

Postoperative visual loss

1. **ischemic optic neuropathy**: The most common cause of the very uncommon **postoperative visual loss**. Often bilateral. Usually associated with significant blood loss (median: 2 L), and/or prolonged **operative time** (≥ 6 hrs). All cases had anesthetic time > 5 hrs or blood loss > 1 L. **Blood loss** can cause **hypotension** (may cause release of endogenous **vasoconstrictors** in addition to reduced blood flow due to low hemodynamic pressure) and increased **platelet aggregation**. Is not due to direct pressure on the globe in most cases, and can occur at any **age** and even in otherwise healthy patients. No association with age, HTN, **atherosclerosis**, **smoking** or **DM**.

The blindness can be extensive and is often permanent. Prevention is critical since there is no known effective treatment.

a) posterior ischemic optic neuropathy (PION): may follow surgery (surgical PION).

Risk factors as above, plus:

- Surgery in the **prone position** (can cause periorbital edema, and rarely, direct pressure on the orbit)
- lack of tight glycemic control
- use of **Trendelenburg position**
- **hemodilution** or overuse of **crystalloid** vs. colloid (blood) fluid replacement
- prolonged hypotension
- cellular hypoxia
- decreased renal perfusion

b) 6 independent risk factors for POVL

- male gender: odds ratio(OR)=2.53
- obesity: by clinical assessment or $\text{BMI} \geq 30$ OR=2.83
- use of Wilson's frame: OR=4.30
- length of anesthesia: OR=1.39 per hour
- EBL: OR=1.34 per Liter
- use of colloid as a percentage of nonblood replacement: less certain (small difference). OR= 0.67 per 5% colloid

c) anterior ischemic optic neuropathy (AION): divided into arteritic (as with GCA) and nonarteritic (common with DM)

2. central **retinal artery occlusion**

3. **cortical blindness**: from occipital lobe infarction possibly due to embolism

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