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Clinical Evaluation of Barbed Versus Conventional Sutures in the Surgical Repair of Eventrations in Small Animals

Bogdan Sicoe^{1*}, Paula Nistor¹, Vlad Iorgoni¹, Simina Velescu¹, Roxana Dascălu¹, Cristian Zaha¹, Larisa Schuszler¹, Bogdan Florea¹, Corina Kracunovic¹, Tudor Cășălean¹, Gabriel Orghici¹, Cornel Igna¹

¹University of Life Sciences "King Mihai I" from Timișoara, Romania

Correspondence: bogdan.sicoe@usvt.ro

Abstract: Eventration is an acquired rupture of the abdominal wall with loss of peritoneal integrity and subcutaneous displacement of viscera. This clinical study compared barbed (V-Loc™, Stratafix™) and conventional absorbable sutures (Surgicryl PGA, PDS) in 10 small animals (4 dogs, 6 cats) treated for eventration between 2016–2021. Closure time, postoperative evolution, and complications were analyzed. Barbed sutures reduced closure time significantly with no increase in suture-related complications. Only one seroma resolved without treatment. Results confirm barbed sutures as safe, efficient alternatives for abdominal wall repair, shortening surgery while maintaining healing quality.

• Introduction

Eventration differs from hernia by the absence of a peritoneal sac and poorly defined tissue margins. Surgical closure is challenging and time-sensitive. Barbed sutures, through their knotless and tension-distributing design, may reduce closure time and improve wound stability.

• Material and method

Animals: 10 cases (4 dogs, 6 cats; mean age 2.8 years)

Etiology: traumatic or postoperative abdominal wall rupture

Sutures:

Conventional – Surgicryl PGA / PDS

Barbed – V-Loc™ / Stratafix™

Design: retrospective–prospective; 2016–2021

Parameters: closure time, postoperative complications, follow-up (mean 49 ± 19 months)

Statistics: Mann–Whitney U test (time) and Fisher's Exact test (complications)

• Results and discussions

Parameter	Conventional	Barbed	p-value
Mean closure time	185.3 ± 27.4 s	91.8 ± 26 s	0.01
Suture-related complications	1/6	0/4	n.s.
Total complications	3/6	1/4	0.033

Only one mild seroma (resolved spontaneously). No dehiscence, infection, or recurrence were noted. Systemic complications (constipation, trauma-related shock) occurred, but were unrelated to suture type/technique. Barbed sutures reduce operative time by ≈50 %, consistent with current veterinary and human literature. Knotless design distributes tension evenly and prevents ischemic stress points. No increase in local complications was found, confirming safety and tissue compatibility. Differences in systemic outcomes were linked to trauma severity, not suture material.

• Conclusions

Barbed sutures are safe, time-efficient, and biomechanically advantageous for eventration repair in small animals. They significantly shorten surgery without compromising healing. Appropriate case selection and surgeon experience remain essential for optimal outcomes.

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