



Pre and Post Cholecystectomy Ultrasound Screening of Hepatobiliary Tumours



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Abstract

Ultrasound has evolved as a diagnostic procedure of choice for evaluation of hepatobiliary tumours. Cost effective approach uses ultrasound followed by endoscopic retrograde cholangio pancreatography where the presence of a “shelf” instead of a smooth taper to the stricture, can suggest a malignant etiology. Brushing and biopsy/fine needle aspiration cytology will yield a definitive tissue diagnosis. Ultrasound is preferred to MRI as it is a low cost modality while CT Scan exposes patients to ionizing radiation.

Keywords: Cholecystectomy; Gall bladder; Ultrasound; Hepatobiliary; Tumors

Introduction

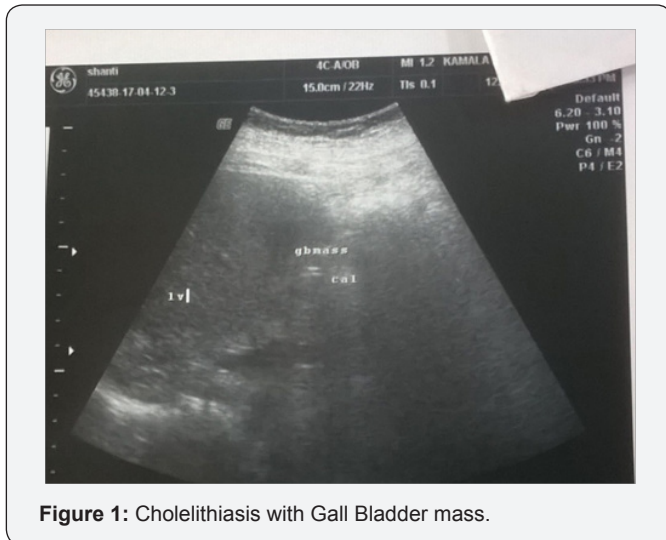


Figure 1: Cholelithiasis with Gall Bladder mass.

Ultrasound abdomen is a cost effective, non invasive radiation free technique for early detection of hepatobiliary tumors. Thickening of bile duct wall with proximal biliary dilatation are consistent with a “possible” tumors in biliary duct and thickening of Gall bladder wall for gall bladder tumor are equally visualized by MRI or ultrasound studies. Recent meta analysis [1-3] revealed that cholelithiasis and cholecystolithiasis may be involved the development of hepatobiliary cancer,

especially for intrahepatic cholangiocarcinoma. This review is undertaken to investigate the role pre and post cholecystectomy ultrasound screening of hepatobiliary tumors (Figure 1).

Methods

Search Strategy

Many reliable websites were searched especially Pubmed and National Institute of health to do this research. Subject heading terms were also added in all searches. Search terms include ultrasound, hepatobiliary tumours, cholecystectomy, screening, cholelithiasis Further we screened the reference, lists of the review articles and identified studies. All the searches were conducted independently by both the authors in March, 2015 and differences were resolved by discussion.

Discussion

Summary of findings

Magnetic resonance imaging with magnetic resonance cholangiopancreatography, ultrasound or computerized tomography can be used for pre and post cholecystectomy screening of hepatobiliary tumours. Computerized tomography is associated with radiation and contrast exposure so is now less favourable. Magnetic resonance imaging is a relatively expensive method. The performance of ultrasound is less expensive and more readily available technique and has a sensitivity and

specificity of 57% and 94% respectively and accuracy (90%) exceeding that of magnetic resource imaging/magnetic resonance cholangiopancreatography for cholangiocarcinoma.



Figure 2: Carcinoma Gall Bladder with secondaries Liver.



Figure 3: Carcinoma Gall Bladder.



Figure 4: Carcinoma Gall Bladder with Secondaries liver.

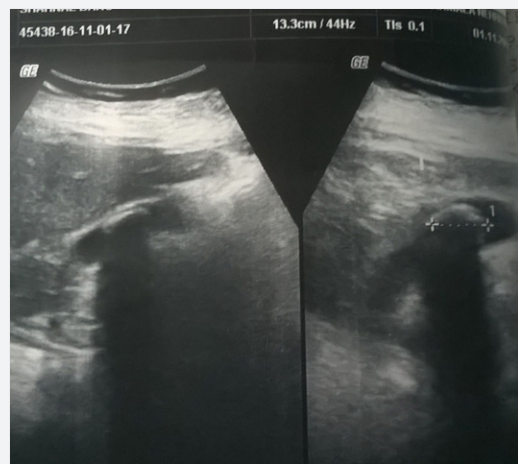


Figure 5: Carcinoma Gall Bladder with wall thickening.

Polyp of more than 8 mm size, especially if sessile and rapidly growing with presence of vascularity on Doppler ultrasound, simultaneous presence of gall stones, and older age at time of polyp diagnosis are risk factor for carcinoma of gall bladder [4-6] (Figures 2-6). There is some literature to suggest an inverse relationship between gall bladder polyp and stones. It is hypothesized that polyp either mechanically disrupt the formation of stones or that polyps are harder to diagnose radio graphically when stones are present. Three dimensional ultrasound diagnosis correlates well with two- dimensional ultrasound with regard to most gall bladder problems and could be sufficient as a standalone technique. In view of patient

comfort and no requirement for radiation it was considered that high resolution ultrasonography is likely to become an important diagnostic modality for the differential diagnosis and staging of gall bladder polypoid lesions and early gall bladder cancer [7-11].



Figure 6: Carcinoma Gall Bladder with cholelithiasis.

In the harmonic mode, the level of artifacts generated by the body wall is reduced and contrast resolution is increased due to reduction in noise level. The visualization of gall bladder is improved in the harmonic mode. Ultrasonographic contrast enhancement patterns show characteristics associations with pathologic findings serve as valuable adjuncts in the diagnosis of gall bladder disease and differentiate gall bladder carcinoma from other polypoid gall bladder lesions. Distinguishing between non-neoplastic, neoplastic and potentially malignant lesion is a major dilemma and the therapeutic options for these lesions remains controversial. Endoscopic ultrasonography is considered to be superior to conventional ultrasound for imaging of gall bladder lesions, because endoscopic ultrasonography

can provide high resolution image of small lesions with higher ultrasound frequencies (7.5-12 MHz Vs. 3.5-5 MHz).

Although Endoscopic ultrasonography was more accurate than ultrasound, its accuracy for differentiating malignancy of less than 1.0 cm, was low. Serial ultrasound scan for 6-12 months may be undertaken for Gall bladder polyp smaller than 1 cm. Polyp size was also a predictor of the presence of adenoma. It was concluded in a report that there is a good correlation between the size of gall bladder polyp in ultrasound and the size in the histopathology report. In addition to serial ultrasound scan, endoscopic retrograde cholangiopancreatography may show a filling defect in the other hepatobiliary site tumours as well as obtain specimen for histopathology/liquid biopsy [12-15].

Further implications

The numbers of liver cancer and intrahepatic cholangiocarcinoma in available studies were low; hence the further studies should include more liver cancer and intrahepatic cholangiocarcinoma.

Strengths and Limitations

Two authors, Key word .dependently search data bases and selected studies, limitation included low number of cases in the studies, short follow-up time, and differences in study design. Changed bile flow pattern in patients with cholecystectomy/cholelithiasis need to be studied so as to know there role in causation of hepatobiliary tumours. High rates of gall stones in Ganges belt of Uttar Pradesh may be associated with high rate of cholecystectomy as well as cholelithiasis. Post cholecystectomy ultrasound may show returned calculi in the cystic duct remnant or in common bile duct or operative complications.

Reference

1. Razumilava N, Gore GJ, Lindor KD (2011) Cancer Surveillance in patients with primary sclerosing cholangitis. *Hepatology* 54(5): 1842-1852.
2. Guo L, Mao, J, Li Y, Jiasoz, Guo J (2014) Cholelithiasis, cholecystectomy and risk of hepatocellular carcinoma: a meta analysis. *J Cancer Res Ther* 10(4): 834-838.
3. Charatcharoenwithaya P, Enders FB, Halling KC, Lindor KD (2008) Utility of serum tumour markers, imaging and biliary cytology for detecting cholangiocarcinoma in primary sclerosing cholangitis. *Hepatology* 48(4): 1106-1117.
4. Zielinski MD, Atwell TD, Davis PW, Kendrick ML, Que FG (2008) Comparison of surgically resected polypoid lesions of the gall bladder to their pre-operative ultrasound characteristics. *J Gastrointest Surg* 13(1): 19-25.
5. Mainprize KS, Gould SW, Gilbert JM (2000) Surgical management of polypoid lesions of the gall bladder. *Br J Surg* 87: 414-417.
6. Lee JS, Lee KT, Jung JH, OK SW, Choi SC, et al. (2008) Factors associated with malignancy in Gall bladder polyps without gall bladder stone. *Korean J Gastroenterol* 52(2): 97-105.
7. Gallahan WC, Conway JD (2010) Diagnosis and management of gall bladder polyps. *Gastroentrol Clin North Am* 39(2): 359-367.
8. Stenberg B, Elliott S (2010) Diagnosis of gall bladder problems using three dimensional ultrasound. *Eur Radiol* 20(4): 908-914.

9. Jang JY, Kim SW, Lee SE, Hwang DW, Kim EJ, et al. (2009) Differential diagnostic and staging accuracies of high resolutions ultrasonography endoscopic ultrasonography and multi detector computed tomography for gall bladder polypoid lesions and gall bladder cancer. *Ann Surg* 250(6): 943-949.
10. Paslawski M, krupski W, Zlomaniec J (2004) The value of ultrasound harmonic imaging in the diagnostics of gall bladder cholesterol polyps. *Ann Univ Mariae Curie sklodowska Med* 59(2): 292-297.
11. Hattori M, Inui K, Yoshino J, Miyoshi H, okushima K, et al. (2007) Usefulness of contrast enhanced ultrasonography in the differential diagnosis of polypoid gall bladder lesions. *Nihon shokakibyō Gakkai Zasshi* 104: 790-798.
12. Numata K, Oka H, Morimoto M, Sugimari K, Krrisaki R, et al. (2007) Differential diagnosis of gall bladder disease with contrast enhanced harmonic gray scale ultrasonography. *J ultrasound Med* 26(6): 763-774.
13. Cheon YK, Cho WY, Lee TH, Cho YD, Moon JH, et al. (2009) Endoscopic ultrasonography does not differentiate neoplastic from non-neoplastic small gall bladder polyp. *World J Gastroenterol* 15(19): 2361-2366.
14. Sugiyama M, Atomi Y, Yamoto T (2000) Endoscopic ultrasonography for differential diagnosis of polypoid gall bladder lesions, Analysis in surgical and follow up series. *Gut* 46(2): 250-254.
15. Escalona A, Leon F, Bellolio F, Pimental F, Guajardo M, et al. (2006) Gall bladder polyps; correlation between ultrasonography and histopathological findings. *Rev Med Chill* 134(10): 1237-1242.



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