

Meta-Analysis Review

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Meta-Analysis of Randomized Clinical Trials Comparing Open and Laparoscopic Anti-Reflux Surgery

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Abstract

OBJECTIVES: The aim of this study was to conduct a meta-analysis of randomized evidence to determine the relative merits of laparoscopic anti-reflux surgery (LARS) and open anti-reflux surgery (OARS) for proven gastro-esophageal reflux disease (GERD).

METHODS: A search of the Medline, Embase, Science Citation Index, Current Contents, and PubMed databases identified all randomized clinical trials that compared LARS and OARS and that were published in the English language between 1990 and 2007. A meta-analysis was carried out in accordance with the QUOROM (Quality of Reporting of Meta-Analyses) statement. The six outcome variables analyzed were operating time, hospital stay, return to normal activity, perioperative complications, treatment failure, and requirement for further surgery. Random-effects meta-analyses were carried out using odds ratios (ORs) and weighted mean differences (WMDs).

RESULTS: Twelve trials were considered suitable for the meta-analysis. A total of 503 patients underwent OARS and 533 had LARS. For three of the six outcomes, the summary point estimates favored LARS over OARS. There was a significant reduction of 2.68 days in the duration of hospital stay for the LARS group compared with that for the OARS group (WMD: -2.68, 95% confidence interval (CI): -3.54 to -1.81; $P < 0.0001$), a significant reduction of 7.75 days in return to normal activity for the LARS group compared with that for the OARS group

(WMD: -7.75 , 95% CI: -14.37 to -1.14 ; $P=0.0216$), and finally, there was a statistically significant reduction of 65% in the relative odds of complication rates for the LARS group compared with that for the OARS group (OR: 0.35, 95% CI: 0.16–0.75; $P=0.0072$). The duration of operating time was significantly longer (39.02 min) in the LARS group (WMD: 39.02, 95% CI: 17.99–60.05; $P=0.0003$). Treatment failure rates were comparable between the two groups (OR: 1.39, 95% CI: 0.71–2.72; $P=0.3423$). Despite this, the requirement for further surgery was significantly higher in the LARS group (OR: 1.79, 95% CI: 1.00–3.22; $P=0.05$).

CONCLUSIONS: On the basis of this meta-analysis, the authors conclude that LARS is an effective and safe alternative to OARS for the treatment of proven GERD. LARS enables a faster convalescence and return to productive activity, with a reduced risk of complications and a similar treatment outcome, than an open approach. However, there is a significantly higher rate of re-operation (79%) in the LARS group.

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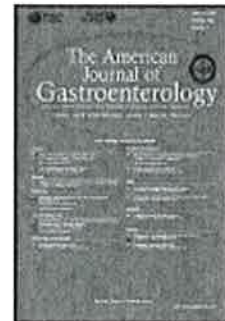
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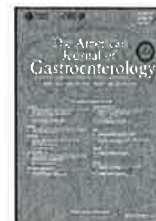
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de Vries, AC; Kuipers, EJ; Rauws, EA
- Common Genetic Variation and Haplotypes of the Anion Exchanger SLC4A2 in Primary Biliary Cirrhosis** • (Article in English)
 AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1406-1411; 2009
Juran, BD; Atkinson, EJ; Larson, JJ; Schlicht, EM; Lazaridis, KN
- Electrosurgery in Gastrointestinal Endoscopy: Principles to Practice** • (Article in English)
 AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1563-1574; 2009
Morris, ML; Tucker, RD; Baron, TH; Song, LM
- Chronic Liver Disease Mortality Among Male Prison Inmates in Texas, 1989–2003** • (Article in English)
 AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1412-1419; 2009
Harzke, AJ; Baillargeon, J; Paar, DP; Pulvino, J; Murray, OJ
- Monthly and Seasonal Birth Patterns and the Occurrence of Crohn's Disease** • (Article in English)
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Angelucci, E; Cocco, A; Cesarini, M; Crudeli, A; Necozone, S; Caprilli, R; Latella, G
- Erosive Gastritis Mimicking Watermelon Stomach** • (Article in English)
 AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1606-1607; 2009
Yuksel, O; Koklu, S; Baş ar, O; Yuksel, 3I; Akgul, H
- Urinary Bladder Metastasis from an Esophageal Adenocarcinoma: A Case Report** • (Article in English)
 AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1603-1604; 2009

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- Rapid Recurrence of IBD-Associated Anemia and Iron Deficiency After Intravenous Iron Sucrose and Erythropoietin Treatment •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1460-1467; 2009
Kulnigg, S; Teischinger, L; Dejaco, C; Waldhor, T; Gasche, C
- The Utility of Evaluating Low Serum Albumin Gradient Ascites in Patients With Cirrhosis •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1401-1405; 2009
Khandwalla, HE; Fasakin, Y; El-Serag, HB
- Oral Fleet Phospho-Soda Laxative Induced Symptomatic Hypocalcemia in an Adult Patient With Celiac Disease •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1607-1608; 2009
Oztas, E; Bektas, M; Kurt, M; Onal, IK; Ozden, A
- Development of Pouchitis With Combination Therapy With Peg-Interferon α -2b and Ribavirin for Chronic Hepatitis C in a Patient With Ulcerative Colitis Who Underwent Pouch Surgery •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1609-1610; 2009
Morimoto, K; Yamagami, H; Hosomi, S; Ohira, M; Suekane, T; Kamata, N; Sogawa, M; Watanabe, K; Tominaga, K; Watanabe, T
- The Safety of Proton Pump Inhibitors (PPIs) in Pregnancy: A Meta-Analysis •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1541-1545; 2009
Gill, SK; O'Brien, L; Einarson, TR; Koren, G
- Thrombophilia in Liver Disease •** (Article in English)
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- The Serological Profile of the Autoimmune Hepatitis/Primary Biliary Cirrhosis Overlap Syndrome •** (Article in English)
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AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1519-1523; 2009
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AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1595-1595; 2009
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AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1595-1596; 2009
Andriulli, A; Marmo, R
- Acute Hemorrhage With Retroperitoneal Hematoma After Endoscopic
Ultrasound-Guided Fine-Needle Aspiration of an Intraductal Papillary
Mucinous Neoplasm of the Pancreas •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1610-1611; 2009
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Esophageal Stent: Feasibility, Technique of Removal, and Tissue
Response in Humans •** (Article in English)
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1374-1381; 2009
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for Patients Undergoing Colonoscopy •** (Article in English)
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Index, a Validated Quality of Life Scale for Functional Dyspepsia •**
(Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1483-1488; 2009
Jones, M; Talley, NJ
- The Efficacy and Tolerability of AST-120 (Spherical Carbon Adsorbent)
in Active Pouchitis •** (Article in English)
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over 120,000 Patients •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
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AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1596-1597; 2009
Minocha, A
- Quality Medical Care in Gastroenterology: Lessons From Palliative
Medicine •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1352-1355; 2009
Scott, LD
- Response to Minocha •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1597-1598; 2009
Rex, DK
- A Treatment Trial of Acupuncture in IBS Patients •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1489-1497; 2009

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AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1356-1362; 2009
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AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1392-1400; 2009
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- Combining Autofluorescence Imaging and Narrow-Band Imaging for the Differentiation of Adenomas from Non-Neoplastic Colonic Polyps Among Experienced and Non-Experienced Endoscopists •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1498-1507; 2009
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AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1575-1586; 2009
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- High-Risk and Advanced Adenoma: Who Is the Real Target of CT Colonography Screening? •** (Article in English)
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Hassan, C; Laghi, A; Zullo, A; Iafrate, F; Di Giulio, E
- Editorial: Where Are You and How Do We Find You? The Dilemma of Identifying Barrett's Epithelium Before Adenocarcinoma of the Esophagus •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1363-1365; 2009
Wong, RK; Altekruse, SF
- Response to Hassan et al. •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1600-1600; 2009
Rex, DK
- Characterization of Inflammatory Bowel Disease With Urinary Metabolic Profiling •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1435-1444; 2009
Williams, HR; Cox, IJ; Walker, DG; North, BV; Patel, VM; Marshall, SE; Jewell, DP; Ghosh, S; Thomas, HJ; Teare, JP
- Meta-Analysis of Randomized Clinical Trials Comparing Open and Laparoscopic Anti-Reflux Surgery •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1548-1561; 2009
Peters, MJ; Mukhtar, A; Yunus, RM; Khan, S; Pappalardo, J; Memon, B; Memon, MA

- Between Celiac Disease and Irritable Bowel Syndrome: The "No Man's Land" of Gluten Sensitivity •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1587-1594; 2009
Verdu, EF; Armstrong, D; Murray, JA
- Diagnostic Performance of Esophageal pH Electrodes at Different Locations •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1601-1601; 2009
Gardner, JD
- Response to Gardner •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1601-1602; 2009
Wenner, J; Oberg, S
- Advanced vs. "High-Risk" Adenomas: Identifying the Relevant Target for CT Colonography Screening •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1599-1600; 2009
Pickhardt, PJ; Kim, DH
- Most Doctors Win: What to Do If Sued for Medical Malpractice •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1346-1351; 2009
Feld, AD; Moses, RE
- What's Hot in the Red Journal This Month? •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1337-1338; 2009
- Corrigendum: American College of Gastroenterology Guidelines for Colorectal Cancer Screening 2008 •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1613-1613; 2009
Rex, DK; Johnson, DA; Anderson, JC; Schoenfeld, PS; Burke, CA; Inadomi, JM
- Corrigendum: Remifentanyl vs. Meperidine for Patient-Controlled Analgesia During Colonoscopy: A Randomized Double-Blind Trial •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1613-1613; 2009
Fanti, L; Massimo, A; Marco, G; Giulia, G; Antonio, F; Mario, G; Giorgio, T; Alberto, TP
- Calendar of Courses, Symposiums, and Conferences •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1612-1612; 2009
- Erratum: False-Positive Wireless Video Capsule Secondary to Performing a Simultaneous Sigmoidoscopy •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1613-1613; 2009
Shiff, AD; Gurudu, S; Decker, GA; Leighton, JA
- Editorial: Hyponatremia in Hepatic Encephalopathy: An Accomplice or Innocent Bystander? •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp. 1390-1391; 2009
Yun, BC; Kim, WR
- Hyponatremia Is a Risk Factor of Hepatic Encephalopathy in Patients With Cirrhosis: A Prospective Study With Time-Dependent Analysis •** (Article in English)

AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1382-1389; 2009
*Guevara, M; Baccaro, ME; Torre, A; Gomez-Anson, B; Rios, J; Torres, F; Rami,
L; Monte-Rubio, GC; Martin-Llahi, M; Arroyo, V*

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AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1613-1613; 2009
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- Green Light from the FDA for New Drug Development in Irritable Bowel Syndrome and Functional Dyspepsia •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1339-1341; 2009
Talley, NJ
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AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1546-1546; 2009
Scolapio, JS; Hasan, MK; Buchner, AM; Gill, KR
- Continuing Medical Education: June 2009 •** (Article in English)
AMERICAN JOURNAL OF GASTROENTEROLOGY; VOL 104; NUMBER 6; pp.
1547-1547; 2009
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