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**INTERNATIONAL JOURNAL OF  
 ADVANCED RESEARCH (IJAR)**

Article DOI: 10.21474/IJAR01/9920  
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/9920>



### RESEARCH ARTICLE

#### LAPAROSCOPIC CHOLECYSTOTOMY IN PARTLY GANGRENOUS CHOLECYSTITIS.

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#### Manuscript Info

##### Manuscript History

Received: 16 August 2019  
 Final Accepted: 18 September 2019  
 Published: October 2019

##### Key words:-

Gamba grass, accessions, yield, crude protein, mineral contents, Benin.

#### Abstract

Gangrenous cholecystitis is a serious complication of acute cholecystitis. We report a patient who presented with acute abdomen and feature of mucocele/empyema of gall bladder. The patient developed feature of obstructive jaundice in the same day of admission. As there was no ERCP available in our hospital, the patient kept for observation and management of sepsis until arranging the referral to other tertiary hospital. His condition get worse and became jaundice with raised parameters and laboratory tests. We did emergency laparoscopic cholecystotomy for him. Later, the patient underwent laparoscopic cholecystectomy and histopathology confirmed the diagnosis.

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#### Introduction:-

Acute cholecystitis if not treated can be complicated with one of the following<sup>1</sup>:

1. Empyema
2. Gangrene
3. Pancreatitis
4. Perforation
5. Peritonitis (inflammation of the lining of the abdomen).

The presence of these complications will increase the risk of morbidity and mortality, post-operative complication<sup>2</sup>. The surgeon tried to predict the diagnosis of the gangrenous cholecystitis preoperatively, but it was difficult sometimes to differentiate the simple acute cholecystitis and gangrenous cholecystitis<sup>3,4</sup>. Some of the predictive factors for gangrenous cholecystitis which we found in this case like, male, age >45, raised WBCs count and ultrasound finding.

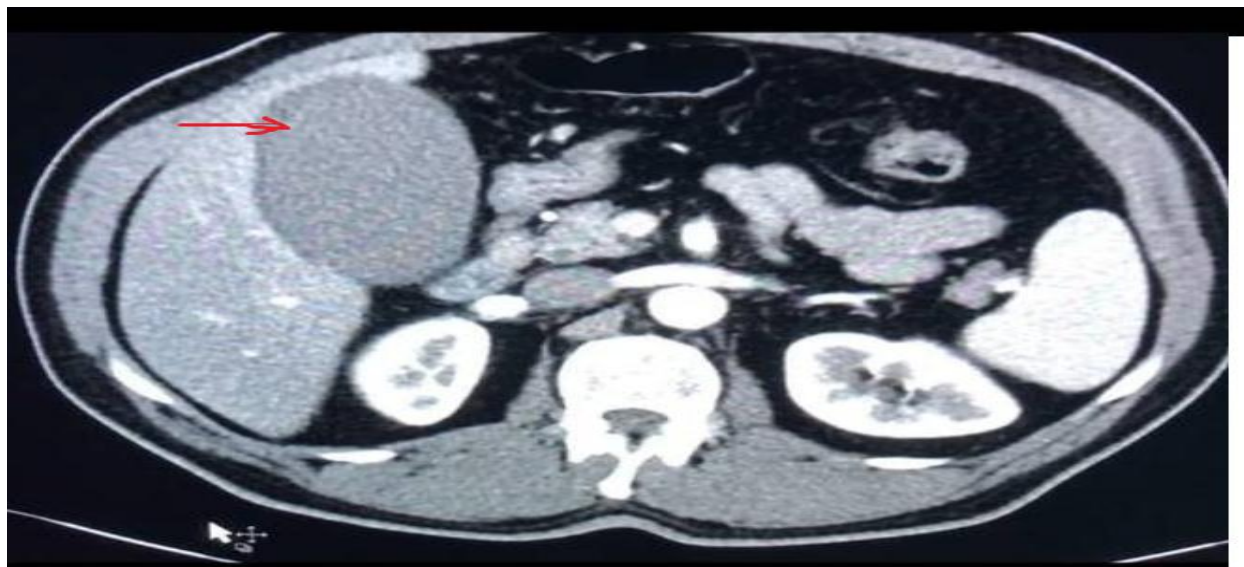
#### Case presentation:

A male of 53 years old, known to have DM type 2. He presented with sudden onset of upper abdominal pain, associated with nausea and vomiting for less than a day. There was no jaundice, itching, or changing color of stool. His pain score was 6/10, not pale, slightly tachycardic, and tender rigid upper abdomen. His laboratory tests, which we have done in, figure1. Initially his total bilirubin was 0.6mg/dl, normal ALT & ALP, lipase, amylase. His WBCS 15.4 10<sup>3</sup> u/l. we performed USS and showed significantly distended gall bladder with bright internal echoes and thickened walls impressive of mucocele/empyema of the gall bladder associated with acute inflammation. We did CT scan (as shown in figure 2) after that with conclusion of Inflamed and distended gall bladder by the virtue of

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proximal cystic duct stone ensuing mucocele formation as well as prominent CBD. The ERCP is not available in the hospital. We consulted gastroenterologist in other hospital who advised for surgery and patient was not having jaundice and ill.



**Figure 1:-**CT scan of the abdomen showed the distended gall bladder (red arrow).

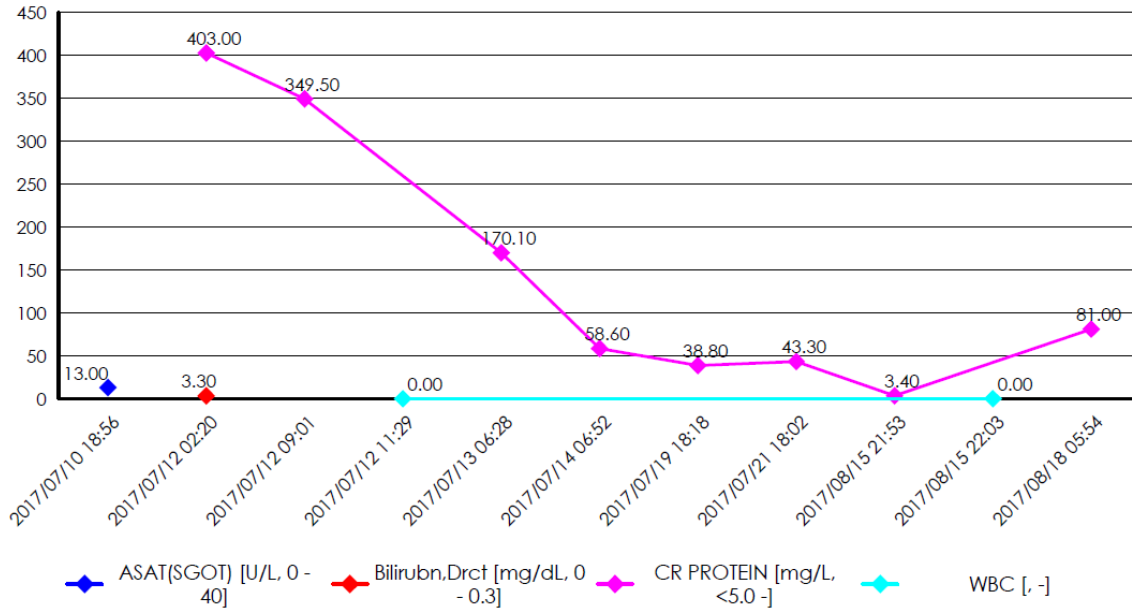
The patient remained stable, kept fasting and covered with antibiotic, analgesia, IV fluid, and PPI. The follow up uss showed no changes. His condition became worse and developed jaundice with raised bilirubin reaching 3.1 (total). We decided emergency laparoscopy, ended with laparoscopic cholecystotomy, insertion of drain, as the gall bladder was found severely inflamed and there was no cholangiogram at that time( see figure 3&4).



**Figure 3:-**Intra operative view for the massively distended Gall bladder.

We admitted him in ICU post-operative. His condition improved and septic markers reduced during the admission ( figure 5). We discharged the patient after removing the drain. The cholecystotomy tube kept until 2<sup>nd</sup> surgery. We did cholangiogram through the cholecystotomy tube and showed contrast in gall bladder only. Therefore, we kept the cholecystotomy tube until the intervention. We discharged the patient and after 4 weeks, we prepared the patient

for elective intervention. We performed laparoscopic cholecystectomy and post-operative period was uneventful. The specimen showed partly gangrenous inflamed gall bladder.



**Figure 5:-**This chart showed the improvement of laboratory tests which we did for the patient from his first admission, then after re admission few weeks later.

### Discussion:-

The diagnosis of gangrenous cholecystitis is depending on clinical assessment, physical examination and laboratory findings and imaging study. The management and assessment, which we did for the patient on admission, were highly suspicious for gangrenous gall bladder with mucocele. It seemed like that the massively distended gall bladder started to cause pressure effect over the CBD similar to mirizzi syndrome<sup>5</sup>.

With a review to his laboratory & radiological findings, impacted stone on cystic duct, causing the mucocele of the gall bladder and later the gangrenous cholecystitis. The gradual increase in size of the gall bladder started to compress the CBD. We preferred to drain the gall bladder with cholecystotomy tube, as it was very huge, tendency to bleed, with obstructed distal cystic duct and cholangiogram was not available at that time to check the patency of the biliary tree. In addition to that, the condition of the patient was not suitable for prolonged surgery.

Doctors (Agrawal and Jonnalagadda) provided nice helpful guidance for treating complicated gall stone disease<sup>6</sup>. They advised to go for drainage with ultrasound guidance, subtotal cholecystectomy or open cholecystotomy. There are many options for the management depends on the patient's condition, surgeon experience and available resources. The intra operative findings in this case with respect to his critical condition, we preferred the drainage rather than take risk of the aggressive procedure. Later, we performed Fundus-First Laparoscopic Cholecystectomy and removal of the drain, as there were adhesions covering all the gall bladder and calot's triangle<sup>7,8</sup>.

We performed the procedure by using hook and harmonic diathermy. The post-operative course was uneventful and we discharged the patient after performing laboratory and radiological examination, which excluded residual stone or biliary obstruction.

The response for the management was excellent and it was a safe definitive treatment. In literature, the response to cholecystotomy is variable from 56-100%<sup>9</sup>.

Laparoscopic cholecystotomy in this case was a good option and safe. Which is going with same reported cases on literature<sup>10</sup>.

We followed the patient for around 2 year following the last procedure and we did not report any problem.

### **Conclusion:-**

Laparoscopic cholecystotomy is a good option for critical patient with difficult anatomy in the acute stage of acute cholecystitis complicated with empyema and gangrenous gall bladder. The management of such these cases depends on many factors, clinical condition, surgeon experience and available resources. However, we need more studies and researches for treating these cases.

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