
Endoscopic Forehead Rejuvenation: Equipment and Setup

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1. Endoscopic Video Setup

(a) Endoscope

(i) Types

1. 30° angle tip most useful
2. 4- and 5-mm-diameter shafts available
3. 17–20 cm in length
4. Has side connector for the light source

(ii) Cannulas

1. Match up with specific scope
2. Protects fragile scope from bending
3. Length and coupling mechanism must be compatible
4. Bill extends beyond tip of endoscope

(a) Serves as retractor/elevator to create the optical cavity

(b) Varied designs

(i) Straight

1. Extension projects out beyond and parallel to the superior aspect of the endoscope

(ii) Angled

1. Extension out beyond and angled up relative to the superior aspect of the endoscope
2. May give greater retraction but could limit placement into tighter spots

(iii) Wide bill

1. Extension flares out laterally to support more tissue during retraction

5. Irrigating side port

(a) Allows for attachment of syringe and pulsed irrigation to clear endoscope tip of heme

(b) Sometimes useful for application of suction during cautery to clear smoke

(iii) Defog

1. Helpful to keep the scope warm in a water bath
2. Antifogging solutions (FRED) available in the OR
 - (a) Can be applied to the tip of the scope
 - (b) Work well without the extra hassle of the water bath

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- (b) Camera
 - (i) Coupler
 1. Attaches to the viewing end of scope
 2. Converts image to a signal that is processed by the camera box
 - (ii) One- vs. three-chip systems
 1. Cost vs. clarity
 2. Most one-chip cameras provide more than adequate clarity and definition
 - (iii) Focusing
 1. With system connected, place tip 1 cm from suture packet or other object with small lettering
 2. Adjust knob on coupler device
 - (iv) White balance
 1. Flat white object is placed in front of endoscope, and when activated, camera will auto adjust to provide most realistic color balance
 - (v) Auto iris
 1. Most cameras have selection to allow camera to determine appropriate amount of illumination.
 2. In some settings, manual adjustment is helpful.
 - (a) In a bloody field, auto iris will underestimate the illumination needs
- (c) Light source
 - (i) Xenon is the preferred option.
 - (ii) Spend the money, and skimp elsewhere if necessary
- (d) Monitor
 - (i) High-resolution 13- to 20-in. model is preferable.
 - (ii) Although not essential, two monitors allow for ease of viewing from different surgical positions.
- (e) Recording source
 - (i) Optional
 - (ii) VHS or still recorder
- 2. Hand Instruments
 - (a) Essential
 - (i) Periosteal elevator/dissector (central pocket)
 1. Straight
 2. Curved
 - (ii) Temporal dissector
 1. Oval, dissects sideways as well as forward
 2. Separates superficial temporal fascia from superficial layer of the deep temporal fascia
 - (iii) Periosteal spreader
 1. Uprturned tip useful to spread periosteum after opening of arcus marginalis along superior and lateral orbital rim
 - (iv) Endoscopic scissors
 1. Right-handed surgeon can get by with only the left going
 2. Nice to have both right and left though
 3. Cutting periosteum
 4. Transecting corrugators and procerus
 - (v) Endoscopic grasping forceps
 1. Right-handed surgeon can get by with only the left going
 2. Nice to have both right and left though
 3. Dissecting out the corrugators from the supratrochlear nerve and vessel
 4. Stripping the corrugator and procerus
 5. Grabbing bleeding vessels to transmit externally applied cautery (instrument is insulated)
 - (vi) Nerve hook
 1. Come as right and left going
 2. Useful to dissect out the supraorbital and supratrochlear neurovascular bundles
 3. Also can be used to strip out the procerus
 - (b) Nice to have instruments

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- 3. Cautery
 - (a) External monopolar
 - (i) Applied to insulated endoinstruments
 - (ii) Shielded Frazier suction
 - 1. Red rubber covering
 - (b) Endoscopic suction coagulators
 - (c) Ellman RF suction coagulators
 - 4. Bony Fixation
 - (a) Drill motor or hand drill
 - (b) Anchors
 - (i) Flush mount
 - (c) Screws
 - (i) Permanent
 - (ii) Bioabsorbable
 - (d) Posts
 - (e) Bone tunnel
 - (i) Metal template
 - (f) K wire
 - (g) Tissue glue
- 5. Miscellaneous
 - (a) Skin hooks
 - (i) Assist in introducing the endoscope
 - 1. Avoids blood on tip
 - (ii) Temporal incision
 - 1. Elevates the superficial layers away from the deep
 - 2. Minimizes risk of dissection in the wrong plane
 - (b) Free needles
 - (i) Straight or curved