General discussion of dynamics of infectious diseases notes

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GENERAL DISCUSSION OF THE DYNAMICS OF INFECTION DISEASES

INFECTION DISEASES ⇒ INVASIVE MICROBES THAT REACH:
- ONE OR MANY TISSUES
- TISSUES WHERE THESE MICROBES SENSE SIGNALS
  THEIR GENOME CAN PROCESS
  ⇒ PRODUCTION OF TRANSMISSIBLE PROGENY VIABILITY

• BEFORE 1970s NOT MUCH WAS PUBLISHED IN TEXTBOOKS ABOUT MICROBIAL INFECTION DISEASES
• LAST 35 YEARS, A LOT OF ATTENTION ON MICROBIAL DISEASES
• CURRENTLY, GENOMICS HAVE SEQUENCED MANY OF PATHOGENIC MICROORGANISMS

ECOLOGY OF M. ULCERANS, THE CAUSATIVE AGENT OF BURuli ULCER (SKIN DISEASE)
⇒ CENTRAL & SOUTH AMERICA, CENTRAL AFRICA, INDIA, ASIA, SOUTH PACIFIC, AUSTRALIA

- NO TOOLS IN ENDEMIC AREA FOR EARLY DIAGNOSIS
- NO IMMUNOLOGICAL INTERVENTION
- MODE OF TRANSMISSION
  ⇒ NO INTER-HUMAN TRANSMISSION
"RESERVOIR" OF MICROBE IS AQUATIC ENVIRONMENT IN TROPICAL AREA.

IT IS NOT A BLOOD-FEEDER

COLLECTION OF SAMPLES OF INSECTS LIVING IN SWAMPY AREAS. THE ARE:
- CARNIVOROUS
- LIVE IN RIVERS, SWAMPY AREAS
- ABLE TO FLY
- ABLE TO "BITE" HUMANS THEY "MISPERCEIVE" AS PREYS.

SALIVA CONTAINS IMMOBILIZING AGENT AFTER FED WITH M. ULCERANS, IT TENDS TO LOCALIZE AT THE SACRINARY GLANDS

INFECTION OF MICE EXPERIMENTS ≈ LESS THAN 30 SECONDS OF EXPOSURE TO INSECT RESULTED IN TRANSMISSION.
- WATER BUGS ARE ABLE TO TRANSMIT M. ULCERANS TO LABORATORY MICE, Causing DESCAY IN TAIL ULCERS

HOW M. ULCERANS IS LOADED TO INSECTS AS CARRIERS?
- FEEDING FROM OTHER ORGANISMS THAT EAT PLANTS CARRYING M. ULCERANS ON SURFACE

M. ULCERANS BINDS TO AND GETS INTERNALIZED BY PLASMODIUM TES