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Scientists Discover a New Human Organ 'Interstitialium' (Important) (Download PDF)

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Scientists have discovered new organ 'Interstitialium' in human body, discovery that could help scientists understand spread of cancer within body. Findings of study were published in Nature's Scientific Reports journal on 27th March, 2018.

Image of Interstitium and Interstitial Fluid

Study on New Organ

- Scientists used special live imaging technique called Probe-based Confocal Laser Endomicroscopy (pCLE) to locate interstitium in various parts of body such as lungs & digestive tract.
- Study was conducted by David Carr-Locke & Petros Benias, doctors of Mount Sinai Beth Israel Medical Centre, while investigating patient's bile duct for cancer.
- Research team collected tissue specimens of bile ducts during 12 cancer surgeries that involved removal of pancreas & bile duct.

Findings of Study

- Layers of body 'Connective Tissues' that were long thought to be dense, lining digestive tract, lungs & urinary systems & surrounding arteries & veins - are instead interconnected & fluid-filled compartments.
- These compartments are termed as 'Interstitial' by scientists.
- After thorough study, scientists concluded that interstitium can compress or expand in size, suggesting it could serve as "shock absorber" for other parts of body.
- Once confirmed as organ, interstitium will take skin's place as largest organ in human body.
- Earlier, no one studied these spaces due to medical field's dependence on examination of fixed tissue on microscope slides to get most accurate view of biological reality.
- It will be 80th biggest organ in human body.
- It is found everywhere in human bodies, acting as shock absorber in all places where tissues are moved or subjected to force.
- It is made up of both flexible (elastin) & strong (collagen) connective tissue proteins, w/interstitial fluid moving throughout.
- Organ acts like shock absorber in all places where tissues are moved or subjected to force to protect them from damage.
- It plays important role in carrying lymph, fluid that supports immunity & travels thru lymphatic vessels.

Types of Interstitial Lung Disease

- Interstitial pneumonia: Bacteria, viruses, or fungi may infect interstitium of lung. Bacterium called Mycoplasma pneumonia is most common cause.
- Idiopathic pulmonary fibrosis: Chronic, progressive form of fibrosis (scarring) of interstitium. Its cause is unknown.
- Nonspecific interstitial pneumonitis: Interstitial lung disease that's often present w/autoimmune conditions (such as rheumatoid arthritis or scleroderma).
- Hypersensitivity pneumonitis: Interstitial lung disease caused by ongoing inhalation of dust, mold, or other irritants.
- Cryptogenic organizing pneumonia (COP): Pneumonia-like interstitial lung disease but w/o infection present. COP is called bronchiolitis obliterans w/organizing pneumonia (BOOP).
- Acute interstitial pneumonitis: Severe interstitial lung disease, often requiring life support.
- Desquamative interstitial pneumonitis: Interstitial lung disease that's partially caused by smoking.
- Sarcoidosis: Condition causing interstitial lung disease along w/swollen lymph nodes, & sometimes heart, skin, nerve, or eye involvement.
- Asbestosis: Interstitial lung disease caused by asbestos exposure.

Causes of Interstitial Lung Disease

- Bacteria, viruses, & fungi are known to cause interstitial pneumonias.
- Other irritants which cause Interstitial Lung Disease:
 - Asbestos
 - Silica dust
 - Talc
 - Coal dust, or various other metal dusts from working in mining
 - Grain dust from farming
 - Bird proteins (such as from exotic birds, chickens, or pigeons)
 - Drugs like nitrofurantoin, amiodarone, bleomycin