

## Peep Before You Enter – Laparoscopy in Gall Bladder Cancer

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### Abstract

Gall bladder cancer (GBC) is the commonest biliary tract cancer worldwide. Clinically 'obvious' GBC is usually advanced; a careful search should be made for metastases. In the absence of clinical metastases, resectability should be assessed with CT; PET can complement CT in detecting metastases. Laparoscopy has been used for staging of pancreatic and hepato-biliary cancers. Staging laparoscopy is 'strongly recommended' before laparotomy in GBC; it should be performed in incidental GBC also before reoperation for completion extended cholecystectomy (CEC). Addition of US to laparoscopy can increase the yield and accuracy. Laparoscopic extended cholecystectomy has also been reported. We have described anticipatory extended cholecystectomy (AEC) for thick walled GB; it can also be performed laparoscopically.

**Keywords:** Gall bladder cancer; Laparoscopy; Cholecystectomy; Metastases

### Short Communication

Gall bladder cancer (GBC) is the commonest biliary tract cancer worldwide. It is diagnosed clinically based on symptoms (dull continuous pain in the right upper abdomen, jaundice, vomiting, anorexia and weight loss) and signs (firm to hard gall bladder mass). This is 'obvious' GBC (Kapoor 2006) - which, in a large majority of cases, is advanced; a careful search should be made for clinically obvious metastases e.g. liver nodule, ascites, pelvic deposits, umbilical nodule and left supraclavicular lymph nodes which, if present, need to be confirmed by fine needle aspiration cytology (FNAC) - usually image (US/ CT) guided. If there is no clinical evidence of metastases, the patient needs to be investigated further for staging and resectability of the disease; this is invariably in the form of a triple-phase contrast-enhanced computed tomography (CT). In addition to looking for liver metastases and ascites, attention should be paid to enlarged distant (celiac, superior mesenteric and aorto-caval) lymph nodes which, if positive on CT-guided FNAC, carry a poor prognosis as distant metastasis and contraindicate resection; even extended retroperitoneal lymphadenectomy does not help in improving survival in presence of these lymph nodes (Kondo 2000). Resectability assessment on CT includes involvement of adjacent organs such as pancreas and vessels (hepatic artery and portal vein) in the hepato-duodenal ligament. Positron emission tomography (PET) scan has been reported to complement CT in detecting metastases (Leung 2014).

Cuschieri (1978) was the first to report the use of laparoscopy for diagnosis and staging of pancreatic cancers. Jarnagin (2000) reported staging laparoscopy in patients with primary and secondary hepato-biliary cancers. Weber (2002) described staging laparoscopy in 100 patients with extrahepatic biliary cancers. We were the first to report staging laparoscopy in GBC; out of 91 patients who were thought to have resectable disease on CT, staging laparoscopy revealed metastases in 34 patients and extensive unresectable disease in 6 patients thus avoiding an unnecessary laparotomy in as many as 38% patients

(Agrawal 2005). Agarwal (2013) reconfirmed the value of staging laparoscopy in GBC in a much larger experience with 409 patients.

In GBC, if CT shows possibly resectable disease, laparoscopy should be performed to look for small metastatic deposits on the surface of the liver, omentum, parietal and visceral peritoneum which are not usually seen on CT and/ or PET. This is staging laparoscopy; NOT diagnostic laparoscopy as called by Russolillo (2016). If these metastatic deposits are not present, laparoscopic sampling of aorto-caval lymph nodes can be done. Laparoscopic US can help better assess local infiltration into pancreas and vessels (hepatic artery and portal vein) in the hepato-duodenal ligament. Addition of US to laparoscopy can increase the overall yield (from 38% to 52%) and accuracy (from 62% to 85%) in detecting unresectable disease (Russolillo 2016). It has also been shown to be cost effective (Nadeem 2014). Port site metastases are common after laparoscopic cholecystectomy is done in patients in whom GBC was not diagnosed preoperatively (Paolucci 2001). Whether staging laparoscopy alone increases the risk of port site metastases is not known; handling/dissection of the primary tumor in the GB, however, should be avoided to reduce this risk.

Patients with GBC who have jaundice need preparation with preoperative biliary drainage to bring the serum bilirubin down and portal vein embolization to induce atrophy hypertrophy before a major liver resection can be done (Kapoor 2015). Staging laparoscopy should preferably be performed once before and again after portal vein embolization just before surgery.

A significant number of GBCs are diagnosed at histopathological examination of the GB removed with a presumptive diagnosis of gall stones - incidental GBC. Most patients with incidental GBC will require reoperation for completion extended cholecystectomy (CEC) (Behari 2013). In addition to a metastatic work up which includes chest X-ray/ CT and abdomen CT, staging laparoscopy should be performed before laparotomy, especially if the time interval between the incidental cholecystectomy and reoperation is long. MSKCC group reported very low yield of staging laparoscopy in 136 patients with incidental GBC and recommended its selective use in patients with T3, poorly differentiated and margin positive cases only (Butte 2011).

The standard surgical procedure for resectable GBC is extended cholecystectomy which includes the gall bladder, a 2 cm wedge/segments IVB+V of liver and lymphadenectomy. Few groups have reported laparoscopic extended cholecystectomy (Agarwal 2015) and even laparoscopic bisegmentectomy (IVb+V) (Machado 2015) but results in the form of recurrence (especially port site metastases) and long term survival are awaited before it can be recommended. Yoon (2015) performed laparoscopic surgery (extended cholecystectomy=32, simple cholecystectomy=13) in 45 patients with suspected early GBC (T1=20, T2=25) and reported 5 year survival of 79%.

A thick walled GB on US raises a suspicion of GBC. We have described anticipatory extended cholecystectomy (AEC) which includes the gall bladder and a 2 cm wedge of liver followed by frozen section histopathological examination in such cases (Kapoor 2016); whether AEC can (should) be performed laparoscopically remains to be seen.

GBC is an aggressive cancer - resection in presence of metastases (irrespective of their site, size and number) is worthless. Every attempt must be made to detect a metastasis in every patient with GBC. National Comprehensive Cancer Network (NCCN) guidelines mention 'strong consideration' for performing laparoscopy (before laparotomy) for staging of GBC; we make 'strong recommendation' for staging laparoscopy before laparotomy in every patient with GBC - 'peep before you enter'.

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