

Laparoscopic cholecystectomy in a rural family practice: The Vivian, LA, experience

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Practice recommendations

- Laparoscopic cholecystectomy can be performed safely and effectively by a trained family physician (C).
- Family physicians with expanded surgical skills can enhance access to procedures in rural and underserved populations (C).
- This focused review of outcomes and comparison to published case series, serves as a model for continuous practice assessment and improvement (C).

Abstract

Objective To evaluate the feasibility of family physicians safely and effectively performing laparoscopic cholecystectomy in a community hospital, as compared with published case series in the surgical literature.

Methods A case series of self-referred patients from the surrounding community to a family physician-run community hospital in rural Louisiana from 1992 to 2001. The cohort represented a consecutive, volunteer convenience sample of self-referred patients requiring laparoscopic cholecystectomy, aged 18 to 89 years, of diverse demographic background.

Main outcome measures included mortality, complication, reoperation, and conversion to open procedure rates.

Results One hundred eight patients have undergone laparoscopic cholecystectomy; there have been no deaths; 2 cases were converted to open procedures; no common bile duct injuries, postoperative complications, or long-term complications.

Conclusion The outcomes of this series of laparoscopic cholecystectomy were similar to those of other case series and met published standards of care.

Laparoscopic cholecystectomy was first performed in France in 1987. In 1989, Reddick¹ popularized this procedure in the United States. Laparoscopic cholecystectomy was a natural outgrowth of laparoscopic surgery done by gynecologists in pelvic surgery and orthopedic surgeons doing endoscopic joint surgery for many decades before 1989. By late 1990 and early 1991, laparoscopic cholecystectomy had become widespread.

Large series of laparoscopic cholecystectomy were reported with few complications,²⁻⁶ and most surgeons and patients prefer laparoscopic cholecystectomy to open cholecystectomy. Unfortunately, access to laparoscopic surgery and other procedures is limited in more rural areas. In this article, we report the first series of

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TABLE 1

Comparison of major series in laparoscopic cholecystectomy

Study*	Study design	Important observations (%)				
		Mortality	Re-op	Complications	CBD injury	Conversion
Haynes JH et al	Single-center, 1 surgeon, retrospective, consecutive, and without bias (N=108)	0	0	0	0	0.018
ANDEM ⁷	Meta-analysis of 4 studies: ANDEM'91, ANDEM'94, NIH, Strasberg (N=363)	0.07	8	9.5	2	8
Karauchi et al ⁸	Meta-analysis: Multicenter (25) community hospitals (N=1408)	0.07	6	7.5	0.9	6
Z'graggen et al ⁹	Multicenter meta-analysis (N=10,174)	0.2	1.66	10.38	0.31	8.2
Wherry DC et al ⁶	Multicenter study, 94 US military centers (N=9054)	0.13	NA	6.09	0.41	9.85

* All other reports are from tertiary/specialist surgical services.
 CBD, common bile duct; ANDEM, Agence Nationale pour le Développement de l'Evaluation Médicale; NIH, National Institutes of Health.

laparoscopic cholecystectomies performed by family physicians in a small rural community hospital.

METHODS

From June 1992 to June 2001, the medical records of all patients with cholecystitis or cholelithiasis requiring surgical treatment at North Caddo Medical Center (NCCMC), in Vivian, Louisiana, were reviewed. This group of patients was self-referred and consisted of consecutive individuals who presented to 2 family practitioners (1 primary surgeon and 1 partner) at the NCCMC.

Patient selection for surgery was made preoperatively on the basis of history, physical, and laboratory diagnostic evidence of gall bladder disease. No patients were referred to other facilities.

Surgical technique

Laparoscopic cholecystectomy was performed using the surgical technique advocated by Dr. Reddick¹ using 4 ports. All surgery was performed

by the lead author after he completed the course taught by Dr Reddick. The first 9 operations were performed in a tertiary hospital (Willis-Knighton Hospital, Shreveport, La) for credentialing purposes. Case-by-case modifications of the technique were sometimes necessary for successful outcomes.

RESULTS

This series involved 108 patients from ages 18 to 89 years (17 were 18–34 years, 46 were 35–64 years, and 45 were ≥65 years), all of whom presented to NCCMC for cholecystectomy. Patients were about 60% white and 40% African American; about 75% were female. Patients lived in a 450-square-mile service area. Forty-one percent of patients possessed private insurance, 44% had Medicare, and 23% had Medicaid.

About 30% of patients had significant medical morbidity and about 30% had previous abdominal or pelvic surgery. Accordingly, the insertion point of the Veress needle was adjusted to avoid the risk

of perforations or injury to the bowel. Occasionally, a cut down was performed to directly visualize the peritoneum and the contents underneath before the ports were introduced. Other ports were then introduced under direct visualization.

The average operating-room time was 130 minutes, and the length of postoperative hospital stay was approximately 14 hours. Each patient was diagnosed conclusively to have gall bladder disease, confirmed by histopathological diagnosis.

The outcomes of this series are reported in **Table 1**. There were no deaths; 2 cases were converted to open cholecystectomy after failed laparoscopic technique. There were no common bile duct injuries or postoperative complications. Six patients had postoperative fever for a short duration. No evidence of systemic or local infection was seen.

■ DISCUSSION

The outcomes of this unique case series of laparoscopic cholecystectomies performed by family physicians in a rural community hospital were equivalent to those in the surgical literature from tertiary care settings.²⁻⁶

The low rate of morbidity and nosocomial infections may be due to the smaller facility, favorable staff-to-patient ratio, lower perceived stress, attention to aseptic technique, and environmental sanitation. Because surgeons and patients prefer laparoscopic cholecystectomy to open cholecystectomy, and because this procedure is cost-effective, cosmetically superior, and produces far less morbidity, access to laparoscopic cholecystectomy is important even in rural communities.

While the Society of American Gastrointestinal Endoscopic Surgeons (SAGES)¹⁰ has introduced proposals to implement dedicated endoscopic surgical training, including telesurgery and robotic techniques, access to such services in rural communities will likely remain limited.

Nonetheless, several limitations are worth noting. Successful performance of this procedure

Laparoscopic cholecystectomy is cost-effective and produces less morbidity than open cholecystectomy

requires focused training, discipline, skills and technology, and ongoing maintenance of competency. More sophisticated technology may become available and transportation and physical barriers to access may ease. But we believe this series demonstrates that procedural training and ongoing practice assessment can provide timely, safe, and appropriate access to the latest surgical techniques.

Since we closed this study, we have performed another 30 cases with similar excellent results and a substantial decrease in procedure and postoperative recovery time (90 minutes and 7 hours, respectively). Our ongoing assessment of our practice and performance improvement are integral to procedural excellence.

■ CONCLUSION

The authors have successfully delivered this well-defined surgical service in their community without any compromise in quality of care. The resources are unique, including training, team selection, and collaboration within a rural community hospital setting.

This experience suggests that an alternative model of practice and surgical training in family medicine may be feasible and offer effective, and perhaps superior results in rural communities. The inclusion of procedural skills in the scope of family medicine should be considered as a viable solution to the healthcare access and quality concerns of rural Americans.

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ACKNOWLEDGMENTS

The authors thankfully acknowledge the advice and help received from: David Driggers, MD, Providence Family Practice Center, Anchorage, Alaska; Frank Kurzweil, MD, formerly Chairman, Department of Surgery, Louisiana State University Health Science Center, Shreveport; Debi P. Mukherjee, Sc.D, Associate Professor, Department of Orthopedic Surgery and Coordinator of Bio-Engineering, Louisiana State University Health Science Center, Shreveport; W. Norwood, MD, Chief, Department of Surgery, WK Hospital Health System, Shreveport; James Elrod, President, Willis-Knighton Hospital Health System, Shreveport; John Harlan Haynes III, MD, FABFP, MScMM (UT SWHSC), Med Alliance Health Center, Fort Worth, Tex; Jishnu Guha; and Indranil Guha.

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