

MINI REVIEW

Laparoscopy for Carcinoma Gall Bladder: Mini Review

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ABSTRACT

Introduction minimally invasive techniques in digestive diseases are widely used, but there is controversy which surrounds the management of early gall bladder cancer by this technique. True benefits of laparoscopy are well established but there are certain disadvantages also which are the cause of fear and thus lesser acceptance of laparoscopy for radical cholecystectomy for t1b or more advanced gall bladder cancers. **Discussion** gall bladder lacks submucosal layer and has very thin proper muscle layer leading to rapid invasion of nearby structures and metastasis causing advanced disease on detection and hence poor survival. Latest evidence suggests similar survival if we compare open and laparoscopic approach making it evident that type of surgery do not reflect survival. Latest studies on better instrumentation and technical advances are showing similar survival in both groups, making laparoscopy nowadays as the standard of care. Liver resection and lymphadenectomy are the two technically challenging components of this type of surgery which are now well established in studies done on other gastrointestinal and hepatobiliary cancers. Conclusion In conclusion, laparoscopic approach is safe and beneficial for patients with t1b/t2 gallbladder carcinoma.

INTRODUCTION

Minimally invasive techniques in digestive diseases are widely used, but there is controversy which surrounds the management of early gall bladder cancer by this technique [1]. Thus its role has been described rarely. We all know the true benefits of laparoscopy like minimizing surgical trauma, minimal blood loss, rapid recovery, less post operative pain and early discharge from hospital [2]. There are certain disadvantages though which come with this seemingly perfect procedure like there is no tactile feedback and there is a long learning curve associated [3].

Even though the beginning of laparoscopic era was pioneered by laparoscopic cholecystectomy, it is still considered controversial in case of carcinoma gall bladder. In cases of Tis and T1a, simple cholecystectomy with clear margins is curative [4]. Controversy starts when laparoscopy is used for radical cholecystectomy for T1b or more advanced cancers [5]. This controversy is for the fear of tumor dissemination during laparoscopy and the complexity of liver resection.

DISCUSSION

Gall bladder lacks submucosal layer and has very thin proper muscle layer which is why there is rapid invasion of adjacent organs and metastasis by tumor cells. Also with the presence of a naturally invaginated mucosa into muscle

layer (Rokitansky-Aschoff sinus), it becomes difficult to pathologically stage [6]. This may be reflected as advanced disease on diagnosis and decreased survival. Secondly, there were problems with sampling protocols and thorough examination during histopathological examination which lead to under staging of tumors [7, 8, 9]. This in turn resulted in very low survival rates being reported even for early gall bladder cancers [10, 11]. So there is need of early detection and treatment which can be helped by improvement in imaging modalities and screening high risk patients. The laparoscopic cholecystectomy done for various reasons have also helped in detecting incidental cancers which are detected early [12, 13, 14].

Even though there is no randomized controlled trial which compares laparoscopy versus open approach, still latest evidence supports laparoscopy. In a study of propensity score matched analysis, 5 year survival rate of laparoscopic surgery was similar to open surgery. This was also true for disease specific survival making it evident that type of surgery does not reflect survival but other factors do [5]. This is true for both elective setting when the case is of suspected gall bladder cancer and in a completion setting when the case is of incidentally diagnosed gall bladder cancer after simple cholecystectomy [15].

Laparoscopic surgery is not recommended in many guidelines like National Comprehensive Cancer Network (NCCN) and Japanese Society of Hepato-Biliary-Pancreatic Surgery, but we have to know that these were devised on data based on reports before the year 2000 [16, 17, 18]. Since then there are various improvements in treatment with laparoscopic surgery which finally have survival which is non inferior to that with open surgery [19, 20]. Due to some technical advances of newly designed instruments, the use of laparoscopy has increased in

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most of gastrointestinal cancers like stomach and colon, particularly in early stages where due to similar survival to open procedures it has now become the standard of care [21, 22].

Latest studies on laparoscopy reported many benefits like less intraoperative complications, minimal blood loss, low conversion rate to open procedure and short hospital stay. Thus they make this procedure a feasible and safe option. In terms of oncologic validity, comparable lymphnode retrieval as well as comparable survival rate between the two procedures were reported [23, 24].

We also found similar results in two of our cases done for feasibility and safety. They underwent laparoscopic radical cholecystectomy with lymph node dissection for gallbladder carcinoma. Both were preoperatively diagnosed. Mean operative time was 172 minutes and average estimated blood loss was 225 ml. There was no intraoperative complication. The liver dissection was done by Harmonic in one case and by Water Jet in the other case. Average hospital stay after surgery was 4 days. Post operative morbidity included minimal bile leak in one patient only and no bile leak in patient operated with Water Jet system. Post operative histopathology revealed adenocarcinoma of gall bladder with no lymphnode invasion T2N0M0 (Stage II) in both patients. The mean lymphnode retrieval was 5.5. Both patients received adjuvant chemotherapy with Gemcitabine and Carboplatin [25].

The studies on laparoscopy which had poor survival rates (5 year survival rates <50%) were published before the year 2000, involved <10 patients and assessed overall survival and not disease related deaths [26, 27, 28, 29]. But one must interpret survival outcomes carefully to avoid selection bias. Historical studies which reported tumor recurrence with laparoscopic approach are the main reason for the controversies [30]. Some of them were port site recurrences, peritoneal dissemination and accidental perforation of gall bladder during handling [31, 32, 33, 34, 35, 36]. But newer studies suggested improvements like gentle manipulation of gall bladder and use of plastic extraction bags which in turn reduced the rate of port site metastasis and peritoneal tumor implantation [15, 36, 37, 38].

This type of surgery majorly has two technically challenging components. First is liver resection for which feasibility of laparoscopy is established both in major and minor resections [39]. Second is lymphadenectomy for which again similar outcomes are seen for open and laparoscopic D2 lymphadenectomy for carcinoma stomach [40]. With this data, it seems feasible and safe in terms of laparoscopy being used for carcinoma gall bladder. The technical difficulty is faced by many surgeons in this complex surgery with steps like liver resections and lymphadenectomy near hepatic portal pedicle which has risk of major bleed or injury to bile duct [41, 42]. But as the learning curve is growing and surgeons are accepting new challenges with safety as the first priority, it has lead to

reduced conversion rates to the open procedure [23, 24].

CONCLUSION

In conclusion, laparoscopic approach is safe and beneficial for patients with T1b/T2 gallbladder carcinoma.

Conflict of Interest

The authors declare no conflict of interest.

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