



# Caseating Granulomas Caused by Dropped Gallstones Post Cholecystectomy

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## Introduction

Laparoscopic cholecystectomy has become the standard treatment for gallstone diseases due to the minimally invasive nature of the surgery. Nevertheless, the procedure presents its own set of complications, mainly bowel or gallbladder perforation, bile duct injury, and vascular injury. While most are aware of infection and abscess formation as complications of perforated gallbladder, fistula formation and soft tissue erosions are underrecognized side effects of dropped or retained gallstones. Presented here is an interesting finding of caseating granulomatous lesions in the liver and peritoneal cavity secondary to dropped gallstones.

## Case Presentation

A 74-year-old male with remote history of metabolic comorbidities, cholelithiasis status post cholecystectomy, and spinal cord injury complicated by neurogenic bladder presented with lower extremity weakness and was found to have leukocytosis and electrolyte abnormalities at an outside hospital. Despite treatment, patient continued to have persistent leukocytosis with associated symptoms of fever, night sweats, and elevated liver enzymes. Computed tomography (CT) of abdomen and pelvis scan showed several low-density lesions in the liver and scattered indistinct nodules throughout the peritoneal cavity and abdominal wall musculature.

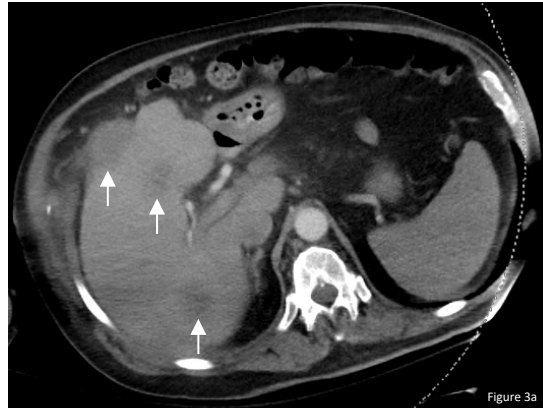


Figure 3a

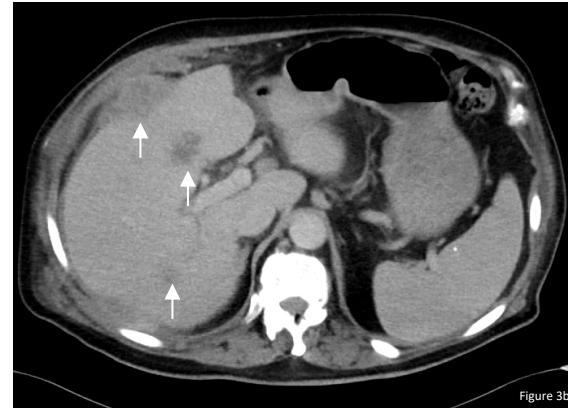


Figure 3b



Figure 3c

Figure 3a-c: CT abdomen pelvis axial cross section images showing several lower density lesions in the liver (some pericapsular lesions), heterogenous soft tissue in the gallbladder fossa, and scattered nodules in peritoneal cavity concerning for metastases vs infection/abscess.

Table 1: Intraoperative granuloma workup completed during patient's hospital course

| Workup               | Results   |
|----------------------|---|
| <b>Infectious</b>    | Blood culture, urine culture, and fluid aspirate culture negative. AFB smears negative. Fungal smear, culture, and serum studies (blastomycosis, cryptococcus, histoplasmosis) negative. 1-3 Beta-D glucan negative. T-spot negative. |
| <b>Hematologic</b>   | CEA, CA 19-9, PSA, and AFP all within normal limits. SPEP: increased acute phase reactants and increased polyclonal gamma globulins suggestive of chronic active inflammation, no monoclonal protein apparent.                        |
| <b>Rheumatologic</b> | CRP elevated. ESR, ACE level, and 1,25 vitamin D within normal limits. IgG elevated. ANCA <1:20. Serine protease 3 and myeloperoxidase negative.  |

## Clinical Course

Extensive autoimmune, infections and oncologic work-up completed based on imaging findings. With unremarkable work-up, biopsy completed showing necrotic debris and benign fibrous tissues with myofibroblastic reaction. With negative workup, non-significant biopsy results, and ongoing empiric treatment with systemic steroids, patient underwent an exploratory laparotomy with further acquisition of biopsies. Upon transfer to our hospital, secondary pathology review of the biopsies additionally noted bile acid casts and refractile material consistent with gallstones, diagnosing him with "dropped gallstone."

## Discussion

Stones or biliary leakage into the abdominal cavity at the time of a laparoscopic cholecystectomy can lead to complications including chronic inflammation that can mimic malignancy or autoimmune disease. Lesions can be easily mistaken for liver masses, localized vs disseminated malignancy, abscess, tuberculosis, sarcoidosis, lymphoproliferative disorders, Crohn's disease, and endometriosis. It is important to know the patient's past medical and surgical history and any complications from prior procedures that may hint towards a differential diagnosis. In our case report, the distal clip was dislodged leading to the spillage of bile acid into the abdomen. Thorough irrigation and evacuation of the gallbladder fossa and abdominal cavity during the procedure can help minimize this complication. High clinical suspicion for "drop gallstone" can minimize unnecessary diagnostic testing for the patient.

## References

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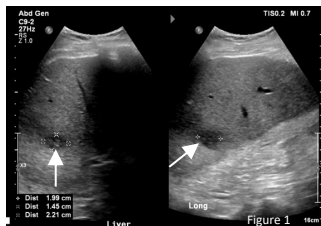


Figure 1: Right Upper Quadrant Ultrasound showing hypochoic liver lesion (arrows)



Figure 2

Figure 2: Biopsy, caseating granuloma