

Intravitreal Injection of Chemotherapy for Retinoblastoma

Indications

- Vitreous Seeding
- Recalcitrant subretinal and retinal tumors

Drugs

- Melphalan hydrochloride
 - use 50 mg lyophilized powder for IV injection
 - 0.25-0.3 mg per 0.5 ml
 - Deliver 25-30 ug in 0.05 ml
 - Reconstitue in 0.9% normal saline
 - Must be injected into the eye < 1 hour after being constituted
- Topotecan hydrochloride
 - 20 µg in 0.04 ml (0.2 mg per 0.4 ml)
 - Reconstitue in 0.9% normal saline

Tools

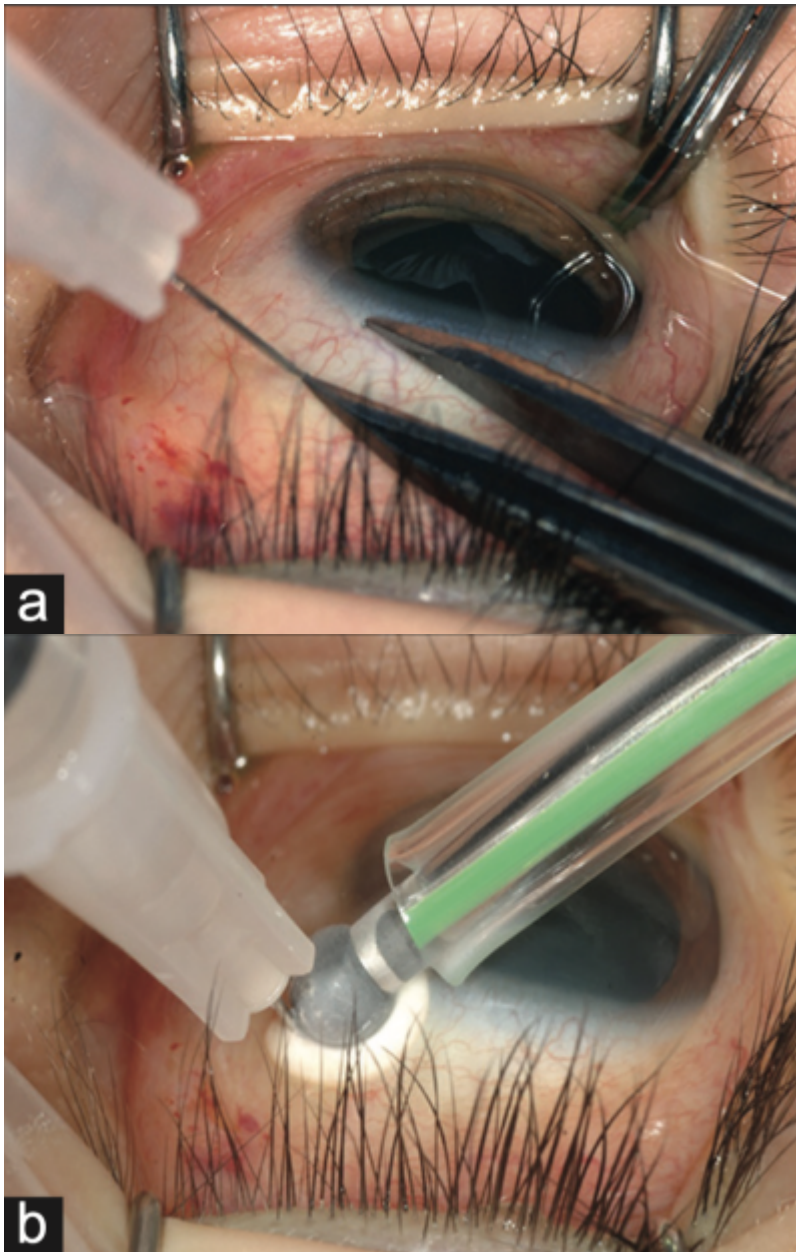


- 1 ml syringe or smaller for drug delivery
- 30-33 gauge needle for drug delivery
- EUA set up (lid speculum, indenter, indirect, condensing lenses, etc.)
- Tonopen
- Cryo machine
- Sterile Water
- 60 ml syringe
- kidney basin

Steps

1. Call Pharmacy (x64300) 20 minutes before desired drug delivery time.
2. Choose an injection site distant from any vitreous or retinal tumors
3. Lower intraocular pressure to <10mmHg with digital massage
4. Prep the eye with a drop of Betadine 5%
5. [Inject 2.5-3 mm from limbus](#) directing the needle towards the center of the vitreous but avoid known vitreous seeds

6. Before retracting the needle tip from the vitreous apply cryo to the injection site and the needle.
7. **Retract the needle and bathe the fornix with sterile water for 3 minutes**
8. Apply a drop of betadine
9. Inspect vitreous and retina if desired



Source: The role of intravitreal chemotherapy for retinoblastoma. Manjandavida FP, Shields CL. Indian J Ophthalmology 2014;63(2):143

Follow-up

- Repeat EUA with plan to inject again for non-response in about 2 weeks
- If tumors appear to be dead, do one final injection (n+1 rule)

References

- Intravitreal chemotherapy for vitreous disease in retinoblastoma revisited: from prohibition to conditional indications. Munier et al. Br J Ophthalmology 2012;96:1078-1083
- Efficacy and Toxicity of Intravitreal Chemotherapy for Retinoblastoma: Four-Year Experience. Francis et.al. Ophthalmology 2017;124:488-495
- Intravitreal chemotherapy in retinoblastoma: expanded use beyond intravitreal seeds. Abramson et. al. Br J. Ophthalmol 2019;103:488-493
- The role of intravitreal chemotherapy for retinoblastoma. Manjandavida FP, Shields CL. Indian J Ophthalmology 2014;63(2):141-145
- Death by Water: Precautionary Water Submersion for Intravitreal Injection of Retinoblastoma Eyes. Francis et. al. Open Ophthalmology Journal 2014;8:7-11

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