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## **Bidirectional barbed suture in gynecologic laparoscopy**

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**Introduction:** Bidirectional barbed suture introduces a new paradigm in laparoscopic suturing. The aim of this study was to evaluate clinical outcomes with usage of barbed suture among our patients.

**Methods:** Study I was a retrospective case series of the first eight patients. Study II was a retrospective cohort study of 172 consecutive patients having a total laparoscopic hysterectomy or a laparoscopic myomectomy. Study III was a retrospective cohort study in 138 patients having laparoscopic myomectomy. Study IV and V was a randomized trial in an animal model using 23 ewes as their own controls. We evaluated adhesion formation (Study IV) and wound healing (Study V). Study VI was a randomized trial comparing barbed with traditional sutures for vaginal cuff closure.

**Results:** The initial experience (I) was favorable, with no complications and an apparent improvement in surgical efficacy. In study II average duration of surgery in total laparoscopic hysterectomy was 109 minutes and average blood loss was 71mL. In laparoscopic myomectomy, the average duration of surgery was 125 minutes and average blood loss was 159mL. In study III bidirectional barbed suture usage significantly shortened duration of surgery ( $118 \pm 53$  min vs.  $162 \pm 69$  min,  $p < 0.05$ ). In study IV, myometrial closure was significantly faster with barbed vs. traditional sutures (126 seconds vs. 272 seconds,  $p < 0.001$ ). At necropsy, adhesions were found in 12 (52.2%) in the barbed suture group vs. 10 (43.5%) in the polyglactin group ( $p = 0.77$ ). There were no differences in wound healing between the two groups (V). We found no difference in closure times between barbed vs. traditional suture. Cuff healing was also similar (VI).

**Discussion:** Bidirectional barbed suture appears to be safe and effective for use in gynecologic laparoscopy. The use of bidirectional barbed suture facilitates laparoscopic suturing and appears to shorten operating times.