EVALUATING EYELID MALPOSITIONS: MORE THAN MEETS THE EYE

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10/15/20

1

Special considerations for

- Lower lid malpositions:
  - Ectropion – senile vs paralytic, lid retraction, other dx
  - Entropion –senile vs cicatricial, other dx
- Upper lid malpositions:
  - Ptosis – myogenic vs horners, 3rd nerve palsy, MG
  - FES

2

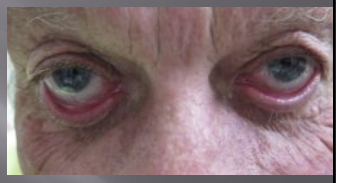
Lower lid malpositions

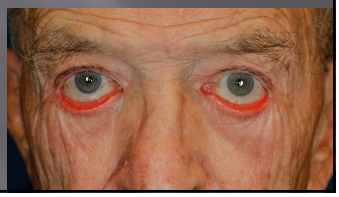
- Ectropion
- Entropion

3

Ectropion

- Definition: An ectropion is an outwardly turned, loose, or sagging eyelid
- Symptoms:
  - FBS
  - tearing due to dryness/exposure of the cornea
  - crusting of the eyelid
  - mucous discharge
  - irritation of the eye





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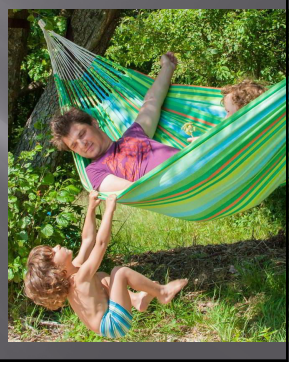
Exam

- External exam:
  - Lower lid skin quality
  - Look for inferior scleral show
  - Punctal eversion
  - Lid eversion = tarsal ectropion
  - Canthal tendon laxity
- Anterior segment:
  - Conj injection (esp palpebral conj if eversion)
  - Cornea staining esp inferiorly

5

Ectropion -considerations

- Generally the condition is the result of tissue relaxation with aging
  - Look for lateral canthal tendon laxity (+/- medial canthal tendon laxity)
- Dry dermatitis
- Facial nerve paralysis (Bell's palsy)
- Scarring: Trauma, previous surgery (lesion removal, lower lid bleph)
- Ectropion may also be associated with conditions like obstructive sleep apnea



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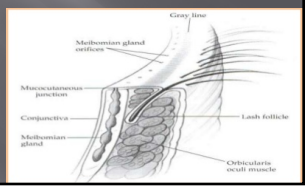
Ddx: Dermatitis

- Dry dermatitis
- Atopic dermatitis

- Causes anterior lamellar shortening
- Treat with moisturizers 1st



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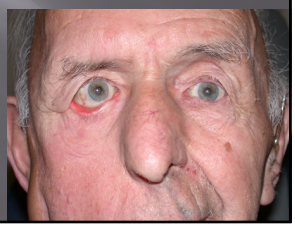
7th nerve palsy

Causes:

–Lyme, shingles

-Can be due to tumor or tumor resection (acoustic neuroma, parotid gland tumor)

-Bell's palsy (idiopathic, ?viral etiology)



-1 in 60 people in a lifetime. Both sexes equally affected, most often occuring btwn ages of 10-40 years

8

7th nerve palsy

- Exam:
- Brow ptosis
- Lagophthalmos
- Ectropion (paralytic)
- Corneal staining/breakdown

- Treatment:
  - Aggressive lubrication – preservfree AT 4-6x/d
  - AT ointment qHS if significant lag
  - Refer for eval'n of lag/ectropion – may need tarsorraphy

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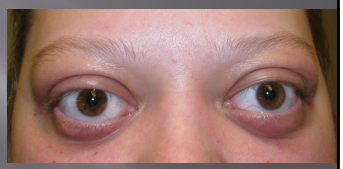
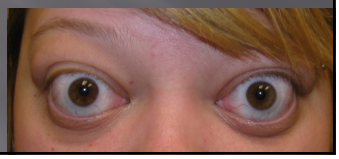
Ddx: Thyroid eye disease

- Lower lid retraction also gives inferior scleral show -truly laxity or lid retraction?



- If pt looks proptotic do a hertel
  - Normal range: 12–21 mm
  - Upper normal for people of African origin is 24 mm
  - A difference greater than 2 mm between the eyes is significant



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TED

- Exam:
  - VA
  - EOMs
  - Hertel
  - Cornea
- May need additional testing – eval'n of optic nerve function & imaging if new/worsening proptosis
- Surgical - Repair of lower lid retraction vs orbital decompression.

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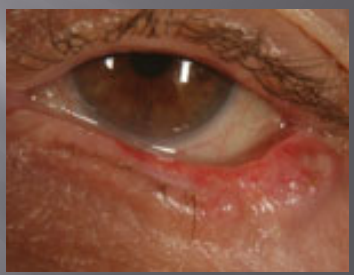
Mechanical ectropion

- Lesions can cause mechanical ectropion



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Entropion

- Entropion is a condition where the lower eyelid turns inward, rubbing the lashes against the eye

- Symptoms:
  - Eye irritation
  - Redness
  - Tearing/discharge
  - Light sensitivity

13

Exam

- External exam
  - Lashes rolled
  - 'fullness of the lower lid'
  - Always pull lid out and look for symblephara
  - Always have patient squeeze eyes shut and see whether opposite lid (which may look unaffected) has inducible entropion
- Anterior segment
  - Conjunctival injection inferiorly
  - Corneal staining inferiorly

14

Entropion causes

- Laxity of the eyelid tendons, combined with weakening of the CPF result in the eyelid turning in

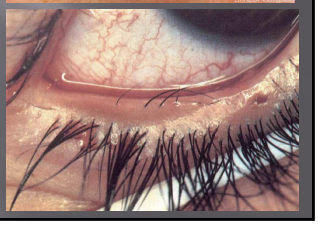
- Ddx:
  - Trichiasis
  - Epiblepharon
  - OCP (ocular cicatricial pemphigoid)
  - Spastic (blepharospasm induced)

15

DDx: Trichiasis

- Trichiasis: lash growth towards the eye – often idiopathic
- Possible underlying disorders
  - chronic eyelid inflammation (severe blepharitis)
  - secondary to trauma
  - OCP
  - chemical burns
  - stevens johnson

  (Worldwide trachoma is a leading cause of the issue)
- Distichiasis= growth of lashes from meibomian gland orifices



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- Mechanical epilation is usually the first-line treatment
  - best for few isolated lashes
  - Lashes tend to grow back in a few weeks and additional therapy is usually needed
- Radiofrequency epilation involves inserting a probe into each individual follicle under slit lamp/operating scope.
  - single-treatment success rates are 56 to 90 percent

17

Tx

- Very extensive trichiasis may also be treated surgically
  - eyelid wedge resection
  - tarsal fracturing
  - eyelid splitting

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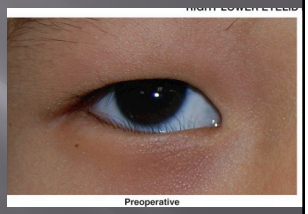
Ddx: Epiblepharon

- Most frequently seen in Asian and Hispanic children
- eyelid pretarsal muscle & skin over-ride the eyelid margin to form a horizontal fold of tissue that causes the cilia to assume a vertical position



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Exam differentiators

- With the fold of tissue gently moved away, the eyelid margin is itself in a normal position against the globe
- Epiblepharon is often asymptomatic; however can be associated with FBS, redness, irritation, tearing,keratitis
- Symptoms may be more noticeable when the child is looking downwards (such as reading at school) as this exacerbates the inward rotation of the lid/lashes

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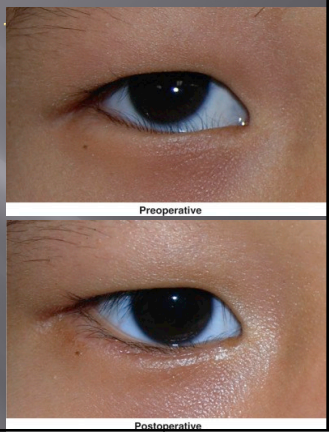
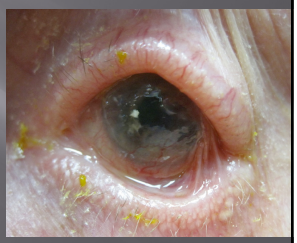
- May spontaneously resolve as the facial bones grow
- May require surgery to excise skin and orbicularis muscle



21

Ddx: Ocular Cicatricial Pemphigoid (OCP)

- OCP is considered a subtype of Mucous Membrane *Pemphigoid* (abbreviated MMP), and these terms are sometimes used interchangeably
- Is an autoimmune conjunctivitis that leads to scarring.
- Hallmark of disease is chronic cicatrizing conjunctivitis
- OCP can affect the skin and other mucous membranes (eg, oral mucosa, pharynx, larynx, trachea, esophagus, vagina, urethra, anus)



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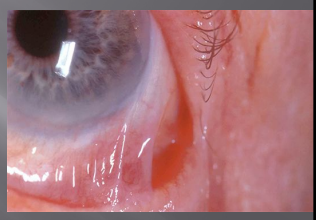
Considerations in evaluating this

- Ocular cicatricial pemphigoid
  - look for symblephara
  - check the fornices for foreshortening
  - Evert the upper lid and look for linear scarring



23

OCP

- 1 in 8,000 ophthalmic patients
- Ave age of onset 50-60yo
- Diagnosis of OCP is based on clinical presentation + immunohistochemical studies of the conjunctiva
- On conj biopsy there will be linear deposition of immunoreactants (IgG, IgA, complement component C3/C4) at the BMZ of the biopsy specimen on immunofluorescence

24

Treatment of OCP

- Long-term use (>1 y) of systemic immunomodulators is the major therapeutic strategy in treating OCP.
- The current guidelines for using chemotherapy in treating OCP are as follows:

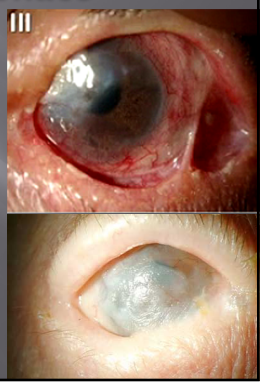
  Mild-to-moderate inflammation:
  - Dapsone is a first-line agent.
  - Methotrexate may also be considered first-line therapy.

  Severe inflammation,
  - cyclophosphamide should be used initially
  - systemic prednisone could be added with rapid taper for a limited period of time (3 mo).
- Surgical procedures may help but only after inflammation is suppressed:
  - marginal rotation of the eyelid
  - mucous membrane grafting
  - fornix reconstruction
- Entropion surgery usually is avoided to minimize interference with the conjunctiva

25

OCP and phaco

- The need for cataract surgery is common in patients with OCP
- Cataract surgery performed on patients with OCP is followed by increased conjunctival inflammation, rapid progression of keratopathy, and conjunctival scarring, if the disease is not medically controlled



26

Ddx: Spastic

- eyelid spasms, forceful blinking, squeezing, or other neurological conditions can cause the eyelid to roll inward

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Upper Lid Malpositions

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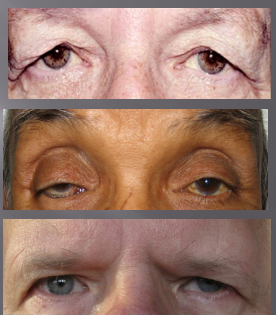
Dermatochalasis

Involutional ptosis

Brow ptosis

Floppy eyelid syndrome



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Ptosis

- Definition: Drooping upper lid due to muscle issue (often dehiscence secondary to aging)
- External exam:
  - Pupil symmetry
  - EOMs full
  - MRD1 (ask about variability AM to PM)
  - Levator function
  - Lid crease may be high
- Anterior segment:
  - Eval and r/o DES – if present treat aggressively

30

Ddx: Horner's Syndrome

- Classic triad: ptosis, miosis and anhidrosis
- impaired innervation of sympathetic to Müller's muscle
- It can be either congenital or acquired

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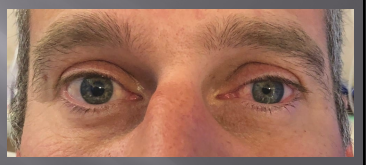
Horner's exam findings

- Miosis with pupil difference greater in dark than light
- Ptosis of upper lid and reverse ptosis of the lower lid



32

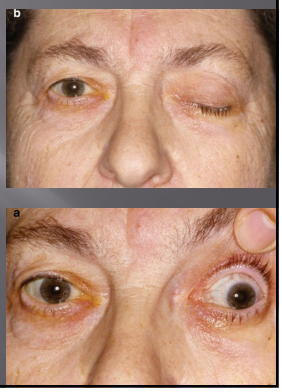
Horner's

- Ask about head/neck/arm pain.
- Risk to patient health varies from benign to life threatening based on the underlying cause.
- Patients should undergo a thorough neurological work-up with imaging

33

Ddx: 3rd nerve palsy

- Ptosis, mydriasis, ophthalmoplegia
  - Ptosis may be partial or complete
  - Anisocoria greater in light
  - EOMS: reduced ocular movements
  - ocular misalignment, where the eye is located down and out.



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3rd nerve palsy- exam

- MRD1
- Levator function – impaired
- EOMs – is it superior/inferior branch or are both involved
- Pupils – Anisocoria greater in the light
- Pupil-sparing third nerve palsy involves ischemic cranial neuropathy (such as in diabetes or hypertension), while pupil-affecting third nerve palsy involves compressive lesions or aneurysm
- Send for imaging

35

Ddx: Myasthenia Gravis

- Autoimmune condition - affects 20/100,000 people
- antibodies form against acetylcholine (ACh) postsynaptic receptors at the neuromuscular junction (NMJ) of the skeletal muscles
- Variable ptosis and/or diplopia worse at night
- Symptoms of MG:
  - drooping eyelid
  - blurred/double vision
  - Systemic: slurred speech, difficulty chewing/swallowing, weakness in arms/legs, chronic muscle fatigue, difficulty breathing

36

Myasthenia gravis exam

- Measure lid position (MRD1) and levator function
- Fatigue test: Increasing ptosis or diplopia with prolonged upgaze
- Ice pack test and re-measure lid height

37

MG

- Labs: Acetylcholine receptor antibodies (Positive in only 50% of patients who have purely ocular MG)
- CXR to rule out thymoma
- Tx: mestinon (pyridostigmine), IVIG, plasmapharesis, prednisone and other immune suppressants

38

Ddx: Floppy Eyelid Syndrome

- 1 in 4 men and 1 in 10 women have sleep apnea
- Up to 85% of patients with floppy eyelids may have obstructive sleep apnea, a potentially life-threatening condition
- should be evaluated in a sleep clinic and fitted with a CPAP mask

39

Floppy Eyelid Syndrome

- Changes in the structure/weakening of the tarsal plate
  - Studies have shown significant decrease in the amount of elastin within the tarsal plate and eyelid skin.
  - Induced by repeated mechanical stress, associated with eye rubbing or by sleeping habits.
- decrease in cortical arousability causes the eyelid to remain open when disturbed by mechanical stress during sleep

40

Exam

- External:
  - Lash ptosis
  - Easily everted upper lid with lateral traction
- Anterior segment
  - Marked conj papillae on lid eversion (often ho mattering/irritation esp in AMs)
  - Corneal staining

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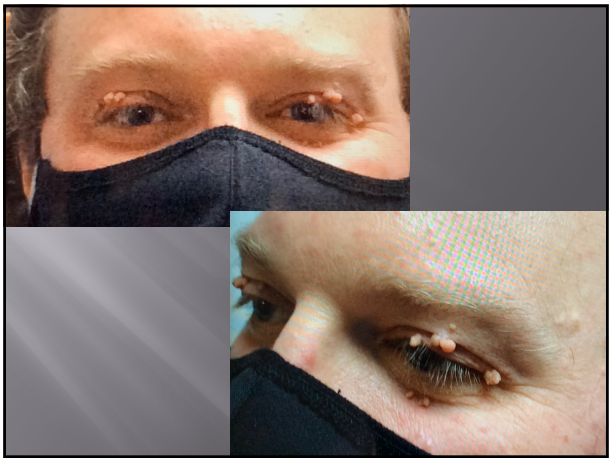

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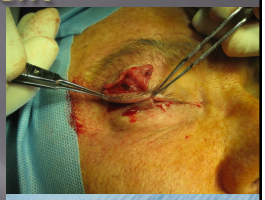
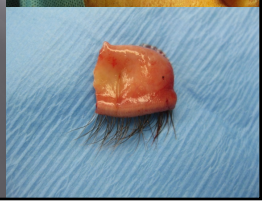
Treatment

- Send to PCP for sleep study
- If already on CPAP mask artificial tear gel qHS
- Start aggressive lubrication +/- shield at night
- Send to oculoplastics – may need upper lid resection





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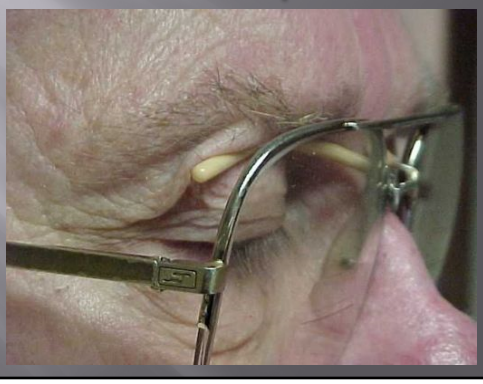
Treatment options



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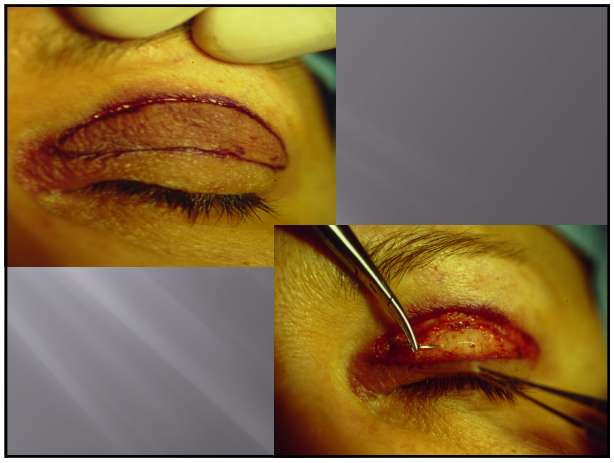

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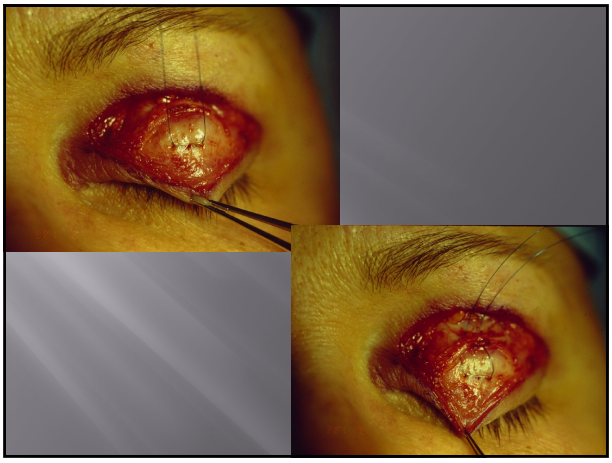

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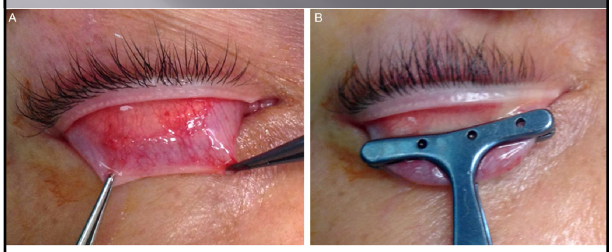
Conjunctivomullerectomy



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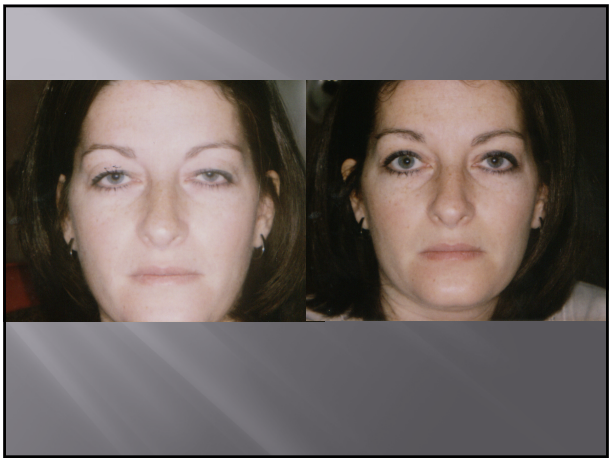

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Dr. RaShawn Venerable

Specialty Eye Institute

Smoothing Out The Wrinkles

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Financial disclosure

- No financial conflicts to disclose.

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What is BOTOX®

- Botox® (onabotulinum toxin A) is a brand name of Allergan's botulinum toxin A injection

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Botulinum toxin A

What is botulinum toxin?

- Botulinum toxin (abbreviated either as BTX or BoNT) is produced by *Clostridium botulinum,* a gram-positive anaerobic bacterium. [1]
- The disease was first associated with the consumption of sausage, 1735

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Botulinum toxin A

What is botulinum toxin?

- In 1870, John Muller, a German physician, derived the name **botulism** from the Latin word for sausage.

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Botulinum toxin A

What is botulinum toxin?

- Professor Emile Van Ermengem, of Belgium, first isolated the bacterium *Clostridium botulinum,* In 1895. The clinical syndrome of botulism can occur following ingestion of contaminated food, colonization the gastrointestinal tract, or a wound infection.

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- Botulism is a rare but serious illness caused by a toxin that attacks the body's nerves and causes difficulty breathing, muscle paralysis, and even death [2].

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Botulinum toxin A

When was botulinum toxin proposed for medical treatment?

- In 1949, Dr. Burgen's ASV group discovered that botulinum toxin blocks neuromuscular transmission. In the **1950s**, Dr. Vernon Brooks discovered that when BoNT-A is injected into a hyperactive muscle, it blocks the release of acetylcholine from motor nerve endings

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- Botulinum toxin is a neurotoxic protein that prevents the release of the neurotransmitter acetylcholine from axon endings at the neuromuscular junction, thus causing flaccid paralysis.

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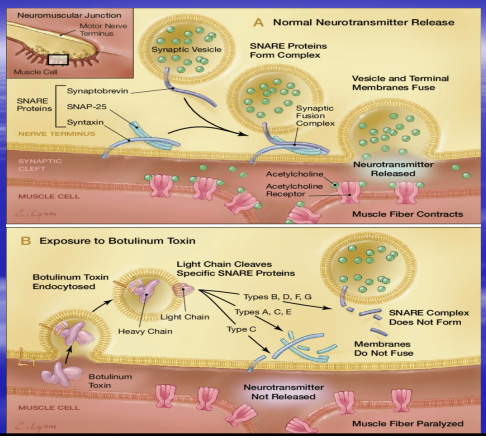

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Botulinum Toxin A

- Botox® (onobotulinumtoxinA) was first approved for treatment for strabismus, hemifacial spasms, and blepharospasm in December 1989
- In 2000, the toxin was approved to treat a neurological movement disorder that causes severe neck and shoulder contractions, known as cervical dystonia.
- Botox® was FDA approved for moderate to severe frown lines in 2002

12

Botulinum Toxin A

- In 2004, the U.S. Food & Drug Administration (FDA) approved botulinum toxin type A for the treatment of severe primary axillary hyperhidrosis (excessive sweating of the underarms)
- The FDA approved for the treatment of chronic migraine headache in 2010.
- 2013 Botox® was FDA approved for severe crows feet and overactive bladder

13

Botulinum Toxin A

- **Botox ®(onobotulinumtoxinA)**
- **Dysport ®(abobotulinumtoxinA)**
- **Xeomin ®(incobotulinumtoxinA)**
- **Jeuveau ®(prabotulinumtoxinA)**
- **Myobloc ®(rimabotullinumtoxinA)**

14

Complications [3]

- Site Bruising or Discomfort
- Infection or Allergic Reaction
- Antibody formation
- Spread of Medication
- Trouble Breathing or Swallowing
- Dysphonia or Hourseness
- Double Vision
- Headache
- Neck Pain
- Facial paralysis

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Medical indication for the use of Botulinum Toxin A

16

Essential Blephrospasm

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Hemifacial spasm

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Botulinmtoxin A

Treatment of Migraine Headaches

- The FDA approved botulinum toxin type A for the treatment of chronic migraine headache in 2010.
- botulinum toxin type A prevents on average 8 to 9 headache days and migraine/probable migraine days a month (vs 6 to 7 for placebo).

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Migraine Headaches

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Cosmetic use of Botulinumtoxin A

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Frown Lines (Daddy's angry face)

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Forehead lines (What????)

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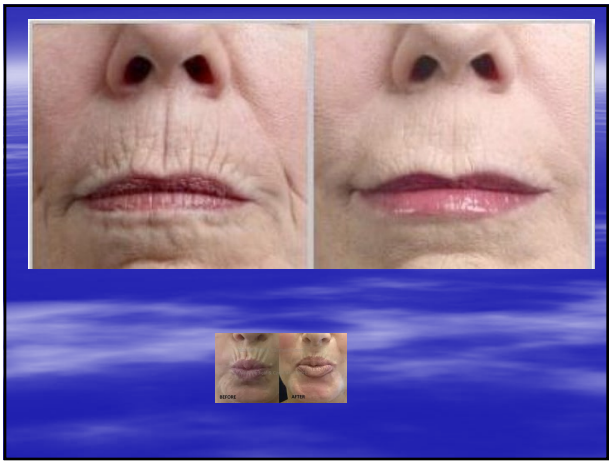

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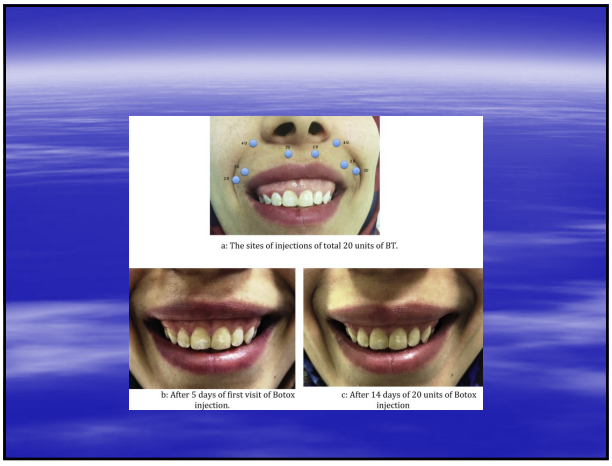

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Thank you

31

Reference

1. Botulinum Toxin - Updated: Oct 10, 2019. https://emedicine.medscape.com/article/325451 Author: Divakara Kedlaya, MBBS; Chief Editor: Elizabeth A Moberg-Wolff, MD
2. https://www.cdc.gov/botulism/general.html
3. Allergan Product insert

32