

POST-OPERATIVE ALOPECIA AFTER ROBOTIC SURGERY IN STEEP TRENDLENBURG POSITION: A RESTATED OBSERVATION OF PRESSURE ALOPECIA

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Abstract

Postoperative alopecia is an uncommon complication and its outcome is aesthetically drastic. Although its mechanism has not been clearly elucidated, a proposed risk factor is steep Trendelenburg positioning (30-40 degrees) that is frequently used during robotic gynecologic surgeries. We report a case of postoperative alopecia in 53-year-old female patient who had undergone robotic-assisted laparoscopic hysterectomy and bilateral salpingoophorectomy with sacrocolpopexy and cystoscopy. Prevention of alopecia with proper head positioning, avoidance of mechanical compression by rigid objects and maintenance of intraoperative hemodynamics is of utmost importance for anesthesiologists.

Letter

Postoperative alopecia is an uncommon complication and its outcome is aesthetically drastic. Although its mechanism has not been clearly elucidated, a proposed risk factor is steep Trendelenburg positioning (30-40 degrees) that is frequently used during robotic gynecologic surgeries. Robotic procedures have several advantages like better visualization of surgical field and faster postoperative recovery. However, these procedures require positioning patient in steep Trendelenburg position for prolonged durations and are associated with complications like postoperative visual loss (POVL). Postoperative alopecia after robotic surgeries can be explained by a similar mechanism as first described and explained with observations of pressure alopecia after gynecologic surgeries in Trendelenburg position during 1960s¹⁻².

We report a case of postoperative alopecia in 53-year-old female patient who had undergone robotic-assisted laparoscopic hysterectomy and bilateral salpingoophorectomy with sacrocolpopexy and cystoscopy. Prior to the procedure she had denied any signs/symptoms of hair loss or thinning. She had undergone general anesthesia with inhalational anesthetics' maintenance and peri-operative epidural analgesia in steep Trendelenburg position for the majority of the procedure (approximately five hours). She was extubated in the operating room, and was taken to the recovery area without any

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complications. On postoperative day 3, she reported to primary surgical team about 1.5 inch circular area of alopecia in occipital region (Fig. 1). She denied any other symptoms like headache or visual changes. Her alopecia was still persistent during 3-month follow up telephonic interviews.

Postoperative alopecia shares same risk factors with POVL. An increased risk of POVL has been shown in cases with steep Trendelenburg as well as prone positioning. Secondary to patient positioning, increased intraocular pressure and decreased ocular perfusion pressure lead to optic nerve ischemia and visual loss in non-ocular cases³. Furthermore, intraoperative hypotension is another risk factor. A mechanism as similar to POVL can explain postoperative alopecia. Our patient had occipital alopecia wherein her head was in contact with adult-sized silicone-based donut head pad for prolonged duration in steep Trendelenburg position. Additional risk factor could have been inadvertent or unrecognized mechanical compression of scalp by electrocardiography (ECG) cable trunk yoke assembly that lies between ECG trunk cable and ECG lead set. This could have potentially caused hair follicle ischemia or venous engorgement secondary to scalp

compression. This reduction in blood inflow as well as outflow might have contributed to her hair loss.

In 2012, Anesthesia Patient Safety Foundation (APSF) developed consensus conclusions regarding POVL⁴. It was decided that during consent for surgery, anesthesiologists and/or surgeons should bring to patients' attention about risk of developing POVL specially in association with risk factors like prolonged surgery in prone position and robotic surgery in steep Trendelenburg position, increased blood loss and male gender. APSF also stated the methods to reduce risk of developing POVL by minimizing surgery's duration and keeping patient's head at or above the level of heart⁵. As pathophysiologies of POVL and postoperative alopecia are apparently similar, the patients should also be made aware of risks of postoperative alopecia while anesthesia providers should be aware of its risk-reducing methods. In summary, preventing these two significant complications (POVL and pressure alopecia) with proper head positioning⁶⁻⁷, avoidance of mechanical compression by rigid objects and maintenance of intraoperative hemodynamics are of utmost importance for anesthesiologists when providing anesthesia care to patients in steep Trendelenburg position.

Fig. 1
Patch of Alopecia in the Occipital
Region



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