

Regional Anesthesia

- Ester local anesthetics should be avoided in pts taking echothiophate due to reduced plasma cholinesterase activity and altered metabolism.

Extubation

- Avoid coughing and bucking, which can cause acute increases in IOP.
- Neuromuscular blockade reversal agents and anti-muscarinics in usual dosages are considered safe.

Postoperative Period

- If emergency surgery is required in pts currently taking echothiophate, expect the need for prolonged postop ventilation.

Anticipated Problems/Concerns

- Avoid increases in IOP.
- Echothiophate therapy produces decreased plasma cholinesterase activity and should be stopped 4 wk

prior to surgery to avoid a prolonged paralysis with the use of succinylcholine.

- Be aware that topical beta-blockers are systemically absorbed and can have systemic effects.

Glomus Jugulare Tumors

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Risk

- Account for 0.6% of head and neck tumors worldwide
- Male-to-female prevalence ratio: 1:2.5
- Slow-growing
- Can coexist with other paragangliomas
- Histologically benign but can be malignant with metastases
- Can be familial

Perioperative Risks

- Hypothermia
- Massive blood loss
- Venous air embolism
- Htn
- Bradycardia
- Hypotension

- Bronchospasm
- Tumor-parts embolization

Worry About

- Glomus jugulare tumors can appear in multiple locations; symptoms can persist after resection of the tumor.

Overview

- Tumors of neural crest at base of skull in jugular bulb area
- Highly vascular
- May extend into the posterior fossa
- May cause hydrocephalus
- May damage the lower cranial nerves (IX–XII)
- May involve internal carotid artery

- May grow into lumen of the jugular vein, as far as the RA
- May cause Horner syndrome
- May secrete catecholamines: 5%
- May secrete serotonin, histamine

Etiology

- Congenital (usually benign) hypertrophied arteriovenous anastomosis
- Epithelial cells with abundant capillary network

Usual Treatment

- Resection
- Embolization, alone or pre-resection
- Radiation
- Radiosurgery

Assessment Points

System	Effect	Assessment by Hx	PE	Test
HEENT	Cranial nerve injury	Hoarseness Dysphagia Tinnitus Vertigo	Tongue movement Soft palate motion Gag reflex Hearing test	Video laryngoscopy
CV	Htn Intravascular growth	Headache Palpitations	BP	Catecholamines level MRI/CT scans Angio (if indicated)
RESP	Aspiration	Cough Fever SOB	Rhonchi, wheezing	CXR
GI	Delayed gastric emptying	Heartburn Regurgitation		
GU		No different from normal		
CNS	Intracranial extension	Hearing loss Headache Dizziness Ataxia		CT scan MRI Paragangliomas in other locations

Key References: Jensen NF: Glomus tumors of the head and neck: anesthetic considerations, *Anesth Analg* 78(1):112–119, 1994; Heth J: The basic science of glomus jugulare tumors, *Neurosurg Focus* 17(2):E2, 2004.

Perioperative Implications**Preoperative Preparation**

- Control Htn (in catecholamine-secreting tumors). Preparation is similar to pheochromocytoma (see also Pheochromocytoma).
- Trial balloon occlusion of the internal carotid artery if there is a chance of ligating it intraop.
- Treat pneumonia.
- Metoclopramide for delayed gastric emptying.
- Adequate venous access for rapid fluid infusion.

Monitoring

- Consider arterial line and CVP.
- Monitor for venous air embolism (frequent ABG, ETCO₂, N₂; precordial Doppler).
- Cerebral oximetry.
- Facial nerve.

- Tenth nerve by using the NIM-EMG-ETT.

Maintenance

- Watch out for massive blood loss, Htn, hypotension, bradycardia, bronchospasm, venous air embolism, and tumor-parts embolization.
- Provide controlled hypotension if needed.
- Measure to decrease the ICP for intracranial extension:
 - Administer mannitol.
 - Assess for hyperventilation.
 - Optimize venous return from brain.
 - Assess CSF drainage.

Extubation

- Evaluate for airway swelling and neck hematoma.
- Evaluate for sequelae of pulm embolism.
- Evaluate for cranial nerves (IX–XII) injury.
- Evaluate for brain stem injury.

Adjuvants

- Controlled ventilation
- Muscle relaxants to prevent spontaneous ventilation intraop
- Controlled hypotension

Anticipated Problems/Concerns

- Loss of upper airway reflexes
- Airway obstruction
- Aspiration
- Delayed gastric emptying
- Ileus
- CNS insult
- CSF leak