

#### IV.

### DISEASES OF THE PLEURA.

#### PLEURITIS.

**Definition.**—Pleuritis, commonly known as pleurisy, is an inflammation of the pleura, limited or general. Divided, according to duration, into the acute and chronic; according to form, into the plastic (dry or adhesive) and pleurisy with effusion.

**Etiology.**—Pleurisy may occur primarily as the result of exposure or traumatism, or secondarily in association with various diseases, pneumonia, tuberculosis and all other diseases of the lungs, or with the various infectious diseases, also with Bright's disease and rheumatism. The tuberculous origin of many pleurisies has been demonstrated.

#### DRY, PLASTIC OR ADHESIVE PLEURISY.

This form is usually localized. The attack begins with chilliness, moderate fever; sharp, sticking pain in the affected region, more when breathing, and a short, dry cough which causes pain. Friction sound is distinctly heard over the inflamed area during respiration and is due to the rubbing of the dry and roughened pleural surfaces together. It is this friction that causes the pain.



After a few days, under appropriate remedies and hot applications, the symptoms disappear. During the height of the inflammation a thin, fibrinous, exudative layer forms, and this aids in the formation of the adhesions between the roughened pleural surfaces, which are so common after a "dry" pleurisy.

#### PLEURISY WITH EFFUSION—SERO-FIBRINOUS PLEURISY.

**Definition.**—That form of pleurisy in which there is a large accumulation of serous exudation.

**Pathology.**—Many cases of this form are microbic in origin, especially tuberculous. The exudate is thin, light, straw color and translucent. In some cases the effusion takes on a bloody character, particularly in infectious fevers, cirrhosis of the liver, cancer and Bright's disease. This form is known as hæmorrhagic pleurisy. In other cases bands of adhesion form, dividing the effusion into various pockets. This is termed encysted pleurisy. In sero-fibrinous pleurisy the inflammation is more generally distributed than in the dry or plastic form.

**Symptoms.**—The attack begins with a chill or chilliness, followed by a rise of temperature to  $102^{\circ}$  or  $103^{\circ}$ , rarely more. There is a short, dry, hacking cough; sharp, lancinating pain, aggravated by breathing, coughing or motion, and usually located in the infra-maxillary region. Dyspnoea is present, at first due to pain, but later to compression of the lung by the effusion. The patient lies on the back or painful side. The fever lasts from one to four weeks and may disappear before the ex-

udate does. As the fluid forms the pain decreases, but the oppression of breathing gradually increases in proportion to the rapidity and amount of the effusion forming. It is well to remember that cases may come on insidiously and the patient attend business until the dyspnoea, feebleness and emaciation demand attention. As the disease progresses there is constipation, anorexia, feebleness and emaciation.

**Physical Signs.**—*Inspection* shows impaired motion of the affected side, which appears enlarged, with filling out or obliteration of the intercostal spaces. *Palpation.* Vocal fremitus is diminished and the heart impulse is displaced according to the side affected and the amount of effusion. *Percussion* shows dullness beginning at the base of the lung posteriorly and extending up to a line corresponding to the level of the effusion. The dullness varies in degree according to the amount of fluid, amounting in cases of large accumulation to flatness, excepting at the upper portion of the lung, and that is dull. The opposite lung is often hyper-resonant. There may be some dullness after absorption takes place because of the thickened membranes and failure of the long-compressed lung to expand. *Auscultation* reveals friction sound until effusion takes place, when it disappears. Vesicular breathing grows more and more feeble as the fluid accumulates, and finally disappears, its place being taken by bronchial breathing.

**Diagnosis.**—The symptoms and physical signs are usually sufficient to determine the diagnosis. If doubt exists, a sterile hypodermic needle may be inserted in the fifth or sixth interspace on a line with the center of the axilla, or posteriorly on the same level. The sudden



violent onset, severe chill, high fever, rusty sputum and the disturbed pulse-respiration ratio distinguishes lobar pneumonia. Whether the pleuritis is tuberculous or not is determined by the history, obstinacy, emaciation and hectic fever.

**Prognosis.**—Is usually favorable, except it be tuberculous in nature; may, however, be protracted in course and adhesions are usually left.

#### PURULENT PLEURITIS—EMPHYEMA.

**Etiology.**—Purulent pleuritis may occur primarily, *i. e.*, purulent from the start. This is more frequent in children and not usual in healthy individuals; or, as a sequence of serous-fibrinous pleurisy, this again is not usual in healthy individuals. The secondary pleurisies occurring as complications or sequelæ of the various infectious diseases are usually purulent in character, notably in scarlet fever, typhoid and many tuberculous cases. Purulent pleurisy may result from local causes, fracture of a rib, penetrating wounds, malignant diseases of the lungs or œsophagus, and perforation of tubercular cavities into the pleuritic cavity. Microscopically the fluid in empyema has the characteristics of ordinary pus. It may be fetid in some cases, especially after perforating wounds or in cancer or gangrene of the lung.

**Physical Signs.**—Practically are those of serous pleurisy, except that the greater weight of the fluid causes more bulging of the lower intercostal spaces and greater displacement of the heart or liver.

**Symptoms.**—Empyema may come on insidiously with

few chest symptoms, especially if during other diseases or following sero-fibrinous pleurisy. But the symptoms of septic infection are generally present, anorexia, pallor, weakness, sweats and irregular fever. A cough in this form is not always constant.

**Other Varieties.**—*Tuberculous*, with the symptoms of sero-fibrinous or purulent pleurisy. *Hæmorrhagic pleurisy* or *hæmothorax*, occurring in the pleurisy of asthenic states, cancer, chronic nephritis, tuberculosis and the malignant fevers. *Interlobular pleurisy*, involving the serous surfaces between the lobes. *Encysted pleurisy*, in areas isolated by bands of adhesion. *Chronic pleurisy* occurs in two forms: First, chronic pleurisy with effusion, coming on insidiously or following the acute form, the fluid remaining in a variable quantity for years unchanged. Second, chronic dry pleurisy (*a*) as a sequence of ordinary pleurisy with effusion, the membrane thickened, dense, adhesive, some limitation of lung expansion and variable pains. (*b*) Following plastic pleurisy, the "primitive dry pleurisy," with thickening and adhesions.

**General Treatment.**—The patient should be kept at rest in bed and fed a light, nutritious diet. In the early stages flaxseed poultices or hot fomentations are beneficial and give grateful relief from the pain. In severe cases an excellent method is to strap the affected side during expiration with overlapping strips of adhesive plaster three inches wide. They should reach from the spine to the sternum. Codeine or Morphine in one-fourth to one-twelfth grain doses may be deemed necessary at intervals during the period of agonizing pain, but other means usually suffice. In the stage of effusion a dry diet, limiting the quantity of liquid taken to eight or



twelve ounces daily, will check and reduce the amount of effusion. A more active step in robust patients is to combine the dry diet with a dose of Sulphate of Magnesia (four to eight drachms) administered each or every other morning.

*Thoracentesis* should be resorted to when the rapidity of the exudation produces severe dyspnoea, feeble pulse, cyanosis, etc., or in protracted cases where, in three weeks, the fever having subsided, the patient is exhausted, with no decrease in the amount of the fluid. The operation is not a serious one, but should be done under all antiseptic precautions. A few drops of Cocaine solution, five per cent., may be previously injected at the site of puncture to ease pain, and the skin may be slightly incised, if the needle used be a large one, to facilitate its introduction. The patient's arm should be brought forward and the hand placed on the opposite shoulder. The aspirator needle should be introduced close to the upper border of the rib (to avoid wounding the intercostal artery) in the sixth or seventh intercostal space in the mid-axillary line. The fluid should be withdrawn slowly and the amount should depend upon the amount of effusion and the length of time in forming. More in proportion may be withdrawn from a rapid effusion than one more slowly formed. Stimulants should be at hand, and severe pain, dyspnoea, cyanosis, violent cough or faintness, should call for their use and a cessation of the operation. This operation is not only palliative, but curative, in many cases, even if only a portion of the fluid be removed. It is a proceeding seldom demanded in children unless the case is purulent. It may have to be repeated in the aged. Purulent collections in children will sometimes disappear by absorption without drainage.

**Remedies.**—*Aconite*.—Indicated in the early stage. Chill or chilliness, fever, thirst, restlessness, dry cough and sharp pains.

*Bryonia alba* is the classic remedy for the dry or plastic pleurisy, but becomes of less value as the fluid increases. The patient has sharp lancinating pains in the affected region, worse from motion or coughing. The cough is dry, hard or hacking, but restrained because of the pain. The patient lies on the painful side, breathing is repressed, there is fever, thirst, headache, furred tongue and constipation.

*Ferrum phosphoricum* for dry pleuritis in hectic or phthisical persons.

*Kali carbonicum*.—Prostration, cough, with tough expectoration; sticking pains with early morning aggravation.

*Squilla*.—Dyspnoea, with stitching pain in left side; short, rattling cough. For a dry pleurisy with a loose cough.

*Sulphur*.—Short, dry cough, with thoracic stitches and soreness, worse from motion. To complete the cure.

These remedies are usually sufficient to relieve a simple dry pleuritis. In those cases going on to sero-fibrinous exudation, as the fluid forms the acute symptoms of fever, pain, etc., gradually diminish and another variety of symptoms appear calling for another class of remedies.

*Apis mellifica*.—General tendency to serous exudation and dropsies. Valuable to promote absorption.

*Arsenicum album*.—Often indicated for the prostration, emaciation, dyspnoea, restlessness, fever, thirst, etc.

*Arnica Montana* is useful in pleurisy of traumatic origin or otherwise, with the characteristic sore, lame,



bruised sensation and pain. Bed feels too hard. Pleurodynia.

*Cantharis*.—The most valuable remedy to promote absorption in the exudative stage. Rawness and burning, with burning pains Vesical tenesmus. Acts best in the tincture, five to ten drops in four ounces of water, and one teaspoonful given every two hours.

*Colchicum* or *Rhus toxicodendron* in cases of rheumatic disposition or history, especially from exposure to raw winds or from getting wet.

*Sulphur*.—Is most valuable to promote absorption of fluid in cases that reach a standstill. May be used intercurrently with other remedies.

Purulent pleurisy is usually not considered amenable to remedies except in children, but in them and in some others much may be accomplished by the use of carefully selected drugs especially is this true after operation, which consists of resection of a portion of one rib, and thorough drainage, with frequent washing out of the cavity.

*Silicea*, *Sulphur*, *Calcarea carb.*, *Hepar sulph.* and *Arsenicum iod.* are of particular value in these cases to aid in the cure.

### HYDRO-THORAX.

**Definition.**—Hydro-thorax is a non-inflammatory pleuritic effusion of thin, serous character and is a part of the general dropsy resulting in cases of chronic heart disease, in which case it is usually unilateral and on the right side. It also occurs in kidney disease, anæmia and

other conditions, such as malaria, profuse diarrhœa, etc., inducing great blood impoverishment; these latter cases are bilateral.

**Physical Signs** are those common to pleurisy with effusion.

**Symptoms** are those of the associated disease plus dyspnoea, orthopnoea, cyanosis. There is no pain and no fever. Expectoration, if present, is thin, frothy and watery.

**Treatment.**—Aspiration should be performed if necessary, but postpone it as long as possible owing to the tendency to recur. (See "Thoracentesis" in pleurisy with effusion.) The use of saline purges may temporarily reduce the amount of effusion.

**Remedies.**—*Arsenicum album*.—Oppression of breathing with ascites and anasarca; scanty, frothy expectoration. Rapid, weak pulse; pallor, emaciation, restlessness and anxiety, thirst, faintness, anæmia and exhaustion.

*Apocynum cannabinum*.—Nausea, vomiting, drowsiness, difficult breathing, thirst and gastric irritability, with scanty urine and general evidence of dropsy. Acts best in appreciable doses. The tincture, ten drops three or four times daily, or, better still, an infusion, one teaspoonful every four hours, gradually increased.

*Digitalis*.—Irregular, difficult breathing, with sighing; weak, intermittent pulse, with faintness; œdematous swellings, with scanty urination. Particularly in cardiac disease. Give the infusion, one teaspoonful every three or four hours, and increase. The tincture may be used in five to fifteen drop doses in a like interval.

*Sulphur*.—As a supplemental remedy in long-lasting



and obstinate cases, where the urgent symptoms subside and some effusion is left. To promote reaction and absorption.

### PNEUMO-THORAX.

**Definition.**—The entrance of air into the pleural cavity. This accident is most frequent in male adults and is usually rapidly followed by pleural inflammation and effusion, which results in hydro-pneumo-thorax or pyo-pneumo-thorax.

**Etiology.**—This condition arises from a variety of causes, the most common being the rupture of a tuberculous focus or cavity during the course of pulmonary phthisis, less frequently by the perforation of the pleural sac by abscess, gangrene or malignant disease either of the lungs or adjacent organs. Wounds and injuries to the chest or the strain during violent physical effort or severe coughing may be the cause.

**Physical Signs.**—Pneumo-thorax is a unilateral condition. Inspection shows the intercostal spaces of the affected side obliterated with decided enlargement and immobility. The heart impulse, the liver and spleen are displaced according to the side affected. Palpation, vocal fremitus is diminished or abolished. Percussion over the accumulated air is tympanitic to the line of fluid which yields flatness, varying with the position of the patient. Auscultation reveals absence of vesicular breathing and a faint, distant inspiratory sound of amphoric quality. The rales heard during cough or inspiration are metallic in sound. The metallic tinkle and a splashing sound may be heard by agitating the patient.

The *bruit d'airain* of Trousseau, known as the "coin test," is strongly diagnostic. It consists in tapping one coin against another placed against the chest wall while the auscultator holds an ear over the air-distended area. A clear ringing metallic sound is very conclusive as a diagnostic test.

**Symptoms.**—If the opening into the pleural cavity is large so that air may pass in and out with each respiration the symptoms may develop slowly, but usually there is a valvular action at the opening so that all the air inspired does not pass out with the subsequent expiration and symptoms of an urgent and alarming nature develop at once, *i. e.*, dyspnoea, pain, faintness, orthopnoea, cyanosis, feeble, rapid pulse, and the patient may die in a few hours from obstructed respiration and collapse. If not so severe, inflammation soon develops with fever, pain, etc., followed by effusion, and the patient dies from pulmonary œdema, cyanosis and the general effects of combined fluid exudate and air pressure.

**Prognosis.**—This depends upon the history of the case. In healthy individuals there is good hope of recovery if the patient outlives the first few days. The perforation heals, the air is absorbed and the case remains as one of simple pleurisy with effusion or empyema. In cases occurring during the course of phthisis or malignant disease there is but little hope, the patient usually survives only a few days.

**Treatment.**—The remedies and methods to be employed are the same as in pleurisy with effusion. When the dyspnoea is great, the respiration and pulse rate high and cyanosis and pain are present, the effused air may be aspirated with great relief and good effect.



**HÆMO-THORAX.**

**Definition.**—Hæmo-thorax is an accumulation of blood in the pleural cavity.

**Etiology.**—Due, first, to mechanical injury; second, pulmonary hæmorrhage into the pleural sac, rupture of an aneurism, or erosion of a blood vessel by cancer or tuberculosis. The blood may cause suppuration and rapid death or may be absorbed.

**Symptoms.**—Are those of hæmorrhage, with symptoms of lung compression and pleuritic effusion added.

**Prognosis.**—If the hæmorrhage into the pleura is of pulmonary origin, air enters also and the whole situation is most unfavorable; also in aneurism, which is rapidly fatal. From trauma the prognosis is more favorable.

**Diagnosis.**—This is made on the evidence of rapid effusion after injury, without signs of pleuritis, or in association with intra-thoracic aneurism or malignant disease.

**General Treatment.**—Consists of absolute rest, ice-bags to the chest, if the diagnosis is sure. Aspiration may be resorted to if necessary.

**Remedies.**—*Hamamelis*, *Secale*, *Ipecac* or *China* according to their special indications.

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**Diseases of the Mediastinum.**