The “Anatomy Lesson…”

- Tulp was the official City Anatomist of Amsterdam
- The corpse is that of the criminal Aris Kindt who was executed by strangling for armed robbery.
- The Amsterdam Guild of Surgeons permitted only one public dissection per year.

Rembrandt Harmenszoon van Rijn
1606 - 1669

How IS disease studied?

- This will be a general discussion session to increase your awareness of the various disciplines and principles that contribute to our knowledge of disease
Important Questions

Before we can study a disease, what must come first?

Why do we study disease?

Two Important Questions

Before we can study a disease, what must come first?

RECOGNITION & CHARACTERIZATION

Why do we study disease?

Recognition & Characterization

• In 1978, a disease in dogs spread throughout the United States.
  – Clinical signs
    • All ages but most severe in younger dogs
    • Severe intractable diarrhea
    • Rapid dehydration
    • Hypovolemic shock and electrolyte imbalances
    • High mortality
  – Can you name the disease?
Recognition & Characterization

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  – Clinical signs
    • All ages but most severe in younger dogs
    • Severe intractable diarrhea
    • Rapid dehydration
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    • High mortality
  – Can you name the disease? PARVOVIRUS

• Why do we study disease?

Recognition & Characterization

• This disease probably started between 1900 and 1920
  – Fore tribe, Papua New Guinea
  – Clinical signs and pathology characterized by 1959
  – Progressive brain disorder with tremors
  – Mainly affected women and children of both sexes
  – Propagated by ritualistic cannibalism

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  – (K)an you name the disease?
  – What breakthrough occurred in 1959?

• Why do we study disease?

Recognition & Characterization

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  – (K)an you name the disease? Kuru

• Why do we study disease?

1982 - another breakthrough: Prion proteins and the transmissible spongiform encephalopathies
Dr. Robert Koch
1843 - 1910

Has anyone not heard of Koch’s postulates – ca. 1890?

Dr. Robert Koch

- The microorganism must be found in abundance in all organisms suffering from the disease, but not in healthy organisms
- The microorganism must be isolated from a diseased organism and grown in pure culture
- The cultured microorganism should cause disease when introduced into a healthy organism
- The microorganism must be re-isolated from the inoculated, diseased experimental host and identified as being identical to the original specific causative agent
- Are these postulates still valid?
- Can these postulates generally be applied to other agents of disease?

What scientific disciplines contribute to the study of disease? What tools?

- Disciplines
- Tools
"Physicians like to consider themselves scientists, but insist their calling is also an art ... in those areas where the science falters the art must take over."

"Medical research as well as medical practice deals with biological subjects and, whether these are rats or men, they show the unpredictability inherent in all biological systems. If a man kicks a stone, he can predict what will happen but if he kicks a dog, nobody can tell what will happen."

Charles E. Dunlap, MD

Are there disciplines / procedures today that are thought to be obsolete OR of little direct benefit?


T2W MRI

T1W post contrast MRI
Rasmussen's disease (1958) – usually affects children < 10 yrs. Also known as “epilepsia partialis continua”.

Are there disciplines / procedures today that are thought to be obsolete OR of little direct benefit?

What about necropsy (veterinary) or autopsy (human)?

The declining rate of postmortem examinations

- The value of the autopsy
  - Education
  - Discovery of new diseases
  - Quality assurance / quality control

- Reasons for the decline
  - Cost
  - Moral and ethical reasons
  - The belief that antemortem diagnostics are infallible
  - Time
Why do we study disease?

• Clinical recognition
• Accurate diagnosis
• Prevention
• Effective therapeutics or intervention

Do you know what the term PATHOGENESIS means?

Mortui vivos docent

Necropsy is a gentle art
done with a masters skill.

Balancing on smooth bottomed boots
slipping on gastric swill.

ONE “HEALTH”

• Develop knowledge, appreciation, and respect for the various medical disciplines… all contribute in their own way to the study of disease

• All sentient beings deserve our respect… you never know who your clients will be
Brutus (part Boxer & part bull mastiff); 2007 awarded Congressional Medal of Honor for service in Iraq. His handler and four other soldiers were taken hostage by insurgents. Brutus and his handler communicate by sign language and he gave Brutus the signal that meant 'go away but come back and find me.' The Iraqis paid no attention to Brutus. He came back later and quietly tore the throat out of one guard at one door and another guard at another door. He then jumped against one of the doors repeatedly (the guys were being held in an old warehouse) until it opened. He went in and united his handler and they all escaped. He's the first K9 to receive this honor. If he knows you're ok, he's a big old lug and wants to sit in your lap. Enjoys the company of cats.

Sample question #1

- Lead can cause acute poisoning in cattle generally manifest as blindness and other neurological signs. Can Koch's postulates be applied here? Defend your answer.