"OCCUPATIONAL LUNG DISEASES AND THEIR HOMOEOPATHIC APPROACH"

- **INTRODUCTION:**[1,2,4,5]

Occupations and respiratory disease intersect in three ways:

1. Those instances where a workplace exposure has given rise, de novo, to a condition that would not otherwise have occurred; a truly "occupational" disease (most familiar one).
2. Exposures or other circumstances encountered at work may worsen a pre-existing condition–a common example is work-exacerbated asthma .
3. A pre-existing disease may render a patient relatively or completely unfit to carry out their job.

Lung diseases greatly contribute to the total burden of ill-health. Unlike many other diseases, they are primarily caused by exposure to environmental agents, and for this reason, are potentially preventable.

- **EPIDEMIOLOGY:**[1,2,3,4,5]

The International Labour Organisation (ILO), estimates that 2 million of the world's 2.5 billion workers die each year from occupational accidents or diseases, a third of the latter comprising respiratory cancers and interstitial lung disease.

In India, major occupational diseases are pneumoconioses (including silicosis, bagassosis, anthracosis and byssinosis), asbestosis, other chronic lung diseases, musculoskeletal injuries, noise-induced hearing loss, pesticide poisoning and accidents.

- **RISK FACTORS:**[1,2]

The major risk factors for Occupational lung diseases are related primarily to the work environment and in certain contexts to their interaction with host associated genetic susceptibility or individual vulnerability factors in the work environment.

Equally important is the exposure dose, determined by the exposure level and duration.

Certain exposure co-factors such as smoking may also increase the risk.

- **UNDERSTANDINGS OF OCCUPATIONAL LUNG DISEASES IN HOMOEOPATHY**:[22]

  Occupation as accessory circumstance (§5 & § 7)

  Dust as exciting cause and/or maintaining cause (§7 & §77)

  Inappropriately named chronic diseases (§77)

- **TOPICS TO BE DISCUSSED:**

i. SILICOSIS
ii. COAL WORKERS' PNEUMOCONIOSIS (ANTHRACOSIS)
iii. BYSSINOSIS
iv. BAGASSOSIS
v. ASBESTOSIS

I. SILICOSIS:[1,2,3,4,6,7]

- ✓ Silicosis has been described as the "king of the pneumoconiosis" having been documented as a cause of human disease since ancient times.
- ✓ Silicosis and silica-associated tuberculosis (TB) are, globally, the most common occupational lung diseases.
- ✓ Silicosis is a notified disease under the Mines Act (1952) and the Factories Act (1948).
- ✓ It is a compensable injury under the Employees' State Insurance Act (1948) and the Workmen's Compensation Act (1923).
- ✓ Pathologically silicosis is characterised by a dense nodular fibrosis (3 to 4 mm in diameter)
- ✓ Nodules also develop on the visceral pleura and in the peri-bronchial and hilar lymph nodes, which may be the 1st sites of involvement.
- ✓ Characteristic eggshell radiographic appearance.
- ✓ Early manifestations are:

  Irritant cough
  Dyspnoea on exertion
  Pain in chest
  Impairment of total lung capacity in advanced stage.

HOMOEOPATHIC MEDICAL REPERTORY:[19]

TOXICITY :

SILICOSIS, poisoning, ailments from - CALC., FL-AC., SIL., lyc., puls.

STONE- cutters, poisoning, ailments in - CALC., SIL., puls., lyc.
Stone cutter's tuberculosis - sil., asbes., calc., lyc.

II. COAL WORKERS' PNEUMOCONIOSIS (ANTHRACOSIS)[1,2,3,11]

- ✓ 1838, the Englishman Thomas Stratton (1816–1886) used the term 'anthracosis' to refer to the disease he believed was caused by coal dust.
- ✓ It has been declared a notifiable disease in the Indian mines Act of 1952 and also compensable in the Workmen's Compensation (Amendment) Act of 1959.
- ✓ X-RAY FINDINGS:
- Small (1–5 mm diameter) rounded upper and mid-zone .
- Nodules may calcify (20%)
- 'Egg-shell' calcification of hilar and mediastinal lymph nodes.
- Nodules may coalesce to form conglomerate masses.
- ✓ ***CLASSIFICATION OF ANTHRACOSIS:***

  According to the severity of lung scarring, 2 types:

  Simple Coal Worker's Pneumoconiosis: It is associated with little ventilatory impairment.

  Complicated Coal Worker's Pneumoconiosis (PMF) : It is characterised by progressive massive fibrosis; this causes severe respiratory disability and frequently results in premature death.

- ✓ **HOMOEOPATHIC MEDICAL REPERTORY:[19]**

TOXICITY :

COAL, fumes,poisoning, ailments from - carb-diox., carb-v., carbn-s., op.
FUMES, gases, poisoning, toxic
Coal, gas, ailments from - carbn-s., op.
MINING, poisoning, ailments from - sil.

III. BYSSINOSIS:[1,2]

- ✓ It was often noted to be a 'Monday' syndrome, because its symptoms were particularly strong at the start of the week.
- ✓ Typically, affected workers complain of chest tightness on the first working day after a break from work, with improvement in symptoms over the remaining working week.
- ✓ The cycle repeats, so that following a further cessation of exposure (normally on rest days from work), the chest tightness again appears on the next first working day.

- ✓ Schilling et al. proposed an initial classification of byssinosis in1963 and this classification was most recently adapted by the World Health Organization (WHO) in 1983 to include acute and chronic lung function changes.
- ✓ **ROACH AND SCHILLING CRITERIA FOR GRADING BYSSINOSIS DIAGNOSIS:** [1,2]

  Grade 0 - no symptoms of chest tightness or breathlessness on Monday

  Grade0/1 - occasional chest tightness on Mondays or mild symptoms such as irritation of the respiratory tract on Mondays

  Grade 1 - chest tightness and/or breathlessness on Mondays only

  Grade 2 - chest tightness and/or breathlessness on Mondays and other days

  Grade 3 - grade 2 symptoms accompanied by evidence of permanent respiratory disability from reduced ventilatory capacity.

  The diagnosis of byssinosis remains a clinical one, and would be supported by:

1. A known exposure to a causative agent, with cotton as the most common cause. It would be unusual to develop byssinosis prior to 10 years of cotton dust exposure.
2. A typical history of respiratory symptoms (chest tightness and/or shortness of breath)
3. An acute cross-shift fall in FEV1, although absence of this finding does not exclude a diagnosis of byssinosis.

IV. BAGASSOSIS [1,2,3,20]

- ✓ It is caused by inhalation of bagasse or sugarcane dust.
- ✓ First reported in India by Ganguli and Pal in 1955 in a cardboard manufacturing firm near Kolkata
- ✓ It is due to a thermophilic actinomycete for which the name thermoactinomyces sacchari was suggested.
- ✓ This organism produces a hypersensitivity reaction characterized by widespread bronchoconstriction in the peripheral bronchopulmonary tree, resembling other extrinsic allergic alveolitis such as the farmer's lungs.
- ✓ Unfortunately, due to the lack of information on the condition when it was first described, it was not covered under the Workman's Compensation Act
- ✓ The onset of the disease may be acute or insidious.
- ✓ The acute onset is usually within hours of exposure to a very large concentration of bagasse dust and may present with flu like symptoms
- ✓ In other cases, symptoms start to appear about 4 months to 12 years after exposure to the dust.
- ✓ Classical presenting complaints include:

  1.Worsening and severe shortness of breath

2.Cough

3.Fever, malaise

4.Weight loss

- ✓ **Physical examination of patients with bagassosis reveals:**

1. Crepitations, which are generally basal but could be generalized in severe cases.
2. In patients with acute disease; the usual presenting features are fever, tachypnea, and fine bibasilar crackles on auscultation.
3. Patients with subacute bagassosis present similarly, but symptoms are generally not as severe and have lasted longer.
4. Patients with chronic disease may demonstrate muscle wasting and weight loss. Almost half of the patients would have clubbing. These patients also have respiratory distress, tachypnea, and inspiratory crackles.

- ✓ **HOMOEOPATHIC MEDICAL REPERTORY** [19]

TOXICITY :

DUST, particles, inhaling, ailments from - SIL., blatta, brom., ictod., lyss.

V. ASBESTOSIS [1,2,11,21]

- ✓ Strictly, asbestosis refers to pulmonary interstitial fibrosis caused by asbestos exposure.
- ✓ In 1907, the first recorded case of asbestosis was reported in a 33-year-old textile worker in London.
- ✓ It is usually diagnosed on a clinical basis, which depends principally on the finding.
- ✓ WHO has noted that “the most efficient way to eliminate asbestos-related disease is to stop using all types of asbestos”.
- ✓ Clinical findings of asbestosis:

Asbestosis produces a range of nonspecific symptoms and signs, ranging from asymptomatic to severe disease with respiratory failure. As with other interstitial lung diseases,

1. Slowly progressive shortness of breath
2. Reduced exercise tolerance
3. Fine, late-inspiratory crackles
4. Finger clubbing variable
5. Signs of cor pulmonale, cyanosis and hypoxaemia may be present in advanced disease.

- ✓ **Chest X-ray findings:**

Asbestosis is demonstrated by the presence of irregular linear interstitial opacities, usually involving the lower-lung fields at a minimum.

The classical chest X-ray signs of asbestosis in its early stages are 's' and 't'-irregular small opacities in the lower lung fields.

Honeycombing is a characteristic feature of advanced stages of the disease.

HOMOEOPATHIC MEDICAL REPERTORY[19]

TOXICITY :

ASBESTOS, poisoning, ailments from - sil., asbes., cob., con., radon

- **PREVENTIVE MEASURES / GENERAL MANAGEMENT [13]:**

1. Employers are required by law to provide employees with personal protective equipment (PPE) relevant to their given workplace hazards.
2. Standard PPE should include gloves, barrier creams and other skin protection like long-sleeved clothing to avoid irritation.
3. It is also important to protect eyes with goggles and visors and provide face coverings and masks to protect the respiratory system.
4. Monitor the concentration of airborne dust.
5. Regular training from a dedicated health and safety professional or external workplace safety expert.
6. It is recommended to look for an industrial vacuum that comes with a HEPA filter.

- **OCCUPATIONAL HEALTH LEGISLATION IN INDIA [11]:**

The main provisions for legal measures for the protection of health and safety of workers; they are the Factories Act (1948) amended in 1987 and the Mines Act (1952).

In India, occupational health is under two ministries: 1) Ministry Of Labour and 2) Health and Family Welfare.

- **HOMOEOPATHIC THERAPEUTICS:**

1. CALCAREA CARBONICA [15,16,17,18]

Rattling in the chest; ulcers or abscess in the lungs; miller's and stone cutter's phthisis.

Persistent, irritating cough from arsenical wall paper.

Especially suited to affections of the right apex.

2. SILICEA [15,16,17,18]

   Pulmonary affections in stone cutters; the fine dust causes chronic irritation. Silica establishes a suppuration and throws off these particles of stone.

   Suited to complaints that develop slowly.

   The remedy suits the early stage of phthisis, when the lung is not extensively involved.

3. MENTHA PIPERITA:[15,16]

   "The inhalation of the smallest quantity of smoke, either of coal, wood or tobacco, at once induce the most distressing paroxysm" - Dr. J.H. Clarke

   Scarcely any expectoration.

   Smoke of all kinds excites cough.

4. CARDUUS MARIANUS [15,16,17,18]

   Diseases of miners associated with breathing difficulty.

   Cough with stitches in the sides of the chest with bloody sputa.

   Pain in chest goes to shoulders, back, loins and abdomen with urging to urinate.

5. HYDRASTIS [15,16,18]

   Rawness, soreness and burning in the chest.

   Asthma and oedema of lungs (cancer of right lung).

   In pre-cancerous stage, a period of undefined ill- health without any discernable new growth.

6. PHOSPHORUS [8,15,16,17]

   It is indicated especially when the morbid action becomes localised in the right lung, particularly the lower lobe (Clarke)

   Cough from tickling in the throat; < cold air,reading, going from warm room into cold air, lying on the left side.

   Sputa rusty, blood colored or purulent.

7. NATRUM ARSENICOSUM [15,16,17,18]

   Pneumonia and phthisis in miners from coal dust; respiration fast, short and deep, difficult on ascending.

   Lungs feel as though smoke has been inhaled.

   Expectoration offensive, purulent; morning and evening.

   As if thyroid gland were compressed by a thumb and finger.

8. LYCOPODIUM [15,16,17,18]

   Night cough, tickling as from sulphur fumes.

   Mostly affect the right lung, or is affected first.

   Useful in advanced stage of pneumonia in the period of hepatisation.

9. BLATTA ORIENTALIS [15,16]

   Found accidentally to relieve asthma in a patient who took tea in which a beetle had been infused.

   Especially suited to cases < in rainy weather.

   In cases of bronchitis and phthisis where there is much dyspnoea.

10. ARSENICUM ALBUM [14,15,17,18]

    Breathing: asthmatic, must sit or bend forward < after 12 o'clock

    Unable to lie down from fear of suffocation.

    Darting pain through upper third of the right lung.

    Cough dry as from sulphur fumes; expectoration scanty and frothy.

11. BROMIUM: [14,15,17]

    The cough gets immediately worse from dusts, handling old books from the shelves AGGRAVATES.

    Sneezing, hoarseness, irritation in the respiratory tract from picking up and handling dusty things.

    Infiltration is one of the most natural features.

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