

What Happens if the Lungs are Damaged

Lungs are designed for effective breathing so that we can get the oxygen from air and deliver it to the various body organs and remove carbon dioxide from the tissues and breathe out from the lungs back to the air. Healthy lungs breathe for lung. **Lungs can be damaged** in variety of ways from congenital problems we may be born with to acquired problems, related to our behaviours or due to the environment exposures and different types of infections.

The children born with lung abnormality suffer from breathing issues from infancy and those may continue through the adult life. These children may suffer from low oxygen, poor growth, recurrent chest infections and low physical energy or stamina.

One of the most common lung problems is **asthma**, both in children and adults. It is a condition in which the lung tubes/airways get intermittent or constant inflammation leading to more mucus production causing productive cough, narrowing of airways/tubes causing breathlessness, worse on exertion, wheezing (a whistle like sound) coming out of the lungs, chest tightness or pain/discomfort. These symptoms can be intermittent and or brought on by the infection/allergy/bad air or irritant exposure. We will discuss about asthma in detail in a separate blog.

Another common lung problem is **COPD (chronic obstructive pulmonary disease)**. It is a chronic lung disease, most commonly due to long-term tobacco smoking. Smoking related COPD can be of two different kinds, **chronic bronchitis**, and **emphysema**. In patients with **chronic bronchitis**, there is narrowing of lung tubes/bronchi, inflammation, and increased mucus production. It leads to reduced airflow, more noticeable when we need to breath harder (as during exercise). These patients usually suffer from chronic cough, mucus production and shortness of breath. Wheezing can be a significant symptom too.

Emphysema is damage of lung sponge/structure due to long term smoking. It leads to difficulty transferring oxygen from within the lungs to the blood stream. It results in breathlessness on exercise when we need more oxygen for our exercising muscles.

Emphysema and chronic bronchitis tend to develop in all smokers, though in various proportion, meaning some patients have predominant emphysema and other has predominant chronic bronchitis. CT scan of lungs along with **breathing test (diffusion capacity)** provide assessment for emphysema whilst **breathing tests (spirometry, lung volumes)** provides more relevant information to chronic bronchitis.

All patients who suffer from significant COPD symptoms should have detailed breathing tests (**spirometry, diffusion capacity and lung volumes**) and CT scan of the lungs for proper evaluation and management of their lung disease.

Patients can get **acute flare up of asthma and COPD** usually related to viral or bacterial chest infections and it is like having a heart attack. We sometime call acute flare-ups of COPD as **Lung Attacks**. During these flare-ups/exacerbations, patients' symptoms of productive cough and breathlessness increase significantly, and they may need to be hospitalized. These conditions can be fatal in patient with advanced COPD or asthma or if left untreated. Actual

heart attacks are more common during acute flare up of lung diseases. These flare-ups should be treated at the earliest to avoid significant issues as it can lead to further damage to already damaged lungs.

Chest infections are one of the common infections we suffer from. These can happen in either previously healthy people or with diseased lungs (like asthma or COPD). Luckily, most common chest infections are usually viral throat infections or **acute bronchitis** (infection of major tubes of lungs). These are usually self-limiting diseases and settle within few days with general measures. **Pneumonia** or bacterial lung disease can develop suddenly but most commonly after some initial viral infection of the throat or major tubes/bronchi (bronchitis).

Pneumonia is infection/inflammation of the lung tissue which usually need a chest X-ray or CT scan for proper diagnosis. Patients with pneumonia may need antibiotics, orally if not very sick, or through the veins, if they are quite sick and need hospitalization. Pneumonia used to be very fatal disease which, still can be the case, if not treated properly. Having prior vaccination against influenza and pneumococcus (common bacterial causing pneumonia) reduces the risk of getting severe pneumonia.

Though uncommon, but other microorganisms like fungi or atypical bacteria (like **tuberculosis**) can cause chest infections or pneumonia. These infections need different treatment.

There are few **non-infectious pneumonias** which we usually suspect when pneumonia does not respond to typical treatment with antibiotics or have recurrent course.

The lungs are lined by a thin layer of tissue with potential empty space between the lungs and chest wall. If there is any fluid build-up in that space, we call it **pleural effusion**. There are multiple causes of pleural effusions, common being **chest infection (pneumonia, or TB)** or heart failure. Occasionally it may be due to **lung cancer** or other cancers which may have spread to the lungs. Pleural effusions (except for heart failure) are usually signs of serious disease and should be properly investigated and treated.

Some people have issues with ribs and spines causing **deformed chest wall** leading to different issues, usually presenting with breathlessness. Though rare, these need to be investigated properly as these patients can develop **lung failure/respiratory failure** which is usually fatal if not treated appropriately.

All blood that runs through the body passes through the lungs (about 5 litres/min at rest). Like high blood pressure/hypertension which we measure at the arm, we can develop high pressure in the lung arteries which we call **Pulmonary Hypertension**. The pulmonary hypertension can develop due to many diseases which needs to be investigated and managed properly. It can lead to premature death if left untreated.

Blood clots can get entrapped in the lung arteries causing blockage to blood flow. We call it **pulmonary embolism**. It usually presents with sharp chest pain, usually sudden in onset, breathlessness, and sometime blood with coughing. If it is a large blood clot, it can lead to

heart arrest and sudden death. If we suspect someone having blood clot, those patients need to be usually admitted and investigated on urgent basis.

As a foreign trained pulmonologist and expert in lung issues, we can assess any lung related problems, do appropriate investigations, and manage it accordingly in our clinic. We have established first private sector **pulmonary function test laboratory** in Lahore where we can perform not only simple spirometry but also diffusion capacity, lung volumes and other pulmonary function tests.

Our clinic name is Australian Polyclinic, situated in DHA phase 5 CCA, Lahore. You can explore and learn more about our services at www.australianpolyclinic.com

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