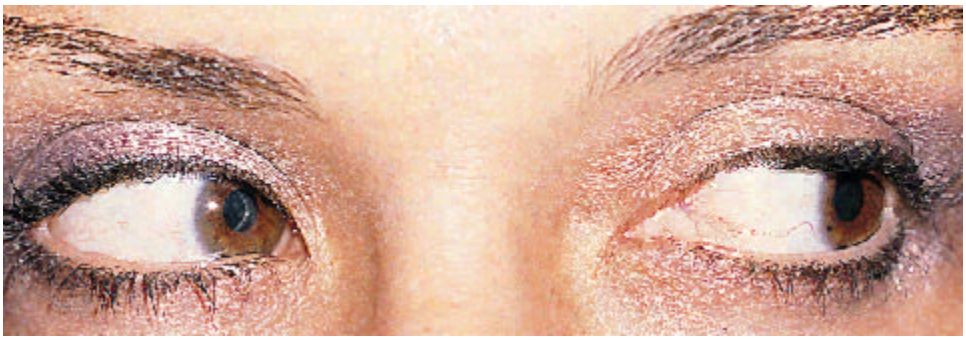

Q: Picture of patient with L hypertropia. Dx, discussion and management?

- The Ddx would include
  1. SOP
  2. DVD
  3. TAO
  4. Brown's
  5. B/O #
  6. MED
  7. Skew
  8. Myasthenia gravis

- Ocular exam should include measuements in all fields of gaze.
- Look for masked bilateral: look for Rhyper in Lgaze and a Lhyper in Rgaze and do double maddox rod and see if >10° excyclotorsion

THREE-STEP TEST	
Step	Test
1	Determine whether there is a right or left hypertropia in or near primary gaze.
2	Determine the lateral gaze direction that worsens the hypertropia.
3	Tilting the head to the side that increases the hypertropia.

OUTCOMES OF THE THREE-STEP TEST	
Test outcome (Step 1–Step 2–Step 3)	Affected cyclovertical muscle
R–L–R	Right superior oblique muscle
L–R–L	Left superior oblique muscle
L–L–L	Right inferior oblique muscle
R–R–R	Left inferior oblique muscle
L–L–R	Left inferior rectus muscle
R–R–L	Right inferior rectus muscle
L–R–R	Right superior rectus muscle
R–L–L	Left superior rectus muscle

- Congenital: Facial assymerty, old photos with head position and fusional amplitudes

- Indications for treatment
  - Significant head turn
  - Hyper in primary
  - Symptomatic

- Non surgical treament if small deviation can use Fresnel prisms

- **Surgical treatment of Superior oblique palsy (don't forget IPCA, and Harad Ito)**

Treatment algorithum #1
IOOA Present
1. Deviation <15_>>>>IO weakening procedure
2. Deviation>15_>>>>IO weakening + IR contralateral (1mm:3_)

IOOA not present
1. Forced ductions normal>>>>IR recessed contraleral
2. Forced ductions positive>>>SR recessed ipsilateral

>35_ do three muscles
bilateral SOP do bilateral SO tucks

Treatment per Knapp's
1. Type I: IO weakening
2. Type II: SO tuck
3. Type III: <25 SO tuck, >25 SO tuck & IO weaken (Ipsi)
4. Type IV: Add ipsi IR resect
5. Type V: SO tuck + IR recess (contra)
6. Type VI: Bilateral do bilateral SO tucks
7. Type VII: Brown's plus

KNAPP CLASSIFICATION OF SUPERIOR OBLIQUE MUSCLE PALSY	
Class	
1	Greatest deviation is with the affected eye elevated in adduction, the field of the ipsilateral (antagonist) inferior oblique muscle.
2	Greatest deviation is with the affected eye depressed in adduction, the field of the affected paretic superior oblique muscle.
3	Greatest deviation is in all contralateral gazes (down, level, and up).
4	Greatest deviations are in all contralateral gaze and in all downgaze positions (contralateral, straight, and ipsilateral).
5	Greatest deviations are in all downgaze positions.
6	Y-Pattern esotropia, cyclotropia, and bilaterally positive three-step test indicates a bilateral palsy.
7	Poor elevation and depression in adduction of the affected eye, resulting from direct injury to the superior oblique muscle, causing its restriction and paresis.

SOP

Treatment of SO palsy (Wright)

I) IO recession (if worse on upgaze) - corrects up to 15 PD vertic. deviation
II) SO tuck (for HT worse on down and in gaze or for bilateral SO palsy)
III) contralateral IR recession (for HT worse on downgaze; 3 PD correction per mm recession)
IV) ipsilateral SR recession (for HT worse on abduction or restricted downgaze on forced ductions)
V) Harado Ito: anteriorization of SO; for problem with excyclotorion but little vertical deviation
- NV: for 20-35 PD, do 2 muscles; for > 35 PD, do 3 muscles