فونذا -١- تمريض ثالث

-part1-

محاضرة " asepsis "

لا أحل النشر و التصوير

وضع الله من حدم الأمانة وجازى من خانه

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introduction

Microorganisms exist everywhere: in water, in soil, and on body surfaces such as the skin, intestinal tract, and other areas open to the outside.

الميكروباج موجودة في كل مكان

Most microorganisms are harmless, and some are even beneficial in that they perform essential functions in the bod

Nurses are directly involved in providing a biologically safe environment.

Micro-organisms → Most / Harmless
→ Some / beneficial
→ some / Harmful

terminology

An infection is the growth of microorganisms in body tissue where they are not usually found. (Such a microorganism is called an infectious agent).

نمو الميكروبات في نسيج وعضو ليس جزءاً منه

Infectious microorganisms or Infectious agents

If the microorganism produces no clinical evidence of disease the infection is called asymptomatic or subclinical.

Infection → with symptoms (evidence of dz) → clinical
→ w/o = (no = = =) → subclinical

Colonization: is the process by which strains of microorganisms become resident flora. In this state, the microorganisms may grow and multiply but do not cause disease.

ميكروبات تصيب أهل البيت (رجال فقط!) ولكنها لا تسبب مرض

Bacteremia: When a culture of the person's blood reveals microorganisms.

فزرعة الدم تظهر جراثيم

Septicemia: When bacteremia results in systemic infection. Unfortunately, septicemia has become more common over time.

عندما الـ bacteremia تسبب أعراض وعدوى في الجسم

terminology

غياب الـ M.O. التي تسبب أمراض

Asepsis: is the freedom from disease-causing microorganisms

The two basic types of asepsis are medical and surgical.

→ Medical asepsis → ممارسات تحد من الـ M.O. وتحد من عددها ونموها وانتقالها.
→ surgical asepsis

Medical asepsis includes all practices intended to confine a specific microorganism to a specific area, limiting the number growth, and transmission of microorganisms.

In medical asepsis, objects are referred to as clean, which mean the absence of almost all microorganisms, or dirty (soiled, contaminated), which means likely to have microorganisms, some of which may be capable of causing infection.

medical asepsis	surgical asepsis
Clean tech.	sterile technique.
minimize # of M.O. and spread	eliminate M.O. and spores.

على حسب التعقيم الطبي (Medical absess)

objects → clean → absence of all M.O.
objects → dirty → soiled, contaminated

terminology

شراسة الميكروب

- **virulence** : Microorganisms ability to produce disease → قدرة الميكروب على إحداث مرض
- **Pathogenicity** is the Microorganisms ability to produce disease; thus, a **pathogen** is a microorganism that causes disease. → قدرة الميكروب على إحداث مرض / ميكروب يسبب مرض
- harmless Microorganisms can cause disease under certain circumstances → حتى الميكروبات الغير ضارة قد تكون ضارة تحت ظروف خاصة
- Infectious diseases are a major cause of death worldwide.
- The control of the spread of microorganisms and the protection of people from communicable diseases and infections are carried out on international, national, state, community, and individual levels. The World Health Organization (WHO) is the major regulatory agency

منع انتشار الميكروب وحماية الناس من الأمراض المعدية هو

terminology

Surgical asepsis, or sterile technique, refers to those practices that keep an area or object free of all microorganisms; it includes practices that destroy all microorganisms and spores (microscopic dormant structures formed by some pathogens that are very hardy and often survive common cleaning techniques).

منطقة خالية من الميكروبات والأبواغ

Surgical asepsis is used for all procedures involving the sterile areas of the body. Sepsis is the condition in which acute organ dysfunction occurs secondary to infection.

التعفن : حالة أو خلل حاد في عضو معين بسبب العدوى.

spores :- ✓ microscopic dormant structures formed by some pathogens

✓ survive common cleaning.

تقاوم طرق التنظيف العامة

Examples of When Clean Technique is Used

Clean tech is appropriate for:

- Taking blood pressures
- Examining patients
- Feeding patients

أستخدم على الـ clean

- سحب الدم
- فحص المرضى
- تقديم المرضى

Aseptic Practices

ex.

- laryngoscope
- surgeries

لا يَحِلُّ النشر او التصوير
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TYPES OF MICROORGANISMS THAT CAUSE INFECTIONS

4 major types of M.O.
- bacteria → Most common
- viruses → NA only
- fungi Yeast / Molds
- parasites live on other Living organisms

Four major categories of microorganisms cause infection in humans: bacteria, viruses, fungi, and parasites.

Bacteria are by far the most common infection-causing microorganisms. Several hundred species can cause disease in humans and can live and be transported through air, water, food, s body tissues and fluids, and inanimate objects.

Viruses consist primarily of nucleic acid and therefore must enter living cells in order to reproduce. Common virus families include the rhinovirus (causes the common cold), hepatitis, herpes, and human immunodeficiency virus.

Fungi include yeasts and molds. Candida albicans is a yeast considered to be normal flora in the human vagina.

Parasites live on other living organisms. They include protozoa such as the one that causes malaria, helminths (worms), and arthropods (mites, fleas, ticks)

قراءة

(Table 31-1) page 603

TYPES OF INFECTIONS

Colonization is the process by which strains of microorganisms become resident flora. In this state, the microorganisms may grow and multiply but do not cause disease.

تعيش البكتيريا بدون إحداث مرض

Infections can be local or systemic.

A local infection is limited to the specific part of the body where the microorganisms remain. If the microorganisms spread and damage different parts of the body, the infection is a systemic infection.

Infections can be acute and chronic infections.

Acute infections generally appear suddenly or last a short time.

A chronic infection may occur slowly, over a very long period, and may last months or years.

When a culture of the person's blood reveals microorganisms, the condition is called bacteremia.

When bacteremia results in systemic infection, it is referred to as septicemia. Unfortunately, septicemia has become more common over time.

Infection
- local: limited to specific part
- Systemic: m.o. spread and damage different parts

Infection
- acute: appear suddenly; last for short time
- chronic: occurs slowly; over long period; Months → Yrs

Sources of infection

مصادر داخلية
Endogenous sources - a nosocomial infections that originate from the clients themselves.

مصادر خارجية
Exogenous sources - from the hospital environment and hospital personnel.

المقرر تكلم أنواع الـ nosocomial infections

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health care-associated infections (HAIs)– Nosocomial infection

العدوى التي لها علاقة بالرعاية الصحية

a health care-associated infection (also called "nosocomial") as:

An infection acquired in hospital by a patient who was admitted for a reason other than that infection.

An infection occurring in a patient in a hospital or other health-care facility in whom the infection was not present and appearing after discharge.

① تعريف

عدوى مكتسبة من المستشفى ما كنت المريض دخل المستشفى لسبب غير العدوى

② تعريف

عدوى عند مريض ما كانش عنده العدوى من قبل وحدثت الأعراض بعد الخروج

Factors contribute to nosocomial infection

1. **Iatrogenic** infections - those that are due to any aspect of medical therapy; the direct result of diagnostic or therapeutic procedures.
   Example: bacteremia that results from IV line.

عدوى بسبب الإجراءات procedures ← diagnostic / therapeutic

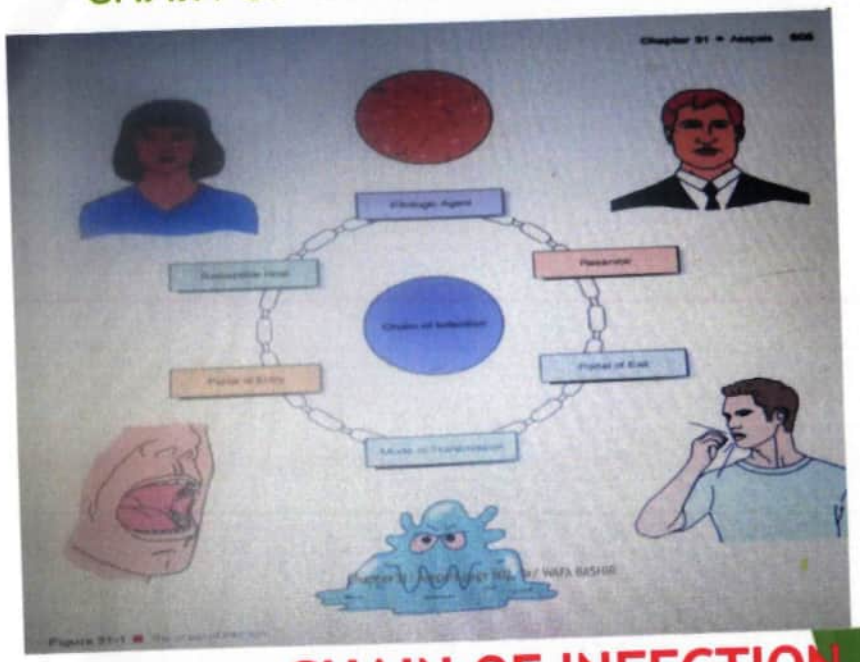
2. Presence of **compromised hosts**
   Example: clients whose normal defenses have been lowered by surgery or illness

→ immunocompromised (vs) immunocompetent

3. Insufficient hand washing

An important factor contributing to the spread of nosocomial organisms.

CHAIN OF INFECTION



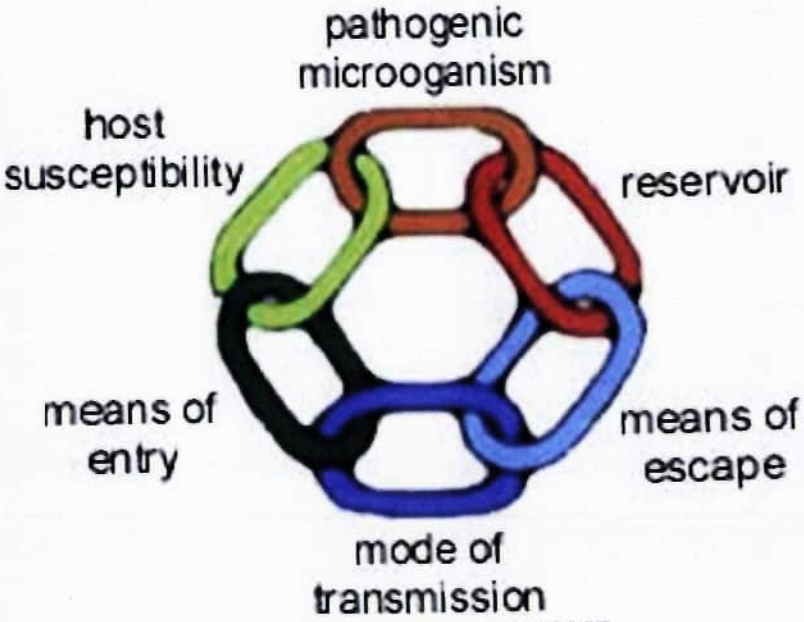
CHAIN OF INFECTION

6 Links make up the chain of infection

- The etiologic agent or microorganism
- The place where the organism naturally resides (reservoir)
- A portal of exit from the reservoir
- A method / mode of transmission
- A portal of entry into a host
- and the susceptibility of the host.

- السبب ● etiologic agent = M.O.
- المخزوم ● place where m.o. resides
- ● معلم الخروج من المخزوم
- ● طريقة الانتشار
- ● معلم الدخول إلى العائل
- ● استعداد العائل للعدوى susciptibility of host

Chain of Infection



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Chain of Infection
1. Etiologic Agent

The chain begins with the existence of a specific pathogenic microorganism

معلومة

Capability to produce an infection depends on:
- the number of microorganisms present.
- the pathogenicity
- the ability of the microorganisms to enter the body.
- the susceptibility of the host, and the ability of the microorganisms to live in the host's body.

القدرة على إحداث عدوى تعتمد على/
- ✓ عدد الـ m.o
- ✓ شراسة الـ m.o
- ✓ قدرة الـ m.o على دخول الجسم والعيش في الجسم
- ✓ استعداد العائل

Chain of Infection
2. Reservoir

The second link is the reservoir, or sources of microorganisms. environment where the pathogen can survive.

→ environment where pathogen survive

العالم الذي تعيش فيه الميكروبات

Common sources are other humans, the client's own microorganisms, plants, animals, or the general environment.

} → أمثلة

A carrier is a person or animal reservoir of a specific infectious agent that usually does not manifest any clinical signs of disease.

الشخص أو الحيوان الذي فيه ميكروب
بس ناقل ولا علاقة له بعلامات المرض

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Chain of Infection
3. Portal of Exit from Reservoir = means of escape

The third link is the means of escape from the reservoir.

Before an infection can establish itself in a host, the microorganisms must leave the reservoir.

Common human reservoirs and their associated portals of exit are summarized in Table 31-3. page 606

→ يخرج

Portal of Exit from Reservoir

Body Area Reservoir	Portals of Exit
Respiratory Tract (Myco bacteriun TB)	Nose or mouth through sneezing, coughing, breathing, etc.
Gastrointestinal Tract (Hepatitis A)	Mouth: saliva, vomitus Anus: feces
Urinary Tract (E. Coli)	Urethral meatus
Reproductive Tract (Treponema Pallidum)	Vagina: discharge
Blood (Hepa B, HIV)	Open wound, needle puncture site
Tissue (Staph, Strep, E. Coli)	Drainage from cut/wound

Chain of infection
4. Method of Transmission

There are three mechanisms:

1. Direct transmission, through touching, biting, kissing, or sexual intercourse.

2. Indirect transmission, either vehicle borne (fomites) or vector borne(animal or flying or crawling insect that serves as an intermediate means of transporting the infectious agent.

3. Airborne transmission, droplets or dust. such as someone with tuberculosis, can remain in the air for long periods. Dust particles containing the infectious agent The material is transmitted by air currents to a suitable portal of entry, usually the respiratory tract, of another person.

droplet spread (b/w source and host ≤ 3 feet)

→ vehicle born (fomites, toyes, clothes, instruments ...)

→ vector born (animal, flying, crawling ...)

→ droplet nuclei evaporated droplets as Tuberculosis

→ dust particles contains infectious agent as clostridium difficle

Chain of infection
5. Portal of Entry to the Susceptible Host

The fifth link is the means of entry into the host

Before a person can become infected, microorganisms must enter the body.
The skin is a barrier to infectious agents; however, any break in the skin can readily serve as a portal of entry. → الجلد يعتبر حاجز

Chain of infection
6. Susceptible Host

A susceptible host is any person who is at risk for infection.
A compromised host is a person at increased risk, an individual who for one or more reasons is more likely than others to acquire an infection.

✓ susceptible host is at risk.
✓ compromised host at increased risks due to reasons

factors can affect susceptibility to infection:

- Impairment of the body's natural defenses. ✓ مشاكل في المناعة
- age (the very young or the very old). ✓ العمر (extremes)
- clients receiving immune suppression treatment. ↘

المرضى اللي بياخدوا أدوية تضعف المناعة