



Surgical Videos

Backhaus Towel Clamps: A Noble Ally in the Operating Room

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Introduction

Closure of surgical defects in high-tension areas such as the scalp is often challenging in reconstructive surgery after excision of a malignant lesion. Whether performing primary closure or designing flaps, significant tension at the wound edges is a common thing.¹

When placing either subcutaneous or percutaneous sutures, considerable force is required to secure each knot. This frequently leads to tissue tearing and/or suture breakage, resulting in poor cosmetic outcomes and procedural delays.^{2,3}

In this article, we describe the use of Backhaus-type towel clamps (“crab clamps”) as a key tool for precise handling of scalp wound edges. This technique allows the surgeon to eliminate presuture tension at the wound margins, thereby avoiding the need to apply excessive traction with the suture or needle holder while tying knots, reducing tearing, and improving the final outcome.

Technique description

1. Flap design and elevation

- The flap is marked in a logarithmic spiral pattern, adapted to the surgical defect. It is an advancement-rotation flap whose design begins at one edge of the defect and progressively widens toward the base of the pedicle.⁴
- An incision is performed following the spiral, and the flap is elevated while preserving vascularization beneath the aponeurotic plane.

2. Use of Backhaus towel clamps for tension control. They should be used at two key moments:

- A. *Flap reorientation.* Backhaus clamps are placed at strategic points to progressively orient and secure the flap in the desired position.
- B. *Elimination of presuture tension.* Tension is adjusted before final suturing to allow better distribution of forces and minimize tearing. If two Backhaus clamps are available, they may be advanced progressively ahead of the suture line, as demonstrated in the video.

3. Final closure

- Closure begins with interrupted 1-0 silk sutures, strategically spaced to maintain flap position.
- Additional 2-0 silk sutures are then interspersed to optimize edge approximation and promote better healing.

Indications and contraindications

Indications – advantages

- Medium-sized scalp defects in which primary closure would generate excessive tension.
- Applicable to other anatomical sites where suture tension is problematic.
- Reduced risk of tissue tearing and necrosis by avoiding excessive traction.
- Simple, reproducible technique with a short learning curve.
- Shortens surgical time – particularly valuable in elderly patients.
- Allows placement of both subcutaneous and percutaneous sutures.

Contraindications – disadvantages

- Active surgical site infections.
- Areas of severe cutaneous atrophy, where tearing risk is high.

Complications

- Tearing in areas of atrophic skin.
- Partial flap necrosis: rare if vascular supply is preserved.
- Dehiscence: reduced risk due to controlled tension distribution.

Conclusions

The use of Backhaus towel clamps allows optimal tension control before suturing, thus reducing the risk of tearing and improving flap adaptation to the defect. Their application on the scalp has proven effective and reproducible, with potential utility in other anatomical areas where suture tension poses a challenge.

Conflict of interest

The authors declare no conflict of interest.

Appendix A. Supplementary data

Supplementary data associated with this article can be found in the online version available at <https://doi.org/10.1016/j.ad.2025.104559>.

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