

## THE PLEURA: THE LINING OF THE LUNG

Both of your lungs are surrounded by two very thin layers, like “cling film”. These layers are called the **pleura**. The inner layer of film is attached to the lung. It is known as the visceral pleura. The outer layer is called the parietal pleura. The two layers are separated by a very small amount of fluid. This fluid keeps the pleura moistened. The pleura are very thin. This allows the lungs to expand and contract without difficulty. However, the pleura can become **thickened or hard**. This will prevent the lungs from expanding properly, making it **difficult to breathe**. This happens with mesothelioma.

## WHAT IS MEANT BY MESOTHELIOMA?

Mesothelioma is a **form of cancer** that grows on the pleura around the lung. It can **rarely** grow in other places. These include the lining of the abdomen, the lining of the testicle and the lining of the heart. However, in **8 out of 10 cases** of mesothelioma, it is the pleura that is affected.

## WHAT CAUSES MESOTHELIOMA?

In the vast majority of cases, inhaling certain types of **asbestos** dust is the cause of mesothelioma. About 7 out of every 10 cases of pleural mesothelioma are due to exposure to asbestos. A virus called SV40 has also been linked to the development of mesothelioma. However, this link has not yet been proven. Exposure to a variety of other dusts may also cause this cancer. Asbestos exposure does remain the most important factor.

## WHAT IS ASBESTOS?

Asbestos is a mineral fibre often used in the construction industry until the 1970's. Asbestos is used in industry because of its resistance to heat and combustion and because it strengthens concrete. It is still used in cement, ceiling and pool tiles, automobile brake linings, and in shipbuilding. There are 2 different types of asbestos called **serpentine** (white, relatively harmless and not associated with mesothelioma) and **amphibole** (blue and brown) asbestos. Amphibole asbestos is the most harmful. Use of blue asbestos was discontinued in 1969, brown in 1981 and white asbestos in 1999. Those affected are mainly builders, plumbers and shipyard workers. Many other workers may be at risk since asbestos was used in the construction of many buildings, including schools and hospitals. Families of workers are also at risk. Workers

would often arrive home with asbestos fibres on their work clothing. Close family contacts can also develop mesothelioma.

## ASBESTOS AND MESOTHELIOMA

Mesothelioma is a very rare tumour and only associated with amphibole asbestos exposure. It is unclear how much exposure is necessary to develop mesothelioma but it may be very low. Determination of risk of mesothelioma is complicated and depends both on the type and amount of asbestos exposure and in what context the exposure occurred. In any case, there is a long time-gap between contact with asbestos and development of mesothelioma. It takes about **20 to 40 years** for mesothelioma to appear after exposure to asbestos!

## HOW COMMON IS MESOTHELIOMA?

There is not much information available as to how common mesothelioma is in Ireland. About 2200 new cases of mesothelioma are reported in the United States every year. The number of cases reported worldwide increases every year. About 3000 deaths per year are expected in the UK by the year 2020. After this, the number of cases is expected to fall. This is because of laws recently introduced to reduce asbestos exposure in the workplace and the environment. **It is a rare tumour.**

## WHAT ARE THE SYMPTOMS OF MESOTHELIOMA?

In the early stages, the tumour causes no symptoms. Symptoms generally only appear when the tumour has grown significantly. Because the tumour grows around the lung and prevents it expanding, the main symptom is **shortness of breath**. This usually comes on very gradually over a period of months or years. Another common symptom is **pain in the chest**. This pain is on the side of the tumour. **Cough** may be a problem. **Weight loss** and **tiredness** may occur. There are other less common symptoms such as hoarseness and difficulty swallowing.

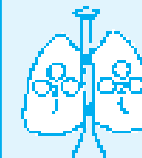
## HOW DO DOCTORS DIAGNOSE MESOTHELIOMA?

A **chest x-ray** may show abnormal **thickened pleura** around the lung. It may also show fluid **around the lung (a pleural effusion)**. However, an ordinary chest x-ray is

not very good at showing up mesothelioma. A special scan of the lungs, called a **CT scan**, may be required. This will give more detailed pictures of the lungs and the pleura. This scan is very good at showing up the abnormal pleura. Mesothelioma commonly causes a build up of fluid around the lung (**a pleural effusion**). Your doctor will take a sample of this fluid to send to the laboratory. The doctor gets this fluid by inserting a small needle through the skin of the chest in a marked area. He can then withdraw some fluid with a syringe. This technique is called **pleural aspiration**. Your doctor will numb the skin of the chest with local anaesthetic beforehand. This will ensure that the procedure is fairly painless. The fluid is then sent to a laboratory in the hospital for examination under a microscope. Mesothelioma can be diagnosed by the presence of abnormal cells in the fluid. Further tests are often required to confirm the diagnosis. A **thoracoscopy** is often carried out. This is a surgical procedure performed under a general anaesthetic. A telescope (**or thoroscope**) is inserted through the skin between 2 ribs in order to examine the pleura. This exam allows the surgeon to explore the pleura to see if it looks abnormal. During the procedure, small pieces of tissue (**biopsies**) can be taken from the pleura. Also, any fluid

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found can be drained. The biopsies are examined under a microscope in the laboratory to see if mesothelioma is present. Finally, a **bronchoscopy** may be performed. This is a painless procedure done as a day case. It involves passing a small tube down the nose or mouth, into your lungs, while you are gently sedated with a small injection. This allows the doctor to take samples from the lung itself. Any other forms of cancer or asbestos lung diseases can be detected.

### TREATMENT OF MESOTHELIOMA

Unfortunately, there is no present cure for mesothelioma. Clinical trials are ongoing at the moment to test new promising therapies. Current treatment is aimed at **slowing progress** of the disease and **controlling symptoms**. Build up of fluid around the lung can be drained by either bedside **pleural aspiration** or **thoracoscopy** (see above). During either of these procedures the doctor can also inject a special medication over the surface of the pleura. This causes scarring of the pleura and prevents the fluid from building up again. This is called **pleurodesis**. Sometimes an **operation** is appropriate. Some of the mesothelioma can be stripped from the surface of the lung, under a general anaesthetic. **Radiotherapy** is sometimes used. This is good at

shrinking the tumour and/or controlling symptoms. This involves sitting in front of a machine that delivers high doses of x-rays to the chest. The skin of the chest is usually marked before starting treatment. This allows the x-rays to be sent to a specific area of the lungs.

**Chemotherapy** is sometimes given for mesothelioma. This involves giving medication that makes the cancer shrink. The medication is usually given in the hospital. It is in the form of injections through a "drip". Sometimes, chemotherapy can be given in tablet form. Nowadays, chemotherapy has fewer side effects. Nausea and vomiting can be prevented by effective medications. Hair loss may occur. The hair will grow back after treatment. Chemotherapy can lower your resistance to infections. Regular monitoring, including blood tests, is necessary. Sometimes, the different treatments described above will be **combined** together if the doctor feels that it is appropriate. Even though no cure can be offered for mesothelioma, modern drugs are very effective at controlling symptoms. **No one** with mesothelioma should experience suffering.

### MEDICO-LEGAL ASPECTS

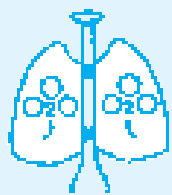
People with mesothelioma who have worked with asbestos dust are entitled to monetary compensation for themselves and their families. You should discuss this with your doctor and solicitor.

## THE IRISH LUNG FOUNDATION LIMITED

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The Irish Lung Foundation is working throughout Ireland to improve the prevention, diagnosis and treatment of all lung diseases. Lung Foundation research is making advances which will benefit the half-million people in Ireland with a lung disease such as bronchitis, emphysema, asthma, sarcoidosis and pneumonia.

Dedicated to the memory of Gerard Fallon, who died from this disease on 29th December 2002.  
His courage and dignity were an inspiration to his family and all who knew and cared for him.



## LUNG DISEASE – DOES IT AFFECT YOU OR YOUR FAMILY?

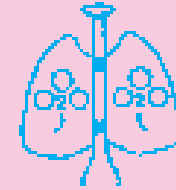
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## IRISH LUNG FOUNDATION LTD



## Explaining:

# MESOTHELIOMA

## Information Leaflet