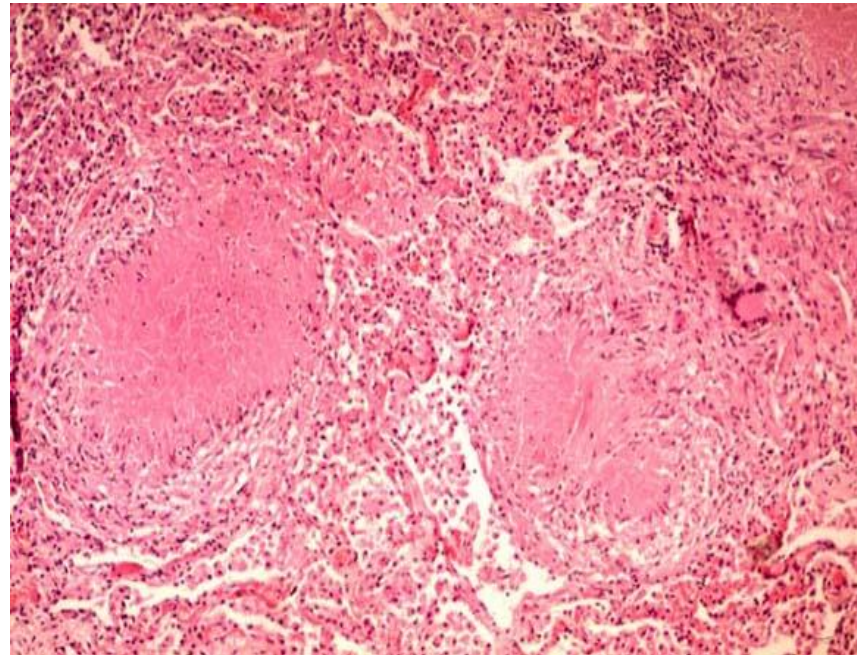


**M.J.F. COLLEGE OF VETERINARY AND ANIMAL SCIENCE,
CHOMU, JAIPUR**

DEPARTMENT OF VETERINARY PATHOLOGY



History of pathology

- History of pathology & history of medicine are closely interwoven.
- Study the contributions made by different scientists. They tell us how concept of disease evolved from primitive age to present day.
- Who were early physicians?, How did they treat their patients, How steadily the science progressed?.How indeed Vety. medicine came into being?
- During time to time, there are certain events which have changed the course of history and resulted in entire revolution of medicine- called milestones or landmarks of medical progress.
- eg. Circulation of blood by William Harvey; Discovery of Microscope and its practical demonstration by Leeuwenhoek, Work of Bichat, Rudolph Virchow opened up the area of cellular pathology and histopathology

- **First concept of Disease:**

- First belief about nature of illness was due to existence of evil spirits or Demons (Demonology)-
- **Demoniac concept of disease.** Displeasure of evil spirits. If a man got possessed by demons-he becomes demoniac and suffered a disease.
- Demons were even worshiped. Belief was that they enter through head. To expel them wild medical man trephined the skull using sharp long pointed stone.
- The medicine and treatment were controlled by **Witch Doctors**. They use secret methods, magic spells, magical ceremonies, animal and vegetable concoctions, incantations, even noise to drive away evil spirits.
- From this witch doctor today's medical man is descended.

- **Theological concept of disease**

Priest played the role of physician

About 4000 BC in Egypt embalming of thousands of dead bodies was carried out.

While taking the dead bodies in the temples.

Priest could recognize the changes in the organs but they kept the information secret and pronounced that the illness was due to divine displeasure. If man displeased or disobeyed the God, he suffered god's anger and became ill. By this they could maintain their theological hold.

Humoral concept of disease

- Scientific thinking of disease came in to existence and rejection of demon worship occurred.
- **Hippocrates (460-377 BC)** Most outstanding personality in history of medicine in Greek era- Honoured as Father of Medicine
- He formulated 'Oath of Hippocrates' concerning ethics and practice of medicine.
- His writings formed the basis for humoral theory of disease. He stated that body consists of four humours (Fluids)
 1. Blood-warm and moist like air-originated from heart
 2. Phlegm-cold and moist like water-originated from brain
 3. Yellow bile-warm and dry like fire-originated from liver
 4. Black bile-cold and dry like earth-originated from spleen
- Status of health was due to correct mixture of these fluids-Eucrasia
- Disease was due to incorrect mixture - Dyscrasia
- This theory served basis for medical practice for two thousand years.

Shalihotra (India)

- 2500-1500 BC
- First known veterinarian of the world
- Written “Haya Ayurveda” / “Ashwa- Ayurveda” in Sanskrit, 8 volumes on equine medicine with diagnosis, treatment, effect of planetary forces and evils on health

MUNI PALKAPYA(INDIA)

2500-1500 BC

Written a treatise on elephants “Gaj Ayurveda”

HAMMURABI

- **2100 BC**
- **Conduct of Veterinary Practitioners
“Laws of Hammurabi”**

KRISHNA (INDIA)

- 1000 BC
- Mathura was known for best cattle production / milk production

NAKUL (4TH PANDAV - INDIA)

- Written “Ashwa-Chikitsa” a book on equine medicine
- He is considered as an expert of equine management

SAHDEV (5TH PANDAV - INDIA)

- Expert in cattle rearing and disease management

CHARAK (INDIA)

- **800 BC**
- **Written “Charak Samhita” with details of cause of diseases and impact of environment**

JEEVAK (INDIA)

- **500 BC**
- **Described the Pathology of brain**

ARISTOTLE (GREEK)

- **384-323 BC**

Originator of Modern Anatomy and Physiology

Dissected many animals and carried out experiments in physiology.

CORNELIUS CELSUS (ROMAN)

- **30 BC-37 AD**
- **Cardinal signs of inflammation (Redness, swelling, heat and pain)**

CLAUDIUS GALEN

- ❑ 131-206 AD, Greek physician practicing in Rome
- ❑ Considered -Father of Anatomy
- ❑ He dissected the animal body and visualized that solid portions of the body playing role in disease and tried to compare the common cause for animal and human disease.
- ❑ Identical illness between among animal and Man.

RENATUS VEGETIUS (ROMAN)

450-500 AD

Wrote a book on Vety Medicine

“Book of the Veterinary Art”

Considered -Father of Veterinary
Medicine

Antonio Benivieni -Italian(1440-1502)

- Pioneer in reporting Post mortem examinations
- Credited as -Father of Pathological Anatomy and also as Founder of Pathology

Leonardo da Vinci (1452-1519)

- Italian artist cum scientist-First modern dissector-contributed to anatomy
- Wrote a book Anatomy of Horse in 1499

Andreas Vesalius(1514-1564)

- Prof. of Anatomy in Italy at the age of 24 performed plenty of dissections.

WILLIAM HARVEY (1578-1657) Englishman described blood vascular system and made discovery of blood circulation in 1628.

- Dissected vascular system of more than 80 different species for more than 14 years. This discovery changed the course of medicine. Without the knowledge of blood circulation most of the alterations in pathology could not be explained.

Marcello Malpighi(1628-1694)

- Extended Harvey's work. Discovered capillaries and erythrocytes, Malpighian layer of skin and also proved that papillae of tongue are organ of taste

- Hans and Jannsen-The Netherlands: made magnifying lens - credit of invention of microscope goes to them
- **Cornelius Drebbel 1617-1619 - Holland developed double lens microscope** -credit of introduction of microscope goes to him.

ANTONY VAN LEEUWEN-HOEK-1632-1723

A dutch draper and a microscopist. He made 200 microscopes and obtain magnification of 160.-credited for first to show that the microscope had practical importance in the study of tissues and other minute objects. First to see protozoa under microscope.

JEAN FERNEL-Frenchman

- **1497 - 1558**
- **Compiled the medical information of his time
“First to attempt to codify (organize systematically) the knowledge of Pathology”**
- **First to write and describe the diseases according to organs or part of body.**
- **His writings formed first textbook of pathology**

G.B.MORGAGNI (ITALIAN)

- 1682-1771
- Modern pathology began with Morgagni.
- Published five volumes of book “The seats and causes of disease” systematically described 700 autopsies and attempted to correlate the pathological changes in the dead to symptoms shown by the individual during life. He introduced concept in the practice of medicine.

Xavier Bichat-(1771-1802)-France

- Died at age of 31.Established the foundation for study of histology- **Father of Histology**.
- He presented a new concept of anatomy ,showed that body is composed of 21 tissues.
- He gave the word tissue - meaning Fabric or texture for the first time.
- His observations were made by physical and chemical methods like maceration, cooking, chemical disintegration of acids and alkalies, putrefaction etc.
- He was able to divide the tissues of the body in different groups-vascular, muscular, osseous, cartilaginous etc.

BOURGELAT, C (FRENCH)

- **1712-1779**
- **Wrote a book on equine medicine**

**Investigated glander outbreak in horse in French army and
successfully eradicated**

**He established first modern veterinary school (college) in Lyon-France
in 1762**

SAINT-BEL (FRENCH)

- **1753-1793**
- **Teacher at Alfort. Established Vet School in England 1791 and in 1793 died due to glander.**

JOHN HUNTER (Scottish)

- **1728- 1793.**
- **Contributed on blood diseases. inflam, gun shot wounds and monograph on venereal disease. His zeal for exptl. path led him to infect himself with syphilis in order to study the disease more closely. He developed a typical case of syphilis and died due it. He made his sacrifice to enrich the medical science.**
- **Known as First experimental Pathologist**

Edward Jenner (1749-1823)

- **Discovered vaccination of smallpox based on observation that dairymaids who had contracted cowpox through milking did not suffer from smallpox.**
- **He put this observation in to practice and pronounced that vaccination with cow pox matter protects from smallpox.**
- **Honoured as Father of Immunology**

CARL ROKITAN-SKEY (GERMAN)

- **1804-1878**
- **Supreme descriptive Pathologist**
- **Described gross descriptive pathology by conducting 70000 postmortems.**
- **Established Postmortem techniques**

MUELLER.J. (GERMAN

- **1801-1858**
- **First to use microscope in the study of tissues in order to appreciate changes**

RUDOLPH VIRCHOW (GERMAN) 1821-1902

- Published a Book on Cellular pathology in 1858 in which he published a concept that all forms of injury start with molecular or structural alterations at the cellular level
- “ Cells are seats of damage” or cells are damaged in disease. All areas of pathology were clarified by his concept of cellular pathology.
- Known as **Father of cellular pathology or Father of Modern pathology.**
- He stated that body is organized cell state and each cell has specific place and function
- Coined terms like thrombosis, embolism, fatty change, amyloidosis
- **Journal “Virchow’s Archives Great work on cellular Pathology**

LOUIS PASTEUR (FRANCE)

- **1822-1895**
- **Pronounced Germ theory of disease that bacteria were the cause of some diseases**
- **Established the science of bacteriology**
- **Stated that individuals can be successfully immunized by vaccines prepared from organisms.**

ROBERT KOCH (GERMAN)

- **Koch's postulates – procedure that prove specific organisms as the cause of specific disease**
- **First to use artificial solid media to obtain pure cultures**

COHNHEIM (GERMAN)

- **1839-1884**
- **Originator of modern experimental Pathology**
- **Experiments on vascular and cellular changes of inflammation**
- **Detected leucocytes at the site of inflammation**
- **This forms the basis for the pathology of inflammation**
- **Introduced frozen sections**

IVRI

- **1889**
- **Establishment of Imperial Bacteriological laboratory at Mukteshwar (Now IVRI)**

E. METCHNIKOFF

- **1884**

**Phagocytosis
(microphages/macrophages)**

Discovery of lysosomes

- Existence was first described by Christian de Duve-Belgian worker while conducting experiments on enzyme content of mitochondrial fractions from homogenates of rat liver by differential centrifugation.
- Later on Novikoff and his associates- demonstrated by E.M.

Discovery of Prions

- Stanley Prusiner -1997-USA-Nobel prize for discovery of prions

INDIAN VETERINARY JOURNAL

- **1924**
- **The Publication of Indian Veterinary Journal started**

RUSKA AND LORRIES

- **1933**
- **First developed electron microscope**

G.N.PAPANICOLAOU

- **1883-1962**
- **Father of exfoliative cytology**

INDIAN JOURNAL OF VETERINARY PATHOLOGY

- **1976**
- **The publication of Indian Journal of Veterinary Pathology started from Izatnagar**

IAVP

- **1983**
- **Indian Association of Veterinary Pathologist established**

VCI

- **1989- “Veterinary Council of India” established**

1st Veterinary and Animal Sciences University established in Madras (now Chennai)