

تَومَل ال drug
لا eats

Otic Formulations

Chapter 29

Introduction:

- Solutions, suspensions, gels, and ointments

Question 7 / 50

Otic formulations can be applies as.....

- 1. ☐ Solutions
- 2. ☐ Suspensions
- 3. ☐ Gels
- 4. ☐ Ointments
- 5. ☒ All are correct

Uses of Otic Formulations

- Bacterial growth in external auditory canal:
 - Otic solutions and suspensions are used to treat infections in the external auditory canal
 - The solvents are glycerin, propylene glycol, vegetable oils, mineral oils, or low molecular weight polyethylene glycols
 - The above solvents adhere to the canal better than water and alcohol
 - Suspensions provide longer drug effect

Otic vehicle is :

1-glycerin

2-vegetables oil

3-mineral oil

4-propylene glycol

5- all

الجواب: all

low
viscosity

True or False: Otic suspensions must be shaken well before each use.

A. True

B. False

Uses of Otic Formulations

انسداد

- Ear Wax Impaction in External Auditory Canal:

- The cerumen remaining in the ear will become dry and difficult to remove from the canal
- Formulation containing carbamide peroxide, glycerin, hydrogen peroxide, and olive oil
- Carbamide peroxide and hydrogen peroxide 1. cause a mechanical "bubbling" action that softens and breaks up the dried cerumen and 2. have anti-infective action
- Glycerin is hygroscopic and absorbs moisture → help soften the cerumen
absorb water from air easily
- Olive oil serves as a softening agent and increase viscosity of the formulation to stay longer in the ear

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لېش بنسخدم ال carbamde peroxide انه بيعمل bubbling

- Carbamide peroxide and hydrogen peroxide
- 1. cause a mechanical "bubbling" action that softens and breaks up the dried cerumen
- 2. have anti-infective action



In the management of ear wax (cerumen) impaction, what is the specific role of carbamide peroxide and hydrogen peroxide?

- A. They create a bubbling action that softens and breaks up dried cerumen.
- B. They lower the pH of the canal to prevent bacterial growth.
- C. They serve as hygroscopic agents to draw moisture into the wax.
- D. They increase the viscosity of the formulation to prevent leakage.

Olive oils use in otic formulations for

1-softening agent

2-increase viscosity of the formulation

3-absorb water

4-tow choice

الجواب: tow choice

Uses of Otic Formulations

- Irrigation solution:

- An ear irrigation solution that contain water and alcohol is used following the treatment with Carbamide peroxide formulation
- Flow out of the canal easily (*low viscosity*)
- The ear is flushed with the solution with a soft rubber ear syringe
- Water should leave the canal out because it will support bacterial growth
- May contain surfactants to enhance the spreading of the solution
- May contain weak boric acid (0.5-1%) or aluminum acetate solutions to lower the pH in the canal

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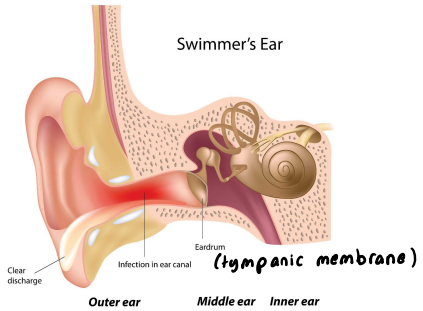
weak boric acid (0.5-1%)
Aluminum acetate

} lower the pH in
the canal



Uses of Otic Formulations

التهاب الأذن الخارجية

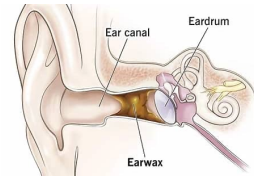


- **Swimmer's Ear (otitis externa):**

accumulation of ear wax

- Water becomes lodged between cerumen impaction and the tympanic membrane

- Trapped water can encourage bacterial growth leading to inflammation and infection of the external auditory canal



For treatment

- Formulations include: isopropyl alcohol, glycerin, boric acid, hydrocortisone, ethyl alcohol, and acetic acid

- Also aminoglycoside antibiotics can be added if infection is present

- The alcohol in the formulation help to reduce the surface tension of water which aids in its removal from the canal

- Glycerin in the formulation absorbs water

- Acetic acid reduces pH in the canal to minimize bacterial growth

وظيفة ال glycerin ب swimmer's ear
الجواب absorbs water

واجى وظيفة ال Acetic acid انه بتقلل ال pH
الجواب minimize bacterial growth

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Glycerin is used in otic preparations as a:

1. ☐ Bubbling agent
2. ☐ Surface tension reducer
3. ☒ Water absorber
4. ☐ Antibacterial
5. ☐ None is correct

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Question 1 / 50

(isopropyl alcohol, glycerin, boric acid, hydrocortisone, ethyl alcohol, and acetic acid), this otic formulation is used as.....

1. ☐ Ear Irrigation solution
2. ☐ Wax softener
3. ☒ Otitis externa treatment
4. ☐ Psoriasis treatment
5. ☐ None is correct

Next

إضافة ملاحظة

Uses of Otic Formulations

- Skin Disorders of the Ear:

- The outer ear is a skin-covered structure and is susceptible to the same dermatological conditions as other body part



Skin condition	Major ingredients	Function
Contact dermatitis 	<u>2.5%</u> aluminum acetate solution	مضاد للحكة <u>Antipruritic</u> , <u>anti-inflammatory</u> , and <u>antibacterial</u>
Seborrhea or psoriasis (dermatology) US overactive oil glands causing itchy, red, flaky scaling (skin condition) chronic skin disease marked by red patches covered with white scales	<u>Topical corticosteroids</u> (gels or ointments)	Anti- itching Otic ointments typically use petrolatum as the base.
Boils (<u>localized infection of the hair follicles with pus</u>)	- Topical antibiotics مضاد - Antipyrine (analgesic) in propylene glycol or anhydrous glycerin	<u>Topical analgesics</u> (antipyrine) with <u>hygroscopic vehicle</u> ↳ absorb water from air easily reduce swelling and retard bacterial growth by drawing moisture from the swollen tissue into the vehicle

For a patient suffering from contact dermatitis of the outer ear, which formulation is specifically indicated in the source material?

A. Anhydrous glycerin with antipyrine

B. 2.5% aluminum acetate solution

C. 1.0% boric acid irrigation

D. Topical corticosteroids with a petrolatum base

B

Otic ointments for conditions like seborrhea or psoriasis typically utilize which substance as the base?

A. Propylene glycol

B. Vegetable oil

C. Anhydrous glycerin

D. Petrolatum



How to use Otic Drops

First: The patient should be aware of the purpose of the formulation:

- If it is to remove impacted cerumen the drops are to be instilled and then removed with an irrigation solution
- If the drops for infection or inflammation they are instilled and left in the ear

Second: the patient should understand the length of time to use the formulations:

- antibiotic ear drops continue using the drops for 3 days beyond the time the ear symptoms disappear
- Product for swimmer's ear may need 7-10 days to demonstrate relief

How to use Ear Drops

1. Wash your hands
2. Warm the dropper bottle in your hands
3. If a suspension, shake well
4. Draw up a small amount of medication into the dropper
5. Lie on your side so the affected ear points toward the ceiling
6. Position the tip of the dropper just inside the canal. Avoid touching the dropper against the ear
7. For adults, hold the ear lobe up and back; for children, hold the ear lobe down and back
8. Squeeze the directed numbers of drops into the ear canal and allow the drops to run into the ear
9. Remain lying 3-5 minutes, gently massage the area around ear to aid in spreading of drops in the canal
10. Place a clean cotton pledget just inside ear to prevent leakage when in upright position
11. Replace cap

False

جابت ترو فولس لما اعطي ال
otic preparation for children
up and back and for adults down and back(false)

Tips

- Do not use ear drops if your eardrum has been damaged ✓
- Avoid using very hot or very cold eardrops. The medication should be at room temperature or slightly warmer. Warm the drops by holding the bottle in your hands for a few minutes

Packaging

- Solutions and suspensions packaged in small (5-15 ml) dropper bottles or drop-containers
- Otic ointments can be packaged in an ophthalmic tube
- Many otic formulations are self preserving because of the high concentration of glycerin, propylene glycol, or alcohol
- If the above agents are not present a preservative should be added

III. GLYCERIN, USP (GLYCEROL)

➤ Glycerin :

- Is a clear syrupy liquid with a sweet taste.
- Miscible with both water and alcohol.
- Has preservative qualities.

Advantages of hydro-alcoholic solutions:

Ethanol at specific content acts as preservative

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All otic formulations need preservatives

1. ☐ True

2. ☒ False

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إضافة ملاحظة