



HARMONIC® Technology in open surgery: **superior clinical advantages** in hepatectomy

HARMONIC® Technology **vs.** Conventional techniques

HARMONIC® Technology has demonstrated significant benefits compared to conventional techniques in open hepatectomy procedures as shown in the following studies.

Reduced blood loss



55%
decrease¹

Decreased intraoperative time



73
minutes²

Fewer complications



19%
reduction in complications³

Shorter length of stay



1.5
days⁴



Skeletonization and Isolation of the Glissonean and venous branches in liver surgery with an ultrasonic scalpel technology, Aoki T et al., *International Surgery* 2015;100:1048-1053 [READ ABSTRACT](#)

Key conclusions: The HARMONIC Scalpel group had less blood loss (389 versus 871 mL; p=0.034) and shorter total operative times (285 versus 358 minutes; p=0.01).^{1,2}



A prospective randomized controlled trial: comparison of two different methods of hepatectomy, Hanyong S. et al., *European Journal of Surgical Oncology*, (2015) 243-248 [READ FULL ARTICLE](#)

Key conclusion: The postoperative complication rate was significantly higher in the Pringle maneuver group (41.3% versus 22.5% in the HARMONIC Scalpel group, p < 0.05).³



“Technological” Approach Versus Clamp Crushing Technique for Hepatic Parenchymal Transection: A Comparative Study, Aldrighetti L et al., *Journal of Gastrointestinal Surgery*, (2006) Vol(10), No.7 [READ ABSTRACT](#)

Key conclusion: Median hospital stay was 7 days (range, 5-53) in the HARMONIC Scalpel + Ultrasonic Dissector group and 8.5 (range, 5-60) in the conventional clamp crush group (p=0.02).⁴

HARMONIC® Technology: Committed to hepato-biliary procedures, dedicated to **flexible solutions** for treating advanced disease with less risk for complications^{3,4}

Precise dissection with efficient sealing capability to minimize collateral damage

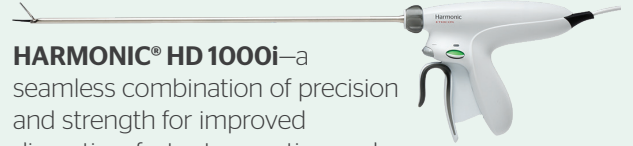
HARMONIC FOCUS®+ Long Shears with Adaptive Tissue Technology—

brings greater efficiency to open procedures with an unparalleled level of access, visibility, controlled dissection and sealing consistency compared to traditional techniques⁵



HARMONIC® HD 1000i—a

seamless combination of precision and strength for improved dissection, faster transection and more secure sealing



Ethicon offers a **broad portfolio** that enables precision and optimal hemostasis at every critical step.

Managing bleeding situations

Surgicel Family of Absorbable Hemostats—50-plus years of the proven safety and efficacy surgeons trust^{6,7}



Confidently sealing difficult to access or fragile vessels and ducts



ETHICON ENDO-SURGERY™ Linear Cutter—designed to deliver optimal compression and superior hemostasis⁸



ECHELON FLEX™ GST System⁹—greater stability for potentially less tissue trauma



ECHELON FLEX™ Powered Vascular Stapler—enables the most precise placement on isolated fragile vessels

Secure closure that addresses risk factors associated with infection



STRATAFIX™ Knotless Tissue Control Devices—delivers more consistency, more security and more efficiency than traditional sutures^{10,11,12,13,14,15,16}



DERMABOND® PRINEO® Skin Closure System—uncompromised strength and protection for excellent wound closure¹⁷

Learn more from your Ethicon sales representative

1 In a clinical study comparing HARMONIC® ACE devices to conventional techniques (p=0.01). Skeletonization and Isolation of the Glissonean and Venous Branches in Liver Surgery With an Ultrasonic Scalpel Technology. Aoki, Takeshi et al. Int Surg 2015; 100(6):1048-53 (C1927) **2** In a clinical study comparing HARMONIC® ACE devices to conventional techniques 285 min for HARMONIC® vs. 358 min for conventional (p=0.01). Skeletonization and Isolation of the Glissonean and Venous Branches in Liver Surgery With an Ultrasonic Scalpel Technology. Aoki, Takeshi et al. Int Surg 2015; 100(6):1048-53 (C1925) **3** Postoperative complication rate for HARMONIC® (22.5%) vs. Pringle maneuver (41.3%) (n=80/group; p<0.05). Hanyang S, et al. A prospective randomized controlled trial Comparison of two different methods of hepatectomy. EJSO 41 (2015) 243-248. (C2005) **4** Ultrasonic dissector combined with Harmonic scalpel vs. clamp crush (n=100/group); 7 vs. 8.5 days, respectively (p=0.020). Aldrighetti L. "Technological" Approach Versus Clamp Crushing Technique for Hepatic Parenchymal Transection: A Comparative Study. J Gastrointest Surg. 2006 Jul-Aug;10(7):974-9. (C2002) **5** In a pre-clinical study, 100% (32/32) of porcine blood vessels remained hemostatic over a 30 day survival period. **6** A Compendium of Scientific Literature. Evidence Supporting the Efficacy and Safety of the Surgicel Family of Absorbable Hemostats **7** Hong Y, Loughlin K. The use of hemostatic agents and sealants in urology. J Urol. 2006;176:2367-2374. **8** Pre-clinical porcine study comparing the NTL75, TLC75 and DST Series™ GIA™ 80 (3.8mm cartridge). Hemostasis was evaluated against a 5-point scale, with lower scores representing better hemostasis. Mean scores by instrument: NTL75, TLC75, and DST Series GIA™ 80 (3.8mm cartridge). The NTL75 demonstrated superior hemostasis when compared to the TLC and DST Series GIA, p<0.05. **9** System components include ECHELON FLEX™ Powered Plus Stapler and ENDOPATH ECHELON™ Reloads with Gripping Surface Technology **10** Eickmann T, Quane E. Total knee arthroplasty closure with barbed sutures. J Knee Surg. 2010;23(3):163-167. **11** Einarsson JI, Chavan NR, Suzuki Y, Jonsdottir G, Vellinga TT, Greenberg JA. Use of bidirectional barbed suture in laparoscopic myectomy: evaluation of perioperative outcomes, safety, and efficacy. J Minim Invasive Gynecol. 2011;18(1):92-95. **12** Levine BR, Ting N, Della Valle CJ. Use of a barbed suture in the closure of hip and knee arthroplasty wounds. Orthopedics. 2011;34(9):e473-e475. doi: 10.3928/01477447-20110714-35. **13** Moran ME, Marsh C, Perrotti M. Bidirectional-barbed sutured knotless running anastomosis v classic Van Velthoven suturing in a model system. J Endourol. 2007;21(10):1175-1178. **14** Rodeheaver GT, Pineros-Fernandez A, Salopek LS, et al. Barbed sutures for wound closure: in vivo wound security, tissue compatibility and cosmesis measurements. In: Transactions from the 30th Annual Meeting of the Society for Biomaterials; Mount Laurel, NJ; p. 232. **15** Vakili JJ, O'Reilly MP, Sutter EG, Mears SC, Belkoff SM, Khanuja HS. Knee arthroscopy repair with a continuous barbed suture: a biomechanical study. J Arthroplasty. 2011;26(5):710-713. **16** Warner JP, Gutowski KA. Abdominoplasty with progressive tension closure using a barbed suture technique. Aesthet Surg J. 2009;29(3):221-225. **17** Data on file, Ethicon, Inc.; DERMABOND PRINEO Skin Closure System Matrix. PRI-04413. 2015.