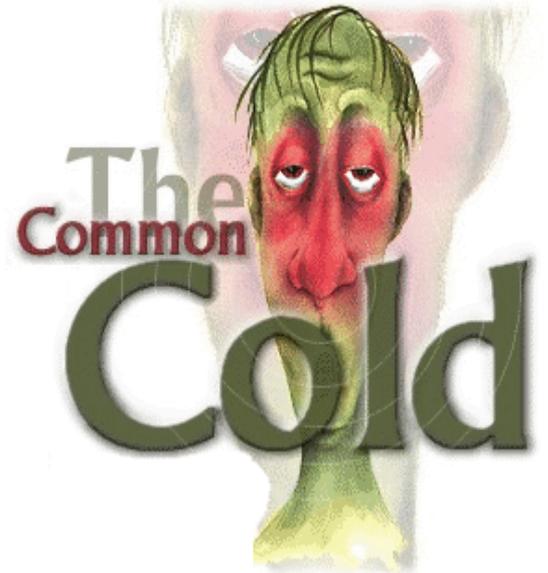


Common cold

Dr. Mohamed Abd Elrahman
Lecturer of
Clinical Pharmacy Department



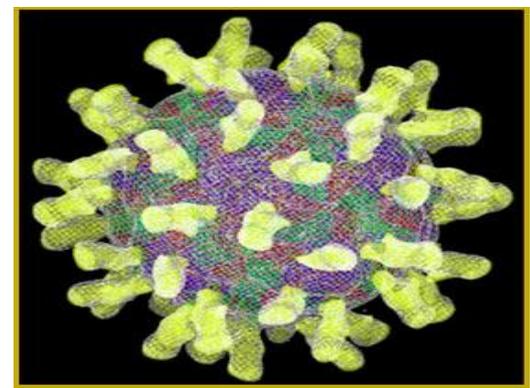
Common cold

- The common cold is extremely prevalent and like cough is caused by viral URTI
- Children contract colds more frequently than adults with on average five to six colds per year compared to two to four colds in adults.
- Children aged between 4 and 8 years are most likely to contract a cold.
- colds peak in December and January, possibly due to increased crowding indoors during cold weather.

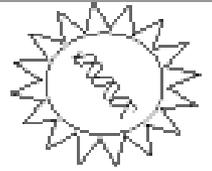
Causes of cold

- **Causes of cold and their relative incidence in community pharmacy**
Incidence Cause
- **Most likely** : Viral infection
- **Likely** : rhinosinusitis, otitis media
- **Unlikely** : Influenza

A Etiology

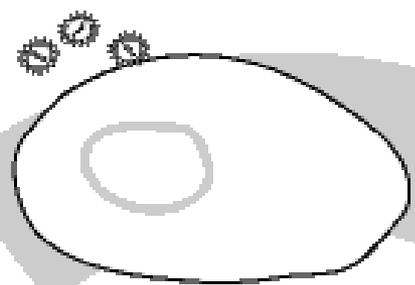


- More than 200 different types of viruses (50% rhinoviruses) can infiltrate the protective lining of the nose and throat, causing common cold.
- coronaviruses, parainfluenza Virus and adenovirus.
- Once the virus is exposed to the mucosa, it invades the nasal and bronchial epithelia, attaching to specific receptors and causing damage to the ciliated cells.

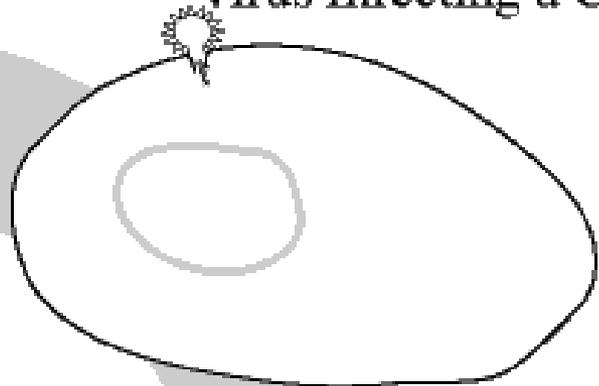


A virus is a piece of DNA (or RNA) surrounded by a protein coat.

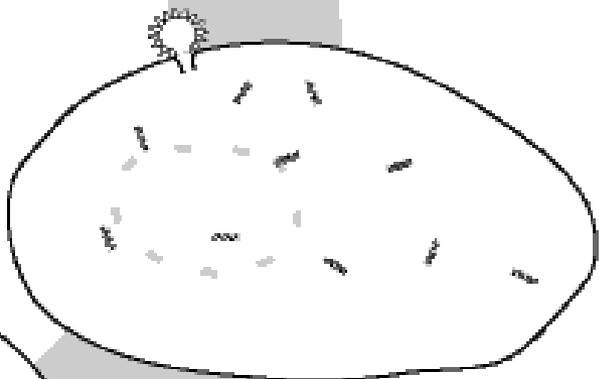
Figure 1
Virus Infecting a Cell



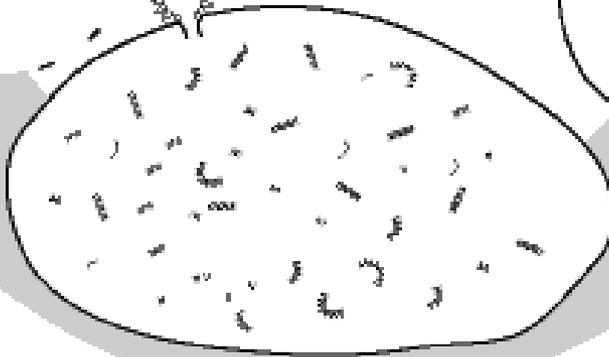
1. A virus encounters a cell.



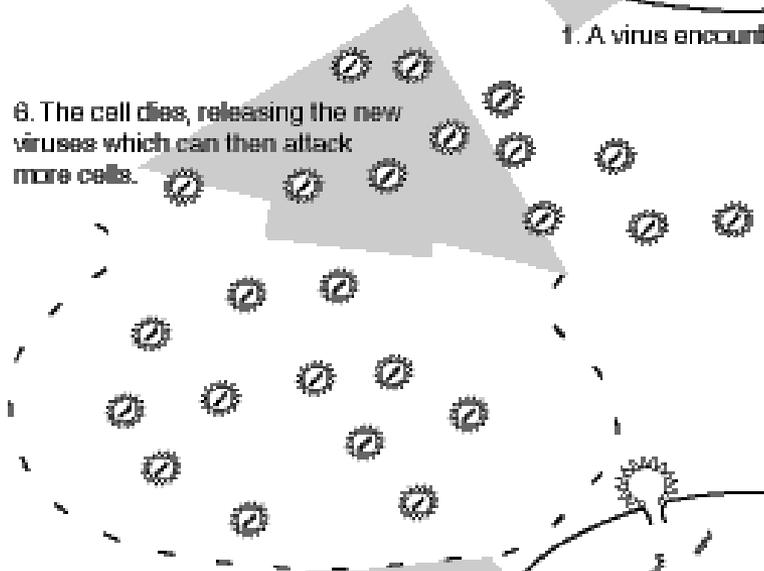
2. A virus attaches itself to a cell and injects its DNA, leaving its protein coat behind.



3. The viral DNA takes control of the cell "machinery" and forces the manufacture of multiple copies of itself.



4. The viral DNA then makes viral proteins ...



6. The cell dies, releasing the new viruses which can then attack more cells.

5. ... that spontaneously assemble themselves into multiple new viruses.

Etiology cont...

- Rhinovirus infection leads to **release of various inflammatory mediators** e.g. prostaglandin, leukotrin and kinins leads to inflammation of the tissues lining the nose.
- **Histamine is not involved** in the inflammation associated with common cold.
- **Smokers are more likely to catch a cold** than people who do not.
- **Their symptoms** will probably be **worse, last longer**, and are more likely to lead to bronchitis or even pneumonia.

Etiology cont...

- Not wearing a jacket or sweater when it is chilly, sitting or sleeping in a draft and going outside while your hair's wet **do not** cause common cold.
- Common cold is more common **in winter** as **viruses survive more in low humidity** also cold weather **dries the lining of the nasal passage** making it more sensitive to infection.
- Poor nutrition, fatigue and emotional stress may increase the susceptibility to infection.

differential diagnosis

- It is extremely likely that someone presenting with cold symptoms will have a viral infection.

Specific questions to ask the patient with common cold

1. Onset of symptoms

- Peak incidence of flu is in the winter months; the common cold occurs any time throughout the year
- Flu symptoms tend to have a more abrupt onset than the common cold – a matter of hours rather than 1 or 2 days
- Summer colds are common but they must be differentiated from seasonal allergic rhinitis (hay fever).

2. Nature of symptoms

- Marked myalgia, chills and malaise are more prominent in flu than the common cold.
- Loss of appetite is also common with flu.

3. Aggravating factors

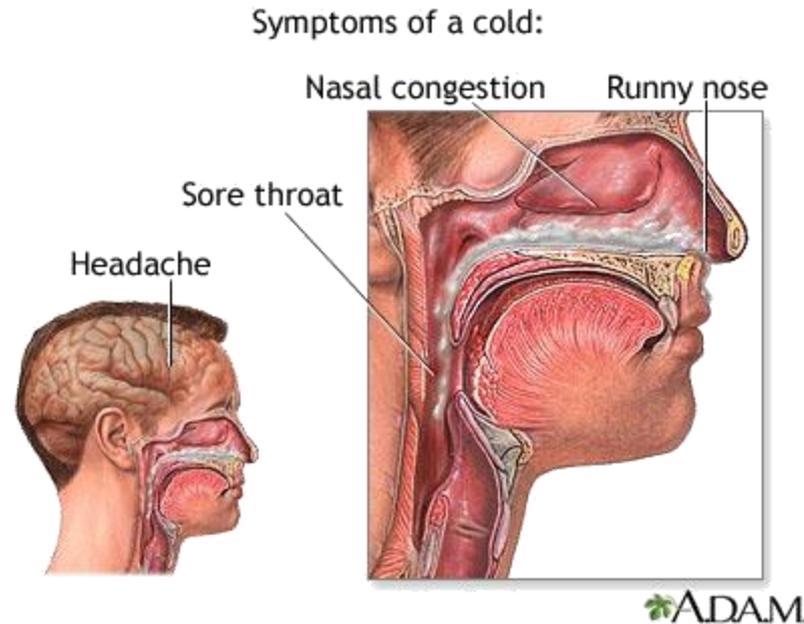
- Headache/pain that is worsened by sneezing, coughing and bending over suggests sinus complications
- If ear pain is present, especially in children, middle ear involvement is likely.

Contagiousness

- Common cold is **most contagious during the first 2 to 4 days** after symptoms appear and may be contagious **for up to 3 weeks**.
- You can catch a cold from person-to-person contact or by **breathing in virus particles** spread through the air by sneezing or coughing.
- Touching the mouth or nose after touching skin or another surface contaminated with a rhinovirus can also spread a cold.

Signs and Symptoms

- The first symptoms of a cold are often a **tickle in the throat, a runny or stuffy nose and sneezing.**
- Nasal discharge may change from watery to thick yellow or green.
- Cold symptoms usually **appear 1 to 3 days after exposure** to a source of infection. Most colds clear up within 1 week, but some last for as long as 2 weeks.



Conditions to eliminate

- Likely causes :
 1. Rhinosinusitis

1. Acute rhinosinusitis

- Rhinosinusitis (formerly sinusitis) is inflammation of one or more of the paranasal sinuses.
- Anatomically the sinuses are described in four pairs; frontal, ethmoid, maxillary and sphenoid.



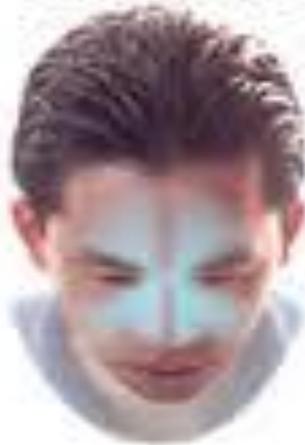
- All are air-filled spaces that drain into the nasal cavity.
- Following a cold, sinus air spaces can become filled with nasal secretions, which stagnate because of a reduction in ciliary function of the cells lining the sinuses.
- Bacteria – commonly Streptococcus and Haemophilus – can then secondarily infect these stagnant secretions.

- Symptoms:
- blockage or congestion- discharge or UACS - facial pain or pressure -reduction or loss of smell.
- The pain in the early stages tends to be relatively mild and localised, usually unilateral and dull but becomes bilateral and more severe the longer the condition persists.
- Bending forwards often exacerbates the pain (moving the eyes from side to side, coughing or sneezing can also increase the pain)

Types of headaches

Headaches

Sinus:
pain is
behind
browbone
and/or
cheekbones



Cluster:
pain is
in and
around
one eye



Tension:
pain is
like a band
squeezing
the head



Migraine:
pain, nausea
and visual
changes are
typical of
classic form



tension headache

- tension headache is the most common type of headache.
- It can cause mild, moderate, or intense pain behind your eyes and in your head and neck.
- Some people say that a tension headache feels like a tight band around their forehead.

- these types of contractions can be caused by a variety of

- Foods - activities - Stressors

- Other triggers of tension headaches include:

- Alcohol - dry eyes -fatigue

- Smoking - a cold or flu -Caffeine - emotional stress

- Treatment such as:

Indomethacin – ketorolac –naproxen-opiates

- If the ethmoid sinuses are involved, retro-orbital pain (behind the eye) is often experienced.
- Analgesics for pain relief and oral or nasal sympathomimetics can be tried, to remove the nasal secretions.
- Antibiotics are now not routinely recommended (2011) unless the person is systemically unwell or at risk of complications .
- If antibiotics are to be prescribed then amoxicillin is first line (or doxycycline if the patient has a penicillin allergy).

Acute otitis media

- This is commonly seen in children following a common cold and results from the virus spreading to the middle ear via the Eustachian tube.
- an accumulation of pus within the middle ear or inflammation of the tympanic membrane (eardrum) results.
- The overriding symptom is ear pain but the child may rub or tug at the ear and be more irritable

- relief of pain with either paracetamol or ibuprofen
- possible antibiotics should be
 - 1- Amoxicillin/clavulanate (Augmentin) 90 mg of amoxicillin per kg per day divided in two doses.
 - 2- Azithromycin (one dose; 30 mg per kg, given orally).

Unlikely causes :Influenza

- Patients often use the word 'flu' when describing a common cold.
- remember that the 'flu' season tends to be between December and March, whereas the common cold, although more common in winter months, can occur at anytime.
- The onset of influenza is sudden and the typical symptoms are shivering, chills, malaise, marked aching of limbs,insomnia.
- a non-productive cough in flu (cough in the common cold is usually productive) and loss of appetite in flu.

Prevention

- Because so many viruses cause common cold, **there is no vaccine that can protect against catching colds.** But to help prevent them, kids should:
 - try to stay away of anyone who smokes or who has a cold.
 - **wash their hands** thoroughly and frequently, especially after blowing their noses
 - **cover their noses and mouths** with tissue when coughing or sneezing not only by their hands this helps prevent the spread of germs.
 - **not use the same towels** or eating utensils as someone who has a cold. They also should not drink from the same glass, can, or bottle.
 - **not pick up other people's used tissues**



Treatment cont...



- Aspirin should **never** be given to children younger than 12 and all kids and teens under age 19 during viral illnesses, because such use may increase the risk of developing Reye syndrome, a rare but serious condition that can be fatal (fatty liver degradation accompanied with encephalopathy).

1-Antihistamines

- Data from a Cochrane review conducted by De Sutter et al (2003) found antihistamines when used as monotherapy did not have significant benefit clinically in nasal congestion, rhinorrhoea or sneezing in older children and adults.
- the larger study, which was more robustly conducted showed no benefit of antihistamines on the common cold.

- Trials that used antihistamines in combination with mother products such as decongestants and antitussives do show some beneficial global effects adults and older children.
- Infant 0-2 years.
- Childhood 2-11 years.
- Adolescent 12-18 years.

2. Sympathomimetics

- A Cochrane review (Taverner et al 2007) identified 7 trials that met their inclusion criteria, which involved topical oxymetazoline and oral pseudoephedrine and phenylpropanolamine.
- Data supports their use in adults when used in single doses.
- However, data were lacking in children under 12 years. No difference in efficacy was found between topical or systemic products.

3- Multi-ingredient preparations

- In the majority of cases either the patient will not require all the active ingredients to treat symptoms or the 'drug cocktail' administered will not contain active ingredients that have proven efficacy.
- more sensible approach to medicine management would be to match symptoms with active ingredients with known evidence of efficacy.
- In many cases this can be achieved by providing the patient with monotherapy or a product containing two active ingredients

Alternative therapies- 1. Zinc lozenges.

- Recent Cochrane review (Singh and Das 2011) identified 15 randomised controlled trials that compared zinc versus placebo. Findings demonstrated that zinc (lozenges or syrup) is beneficial in reducing the duration and severity of the common cold in healthy people, when taken within 24 hours of onset of symptom.

2. Vitamin C

- A Cochrane review examining the role of vitamin C at doses above 200 mg per day in preventing and treating the common cold identified 29 studies involving 11 306 subjects (Hemilä et al 2010).
- The review found that vitamin C prophylaxis had no effect on the incidence of the common cold in the general community, and a small effect on the duration of a cold (equivalent to approximately 1 day less per year for adults and 4 days for children)

3. Echinacea

- Cochrane review, Shah et al (2007) From the 14 trials that met the inclusion criteria, results drawn showed that treatment with echinacea reduced the chance of developing a cold by about half and the duration of colds was reduced by 1.4 days.

4. Vapour inhalation

- steam is the key to symptom resolution, and not any additional ingredient that is added to the water.

5. Saline drops

- A Cochrane review exploring the use of saline irrigation on acute upper respiratory tract infections identified three randomised controlled trials involving 618 participants (Kassel et al 2010). The studies generally **found no difference between saline treatment and control.**
- The authors noted that there were no serious side effects.



When to refer to physician cont...

- refer to physician if patient has any of these symptoms
 - shortness of breath
 - unusual lethargy/tiredness
 - inability to keep food or liquids down or poor fluid intake
 - increasing headache or facial or throat pain
 - severely painful sore throat that interferes with swallowing
 - fever of 39.3°Celsius or higher, or a fever of 38.0°Celsius or higher that lasts for more than a day
 - chest or stomach pain
 - swollen glands (lymph nodes) in the neck

In General

- Like most virus infections, colds just have to run their course. Getting plenty of rest, avoiding vigorous activity and drinking lots of fluids e.g. juice and water may help feeling better while recovering.
- Keeping up regular activities like going to school probably would not make a cold any worse, but it will increase the likelihood that the cold will spread to classmates or friends. So patient might want to put some daily routines aside until he is feeling better.