International Journal of
Science Inventions Today
www.ijsit.com
ISSN 2319-5436
Review Article

LAPAROSCOPIC PARTIAL CHOLECYSTECTOMY FOR THE TREATMENT OF GOURD- LIKE GALLBLADDER: CASE REPORT

Bo Wang*, Hai Hu[1], Zhen Zhu[2] and Qing Li[2]

*Department of Gallbladder Diseases Center Affiliated Shanghai East Hospital of Tongji University, Shanghai 200120, People's Republic of China

[1]Department of Gallbladder Diseases Center Affiliated Shanghai East Hospital of Tongji University, Shanghai 200120, People's Republic of China

[2] Pathology department Affiliated Shanghai East Hospital of Tongji University, Shanghai 200120, People's Republic of China

BACKGROUND

Cystic glandular muscular hyperplasia (gallbladderadenomyomatosis,GBA) isa thickening of the gallbladder wall for benign lesions, which is first proposed in 1960 by Jutras [1]. GBA Pathology is characterized by thickening of the gallbladder wall, hyperplasia of mucosa epithelium,stretching into the muscular layer to form a wall diverticulum, cyst [2]. We introduce the diagnosis, treatment and follow-up of a female patient with annular cystic adenomyosis. Considering the novelty of treatment for segmental lesions, an insight into the cases reported in the world is required and knowledge about the approach to managing such cases is important in surgical practice.

CASE PRESENTATION

A 49-year-old female with the right upper abdomen discomfort for 9 months, no nausea, no vomiting, no jaundice, no fever. Physical examination: the right upper abdomen is tenderness, no back pain, Murphy sign (-), white blood cell count:7.38*109/L , neutrophils85.1%. There is no significantly abnormal about the liver function.

Ultrasound (Fig.1-2):The contour of gallbladder is clear. Gallbladder wall is less smooth, which thickness is about 3mm. The gallbladder body part can be seen a separate sample echo, thick about 7mm. In each part, the internal echo is uniform. The penetrating sound of bile does not have obvious abnormality.

There are several strong echoes in the gallbladder bottom-body part, the larger is about 17mm*9mm, with strong echoes in the rear, and moves in the direction of gravity as the posture changes. Imaging diagnosis hints: gallbladder stones with chronic cholecystitis, gallbladder separation of the echoes, considering the

possibility of cystic adenomyosis, gallbladder folding to row. The gallbladder contraction test indicates the gallbladder emptying rate is 80%.

Surgery (Fig.3-5): The gallbladder wall of gallbladder body is thickening with a annular to the cavity, so that the gallbladder separated into two cavities, as a gourd, resulting in narrow lumen. The gallbladder of the distal part was removed along the thickening site, and the gallbladder was connected with two small cavities , the diameter was about 5mm, and the gallbladder wall was increased. And the distal gallbladder was visible with a round black-brown stone, which diameter is about 15mm. Bile duct endoscopy does not see residual stones, and after the normal saline rinsing to stitch the proximal gallbladder wall.

Pathology (Fig.6-7): In the microscope, gallbladder chronic cell infiltration, fibrous tissue hyperplasia, cystic muscle hyperplasia, gland inverted, Rokitansky-Aschoff Sinuses are extending into muscular layer.

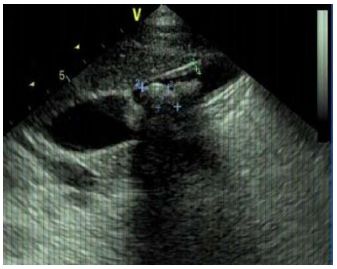

Figure 1 and 2: Ultrasound: Gallbladder body part be seen a separate sample echo, with gallbladder stones, considering a segment of GBA

Figure 3:
Surgery: The gallbladder wall of gallbladder body is thickening with a annular to the cavity, the gallbladder separated into two cavities, as a gourd, resulting in narrow lumen.

Figure 4:
Surgery: The gallbladder was connected with two small cavities, the diameter was about 5mm, and the gallbladder wall was increased.

Figure 5:
Surgery: The distal gallbladder was visible with a round black brown stone of diameter 15mm.

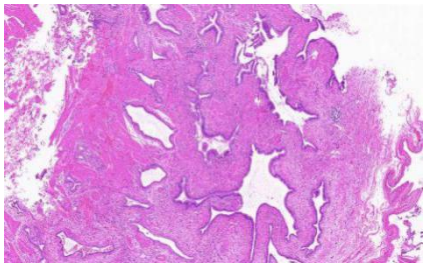

Figure 6:(HE *100)

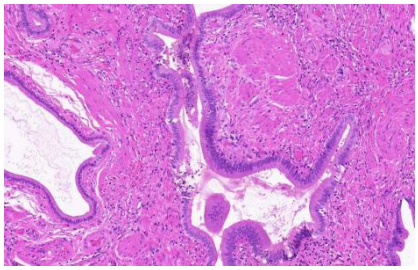

Figure 7:(HE*200)

Pathology: The pathologic result shows that gallbladder chronic cell infiltration, fibrous tissue hyperplasia, cystic muscle hyperplasia, gland inverted, Rokitansky-Aschoff Sinuses are extending into muscular layer.

DISCUSSION

Cystic adenomyosis is a kind of gallbladder hyperplasia disease, and the cause of GBA is not clear [3]. It is generally considered not to be a congenital disease, and its incidence increases with age, most of them have exceeded the 35-40 years old. At present, most authors believe that the disease may be the result of the gallbladder motility and contraction disorder, and the enlargement of the gallbladder mucosa hyperplasia area, smooth muscle hypertrophy and excessive contraction makes gallbladder narrow and pressure inrease, resulting diverticulums in the gallbladder wall [4]. There are several types of GBA, and the Ootani classification method is the most representative [5]. 1. Segment type: gallbladder wall is thickening, gallbladder body or body-neck junction parts form a narrow, the thickest part reaches the 0.5~1.2 cm. 2. Topical type: this type is the most common, accounting for 50%. The ranges are into 1.5~2.0 cm, the thickness is about 0.5~1.2 cm, and somes may have nodules in the center of the navel-like sag. 3. Diffuse type: the gallbladder wall is diffuse thickening, hyperplasia, and the Rokitansky-Aschoff (R-A) sinuses are expanding. This case belongs to type 2, the following will discuss the treatment of segmental cystic adenomyosis.

At present, the traditional treatment of GBA is laparoscopic cholecystectomy that is still used as a main treatment method, ignoring the function of the gallbladder function in the human body. The loss of all functions of the gallbladder because of gallbladder resection causes a series of physiological disorders, resulting in refractory digestive system problems, and the risk of bile duct calculus is increasing, causing common bile duct injury, and even the possibility of causing colon cancer [6-7]. The segment type of GBA is treated with laparoscopic cholecystectomy. It is necessary to use biliary microscopy to explore the gallbladder cavity, which is mainly due to the thickening of the annular cavity of the gallbladder body, and the thickening tissue cannot be found under laparoscope. At the same time, the narrow ring separates the gallbladder cavity into the basal and the cervical cavity, and the concentration of the total bile acid in the basement cavity is lower and the cholesterol saturation index is higher than the cervical cavity, which is easy to form a calculus to occupy the whole gallbladder cavity. Therefore, the gallbladder systolic function of such patient is lower than the 30%, accompanied by chronic cholecystitis and multiple stones [8]. A few patients with gallbladder contraction function more than 30%, must remove the above part of the gallbladder thickening ring, the operation is complicated, and it's easy to damage the liver and the volume of retained part is significantly reduced, which may be unable to compensate for the normal gallbladder function. However, due to the requirements of the gallbladder with good systolic function, and combined with the patient's conditions: (1) patients have a thought of requiring gallbladder. (2) be diagnosed by ultrasound and categorized clearly. (3) need detect the systolic function of bladder and the number of stones in the segment type of GBA, consistent with gallbladder limitation thickening, gallbladder contraction function ≥30% , number of cholecystolithiasis≤3. We try to find a better surgical method, which not only retain gallbladder's function, but also reduce the recurrence of calculus, in this

case we use laparoscopic partial cholecystectomy to treat the gallbladder, and achieve a good result. The special emphasis here is that the reserved part of the gallbladder must be in accordance with the standards.

Does the gallbladder be preserved has a normal gallbladder function? Liang Fasheng's [9-11] researches, gallbladder deformity treated by partial resection of gallbladder, show that the gallbladder can be compensated for compensatory expansion and the gallbladder contraction test is normal. There are 3 cases only retained 1/3 parts of gallbladder, found that the gallbladder was compensated for the normal volume and contraction test was normal after postoperative 6 months, and neither the preoperative cholecystitis symptoms nor the complication after cholecystectomy. We improved the postoperative follow-up that including 6, 12, 18, 24 months, through the ultrasound to examined the results of the volume of gallbladder and the recurrence of adenomyosis, and the results showed that the gallbladder volume was not significantly reduced than the operation, the GBA no recurrence.

There are researches which confirm that segment type of GBA is one of the high-risk factors for people with gallbladder cancer, especially the elderly; through the pathological examination of 4560 gallbladder specimens after the operation showed that the incidence of gallbladder carcinoma in GBA patients (22/334 cases,6.6%)is above none GBA patient (181/4226 cases, 4.3%) , especially the incidence of patients whose age ≥ 60 years old group (15/96 cases,15.6%) is significantly higher than patients whose age ≤ 60 years old group (147/2407 cases,6.1%) [12]. In the basement cavity of the segment type of GBA without canceration , the epithelial metaplasia was found in different degrees, and cancerous lesions were found in the basement cavity of the segment type of GBA with gallbladder carcinoma. The result is consistent with the pathological findings of epithelial metaplasia-carcinogenesis, which may be associated with the cholesterol deposition for a longtime and change in the gallbladder mucosa of the basal cavity [13-15] .The Keitas etc [16] analysised 97 cases of gallbladder cancer, showing that 25 cases with GBA, and 72 cases with no GBA , indicating that there is not directly relationship between gallbladder cancer and GBA. The Kims etc [17] researched 4704 patients with cholecystectomy in clinical, the prevalence rate of cystic adenomyosis was found to be 2.4%, and no case of canceration. Nishimuraetc (in 2004) continuously analysised 1099 cases of cholecystectomy, it was found that the GBA accounted for the 14.2%, and no cases of gallbladder carcinoma were found, and the statistical analysis showed that there was obvious correlation between the GBA and gallstone. To sum up, there is no conclusive evidence that cystic adenomyosis increases the incidence of gallbladder cancer.

CONCLUSION

With the constantly understanding of gallbladder function, the operation of retain gallbladder will be accepted by more and more physicians and patients, the operation methods and the scope of the treatment of gallbladder benign diseases is constantly changing, and the laparoscopic partial-cholecystectomy combined with bile duct surgery provides a new method to treat the segment type of GBA. In the process of carrying out this new operation, the surgeon should be responsible for the patients, and strictly mastery of the indications, and need to have rich experiences in conventional laparoscopic surgery. The objective evaluation of the treatment of the GBA requires more comparative study of large samples and multiple indexes. While trying to use this approach, we need to know the existence of the following problems: 1.What is the exact cause of the GBA? And the determination of etiology is very important to the clinical treatment. 2. GBA is associated with gallbladder cancer and different types of GBA are associated with gallbladder cancer? Reviewing of the current literatures, GBA is the assertion of precancerous lesions still requires more clinical observation and scientific research results to confirm. 3. The correct rate for preoperative diagnosis GBA is less than 50%, and the key factor is insufficient awareness of the disease. Preoperative diagnosis of gallbladder disease cannot be satisfied with the discovery of gallstone or polyp. 4. Does the treatment of different types of GBA require the removal of the gallbladder? In this article, the treatment and follow-up results of the segment type of GBA are encouraging,

believing that with the clinical maintenance of gallbladder benign diseases and the number of cases of accumulation and long-terms follow-up, a convincing treatment plan will be the case.

Abbreviations:

GBA gallbladder adenomyomatosis,

R-A Rokitansky-Aschoff

Acknowledgments:

The authors acknowledge the staff and doctors of the Department of Gallbladder Diseases Center Affiliated Shanghai East Hospital of Tongji University for their kind help and assistance in this study.

Funding:

None

Author's Contributions:

BO WANG,ZHEN ZHU ,QING LI and HAI HU made substantial contributions to the conception and design and acquisition, analysis, and interpretation of the data. MH was involved in drafting the manuscript or revising it critically for important intellectual content. BO WANG gave the final approval of the version to be published. All authors read and approved the final manuscript.

Ethical Statement:

This study was approved by the Ethical Committee of Laboratory animal and Human Studies of Shanghai Tongji University and consent form obtained from all patients prior to the study.

Consent for Publication:

The authors declare that they have no conflict of interest.

Competing Interests:

The authors report no proprietary or commercial interest in any product mentioned or concept discussed in this article.

REFERENCES

1. Jutras JA.Hyperplastic cholecystoses; Hickey lecture,1960[J].American Journal of Roentgenology Radium Therapy & Nuclear Medicine,1960,83(5):795-827.
2. Yoon JH,Cha SS,Han SS,et al.Gallbladder adenomyomatosis: imaging findings[J].Abdominal Imaging,2006,31(5):555-563.
3. Revzin MV,Scoutt L,Smitaman E,et al.The gallbladder: uncommon gallbladder conditions and unusual presentations of the common gallbladder pathological processes[J].Abdom Imaging,2015,40(2):385-399.

4. Coulier B,Gielen I,Ramboux A,et al.Symptomatic diffuse adenomyomatosis of the gallbladder with subserosal inflammatory sclerolipomatosis: Imaging findings[J].DiagnInterv Imaging,2016,97(9):939-941.
5. Ootani T,Shirai Y,Tsukada K,et al.Relationship between gallbladder carcinoma and the segmental type of adenomyomatosis of the gallbladder[J].Cancer,1992,69(11):2647-2652.
6. Mylonaki D,Alexakis N,Archodovassilis F,et al.Latent adenocarcinoma of the colon discovered during or after laparoscopic cholecystectomy[J].Endoscopy,2002,34(4):315-317.
7. André Augusto F,Gentile JKDA,DiogoPeral C,et al.Comparative analysis of iatrogenic injury of biliary tract in laparotomic and laparoscopic cholecystectomy[J].AbcdArq.bras.cir.dig,2014，27(4):272-274.
8. Carlo ID,Toro A,Pulvirenti E,et al.An unusual association of diffuse adenomyomatosis with dysplastic adenoma in chronic calculouscholecystitis: case presentation[J].Bmc Gastroenterology，2010,10(16) : 41.
9. LIANG FS,LIANG J,LAN YX，et al. Application of with laparoscopic to treat gallbladder disease of preservation cholecyst in partial cholecystectomy[J/CD].Chin J Laparoscopic Surgery: Electronic Edition,2014,7(3):45-48.
10. LIANG FS,SHEN HL,DING J,et al.Partial cholecystectomy with laparoscope and choledochoscope in treatment of gallbladder deformity: with a report of 14 case[J]. J LaparoSurg，2012,17(3):177-179.
11. LIANG FS,SHEN HL,HAN AP,et al.Application of with laparoscopic to treating gallbladder deformity of preservation cholecyst in partial cholecystectomy: a reports of 55 cases[J].J HepatobiliarySurg,2013,21(5): 348-350.
12. Nabatame N,Shirai Y,Nishimura A,et al.High risk of gallbladder carcinoma in elderly patients with segmental adenomyomatosis of the gallbladder[J].Journal of Experimental & Clinical Cancer Research Cr,2004,23(4):593-598.
13. Iván R,Xabier DA,Araya JC,et al.Preneoplastic lesions in gallbladder cance[J].Journal of Surgical Oncology,2006,93(8):615-623.
14. Sanjay M,Landas SK.Putative precursors of gallbladder dysplasia: a review of 400 routinely resected specimens[J].Archives of Pathology & Laboratory Medicine,2005,129(3): 386-390.
15. Huang SM,Yao CH,Hsiao KM,et al.Pathophysiological significance of gallbladder volume changes in gallstone diseases[J].World Journal of Gastroenterology,2010,16(34): 4341-4347.
16. Kai K,Ide T,Masuda M,et al.Clinicopathologic features of advanced gallbladder cancer associated with adenomyomatosis[J]. Virchows Arch,2011,459(6):573-580.
17. Kim JH, Jeong IH, Han JH, et al.Clinical/pathological analysis of gallbladder adenomyomatosis; type and pathogenesis[J].Hepato Gastro, 2010, 57(99-100): 420.