari tabuh
- Ronkhi basah di lobus inferior paru
- Tanda – tanda Pneumonia

Pneumonia

- Demam
- Batuk dengan dahak mukoid / purulen kadang mengandung darah
- Sesak napas
- Nyeri dada pada sisi yang sakit

Makin luas proses Pneumonia → Pemeriksaan Fisik makin jelas

Inspeksi → gerakan paru yang sakit tertinggal

Palpasi → gerakan paru yang sakit tertinggal
fremitus raba meningkat

Perkusi → sisi paru yang sakit redup

Auskultasi → Suara napas bronchovesikuler s/d Bronkhial,
kadang di sertai suara Ronkhi basah

TABLE 4. SYMPTOMS OF ACUTE EXACERBATION OF BRONCHIECTASIS.*

Change in sputum production
Increased dyspnea
Increased cough
Fever (temperature, $> 38.0^{\circ}\text{C}$)
Increased wheezing
Malaise, fatigue, lethargy, or decreased exercise tolerance
Reduced pulmonary function
Radiographic changes consistent with a new pulmonary process
Changes in chest sounds

*In a study by O'Donnell et al.,⁶⁹ a patient with four of these symptoms was defined as having an acute exacerbation.

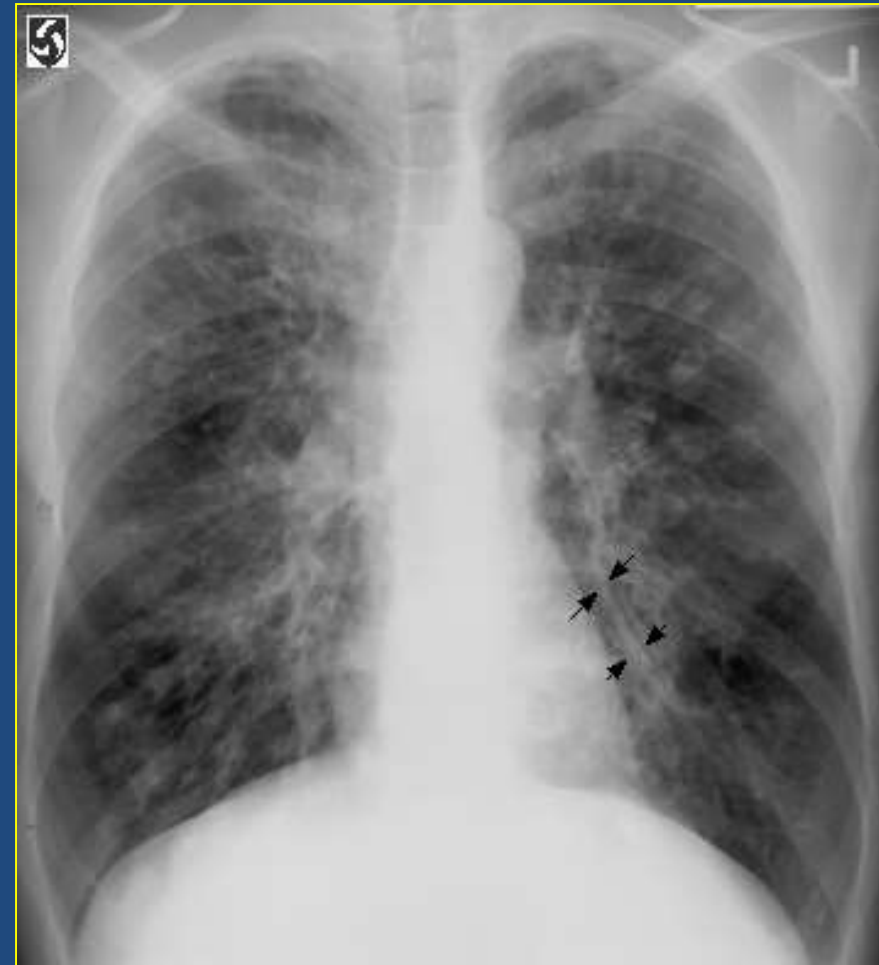
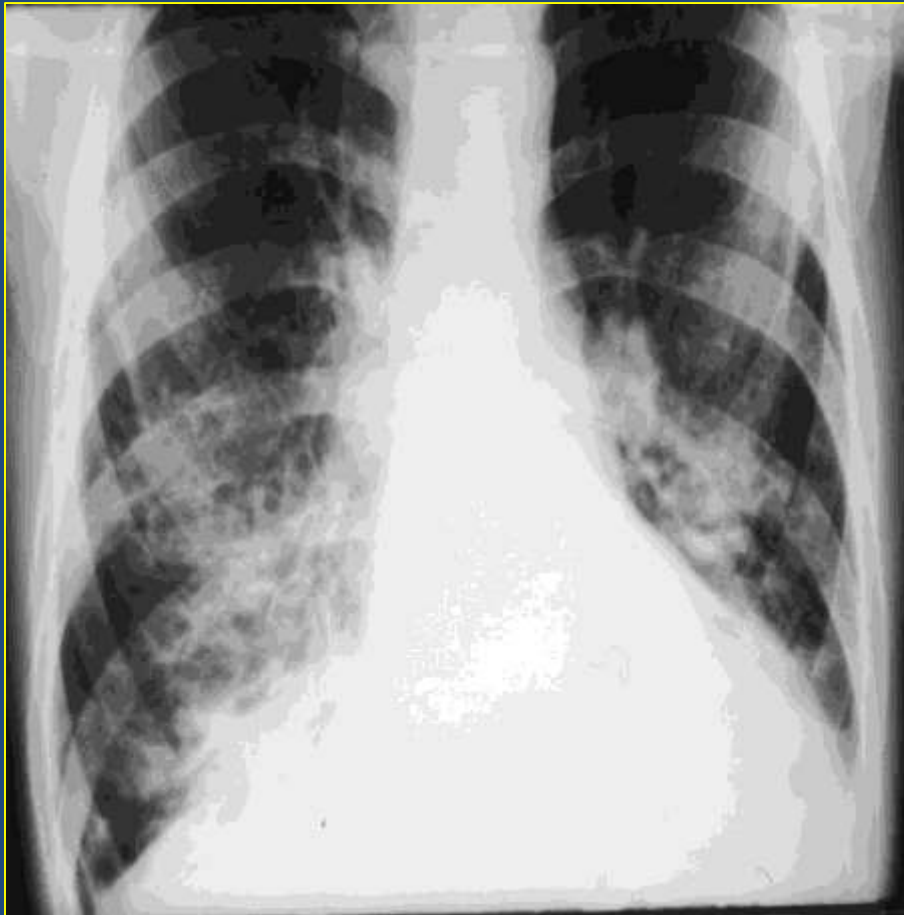
Pemeriksaan Penunjang

Laboratorium →

- Anemi (HB turun)
- Sputum (BTA / Gram)
- Infeksi / Pneumonia (Lekositosis)

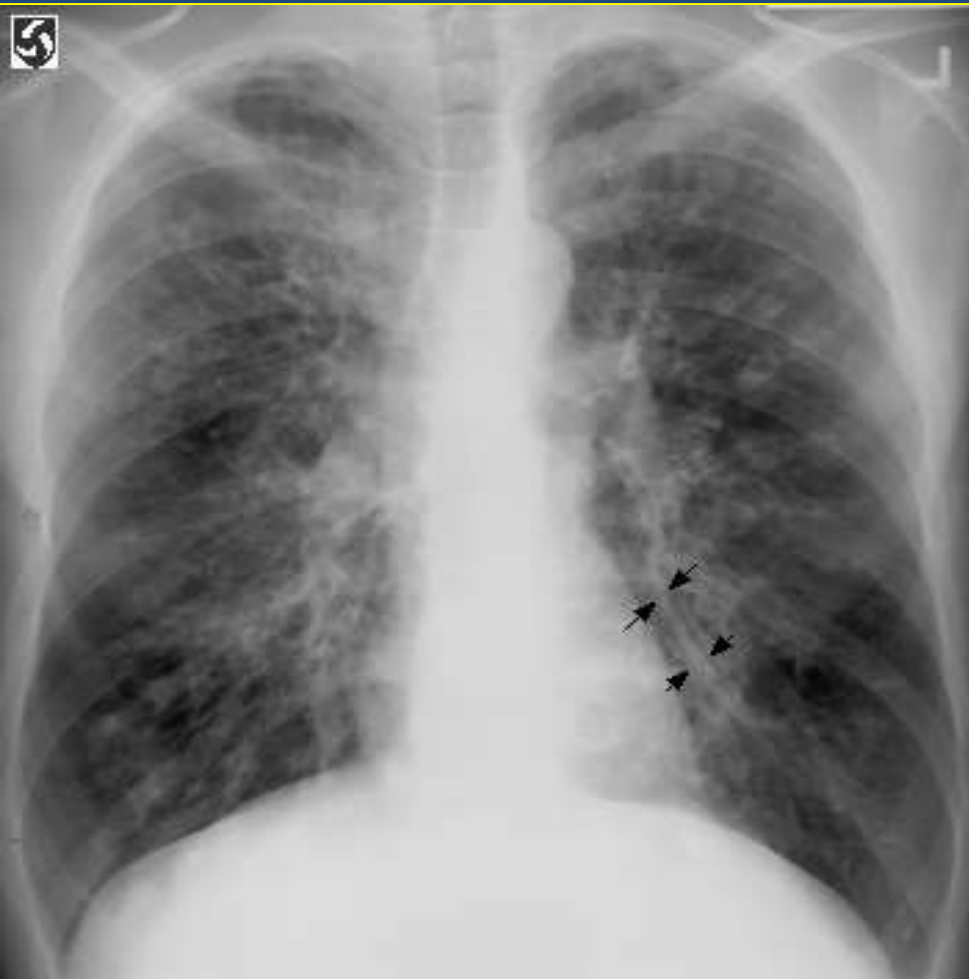
- **Foto thoraks PA dan lateral** : Honey Comb Appearance / sarang tawon
- **Bronkhografi**: nampak kelainan bronkhus yang ektasis (tidak rata / menyempit di beberapa tempat)
- **Bronkhoskopi**: mengetahui bila ada benda asing / tumor dalam bronkhus
- **Faal Paru**: kelainan restriksi dan obstruksi

**Honey comb appearance
Para cardial
dekstra dan sinistra**



**Honey comb appearance
Para cardial
dekstra dan parahiler sinistra**

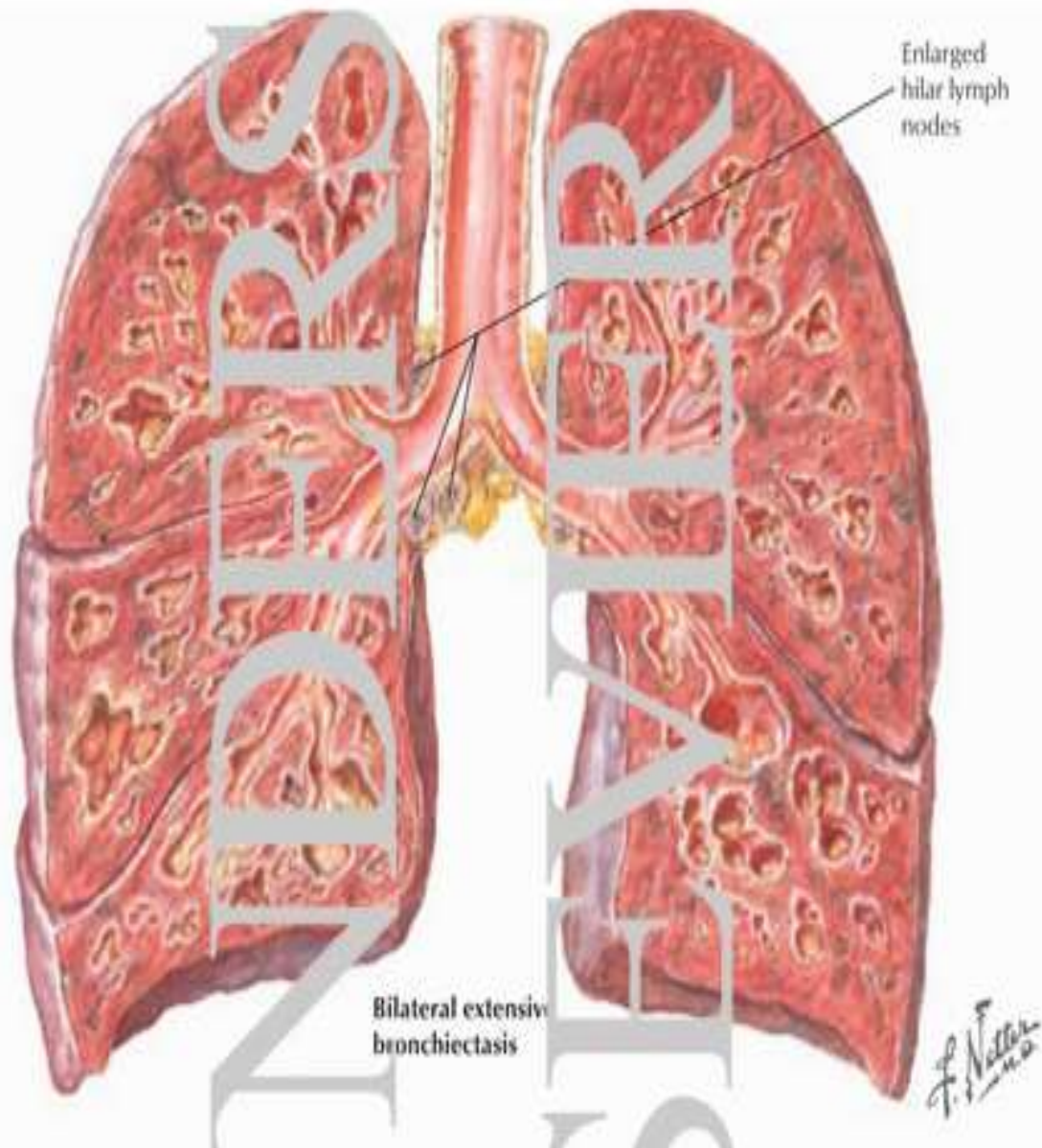
**Honeycomb appearance
di paracardial dekstra dan
parahiler sinistra**



**Honeycomb appearance
di paracardial kanan
diperjelas / diperbesar**



**Gambaran
Ektasis /
saluran yang
menyempit
di beberapa
tempat pada
percabangan
bronkhus**



**Gambaran
Honey Comb
/ Sarang
Tawon
tersebar luas
di kedua
lapangan
paru**

Diagnose Banding

- Bronkhitis kronis (dg bronkhografi
→ bronkhus halus / baik)
- Abses Paru (Foto dada: abses)
- Tumor Paru (Foto dada : tumor)

Komplikasi

- Haemotisis profuse
- CPCD (Cor Pulmonale Cronicum Decompensata)
- Infeksi sekunder (Pneumonia)

Penatalaksanaan

Konservatif – Antibiotika sesuai penyebab

- Drainase postural / Fisioterapi
- Mukolitik / Ekspektorans

Supportif - Memperbaiki keadaan umum

- Psikoterapi

Pembedahan - Reseksi bronkhus / percabangan bronkhus yang rusak

Prognose

- Penyebab
- Lokasi
- Luas proses
- Derajat gangguan faal paru
- Komplikasi

Pencegahan

- Vaksinasi
- Atasi semua gejala obstruksi bronkhus
- Hindari polusi udara / asap rokok

Terima Kasih
Selamat Belajar