



Radiologic features of locally advanced gallbladder carcinoma

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Outline

1. Our patient – presentation and history
2. Background – Normal anatomy
3. Our patient – Initial ultrasound
4. Background – epidemiology and risk factors
5. Radiologic appearances of gallbladder cancer on CT
6. Differential diagnosis
7. Our patient – outcome



Our patient – Presentation

82 M

CC: RUQ pain for 1 month

HPI:

Intermittent **RUQ abdominal pain**, with associated nausea. Decreased appetite. No fevers, chills, weight loss, vomiting. No jaundice.



Our patient – Presentation

PMH: HTN, BPH, aortic regurgitation, psoriasis

PE: Vitals 99.5, HR 104, BP 149/60, O₂ 99%
RA

- Normal except for RUQ tenderness

Lab values:

- ALT/AST normal, ALP 129, T Bilirubin 1.4
- CEA: 8.2 AFP: 2.5



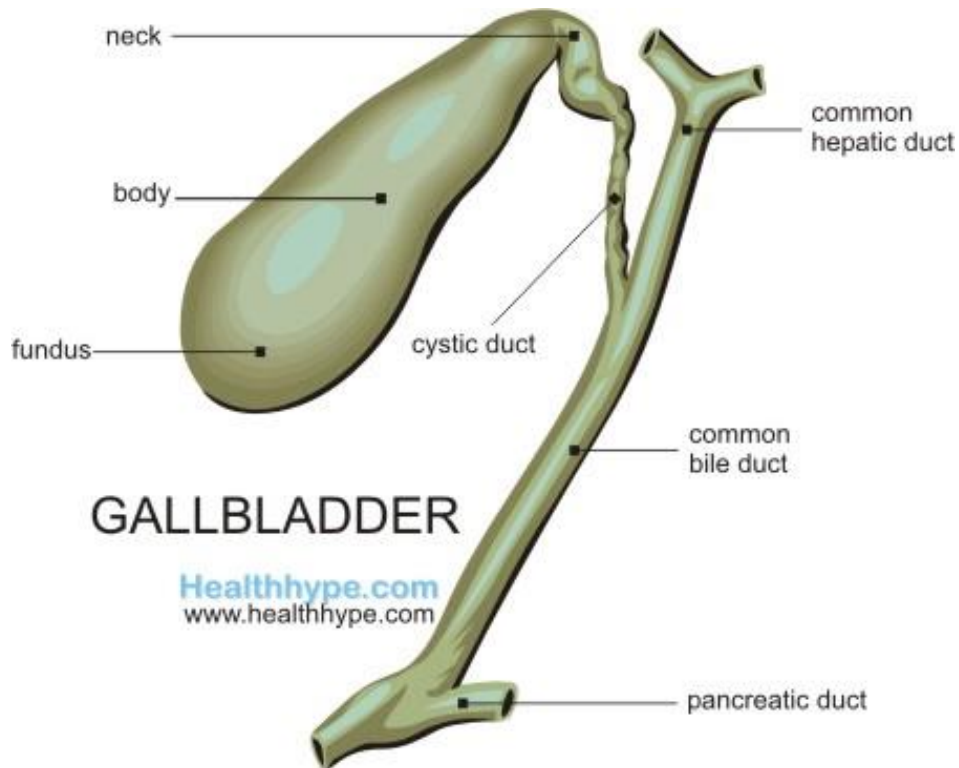
Radiologic evaluation

ACR Appropriateness Criteria

Chief Complaint	Imaging
RUQ Pain	Ultrasound
Painful jaundice	Ultrasound
Painless jaundice	Ultrasound + MDCT
Non-obstructive jaundice	Ultrasound + MRI



Background – Gallbladder anatomy



Healthhype.com



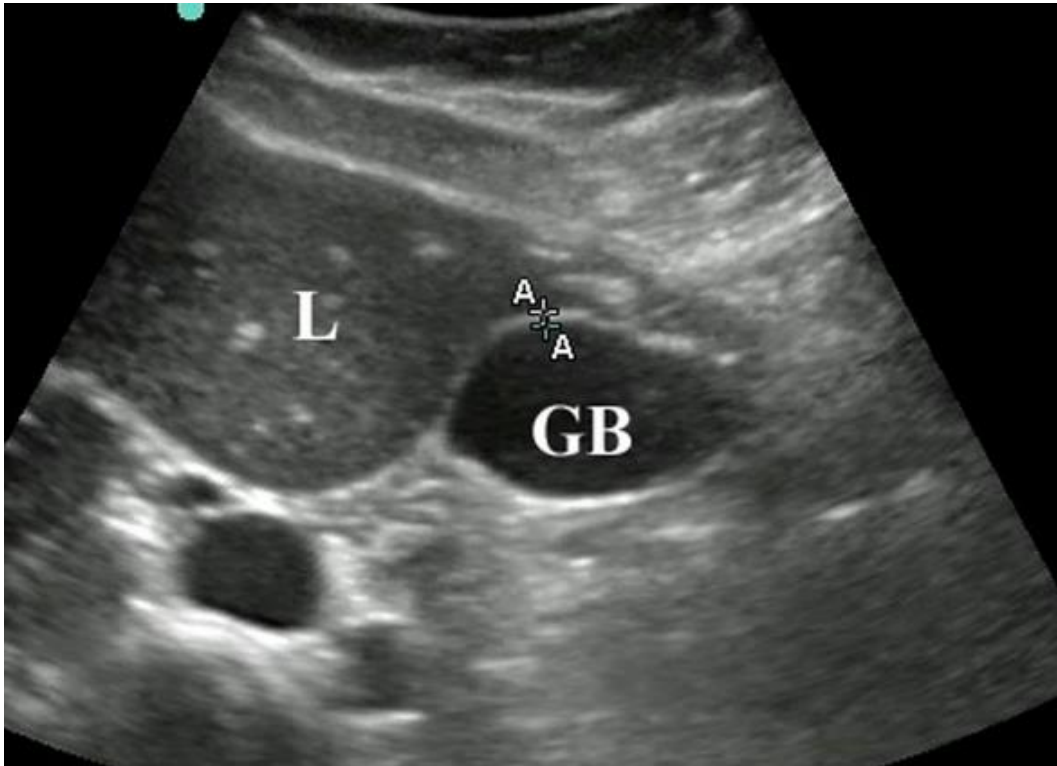
Background – Normal gallbladder on CT



CT axial view
Radiologyinfo.org



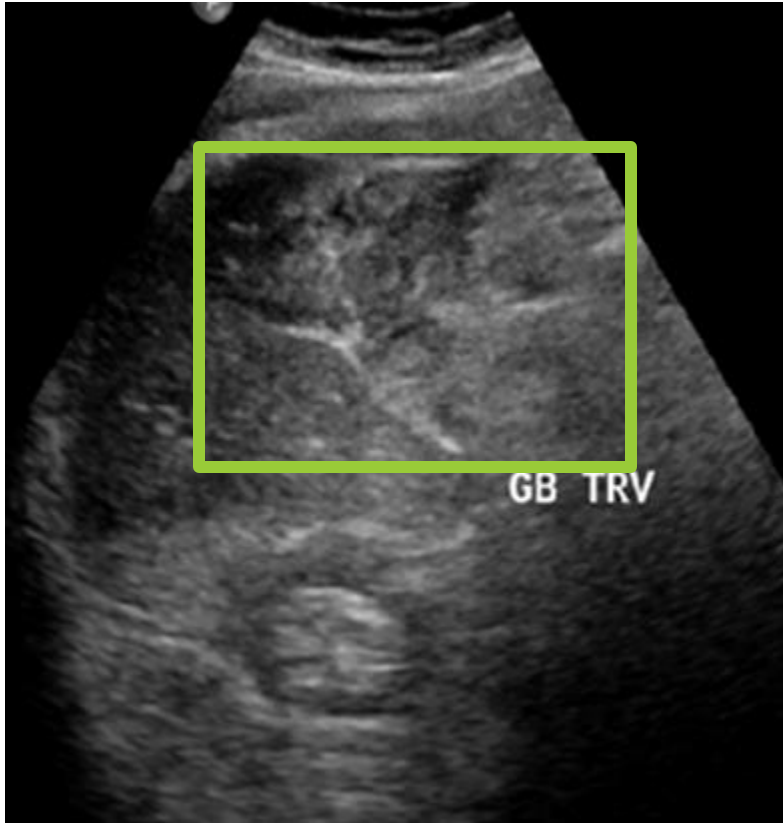
Background – Normal gallbladder on ultrasound



Gallbladder ultrasound, transverse view
Emergencyultrasoundteaching.com



Our patient – ultrasound



Heterogeneous, poorly circumscribed mass seen in gallbladder fossa

No remnant of normal gallbladder seen

Gallbladder ultrasound, transverse

Courtesy of Quang Nguyen, MD. BIDMC, PACS



Background - epidemiology

- Clinically: RUQ pain, weight loss, jaundice
- **Presents late**, 90% of symptomatic patients have advanced disease
- Most common biliary tract cancer: 6,500 deaths per year
- 90% adenocarcinoma, 10% squamous
- 5% overall survival at 5 years



Background – Risk factors

- Porcelain gallbladder
- Female gender
- Obesity
- Increasing age



What is the next step?

CT to further characterize lesion

Let's talk about the typical radiologic appearances of gallbladder carcinoma on CT

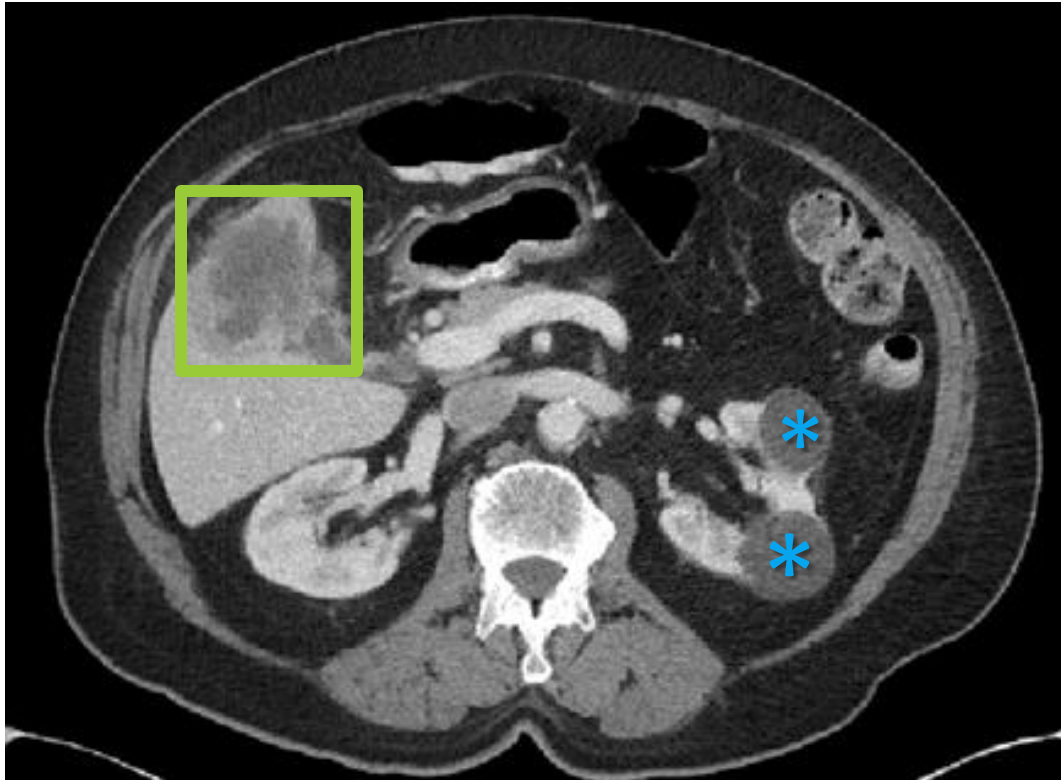


Appearances of gallbladder carcinoma

1. mass replacing gallbladder lumen (55%)
2. polypoid lesion (25%)
3. irregular wall thickening (20%)



Our patient – Mass on CT Scan



Heterogeneous, poorly circumscribed mass with no remnant of normal gallbladder seen, hepatic involvement

Renal cysts also observed

C+ CT Axial View, portal venous phase
Courtesy of Quang Nguyen, MD. PACS, BIDMC



Our patient – Mass on CT Scan

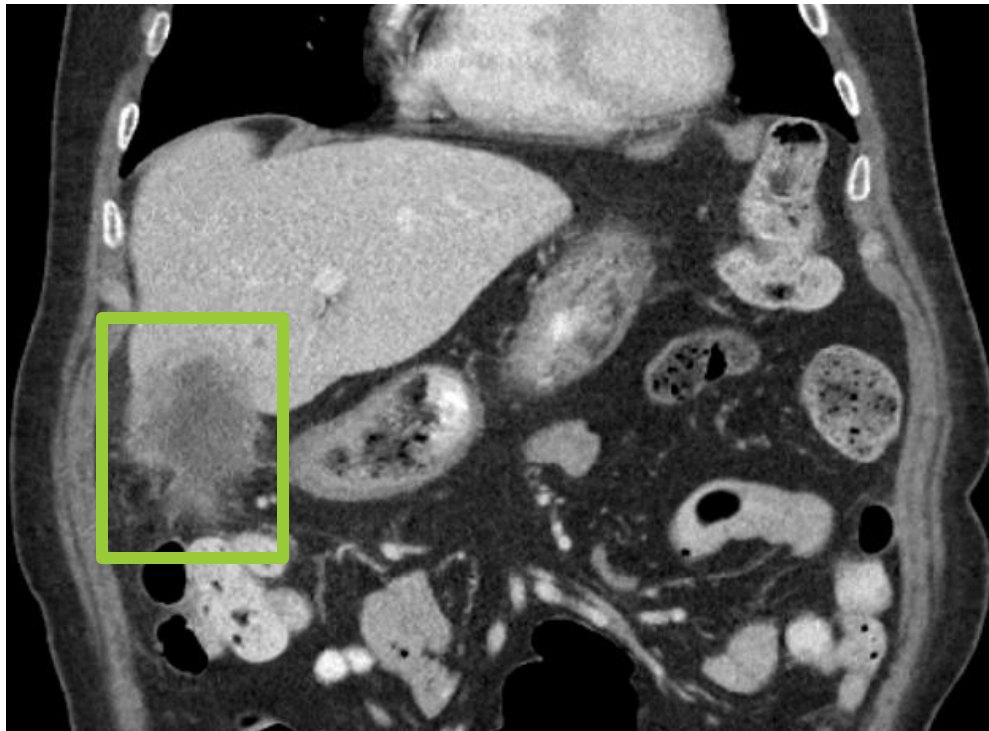


**Heterogeneous,
poorly circumscribed
mass** extending
beyond inferior
border of normal
gallbladder

C+ CT axial view, portal venous phase
Courtesy of Quang Nguyen. PACS, BIDMC



Our patient – Mass on CT scan



Heterogeneous, poorly circumscribed mass extending beyond inferior border of normal gallbladder

C+ CT coronal view, portal venous phase
Courtesy of Quang Nguyen, MD. PACS, BIDMC



Now we will examine the other two common radiologic appearances of gallbladder carcinoma on CT



Companion patient 1 – polypoid appearance on CT



Polypoid intraluminal lesion
observed on CT scan

C+ CT axial view, portal venous phase
Brooke RJ. StatDX



Companion patient 2 – Wall thickening appearance on CT



Diffuse, heterogeneous mural thickening can also be a radiologic appearance of gallbladder carcinoma, especially when accompanied by hepatic involvement.

C+ CT axial view

van Breda Vriesman et al. radiologyassistant.nl



Differential

Adenomyomatosis

Primary malignancies with gallbladder invasion

Metastatic disease to the gallbladder

Benign lesions

Xanthogranulomatous Cholecystitis (XGC)

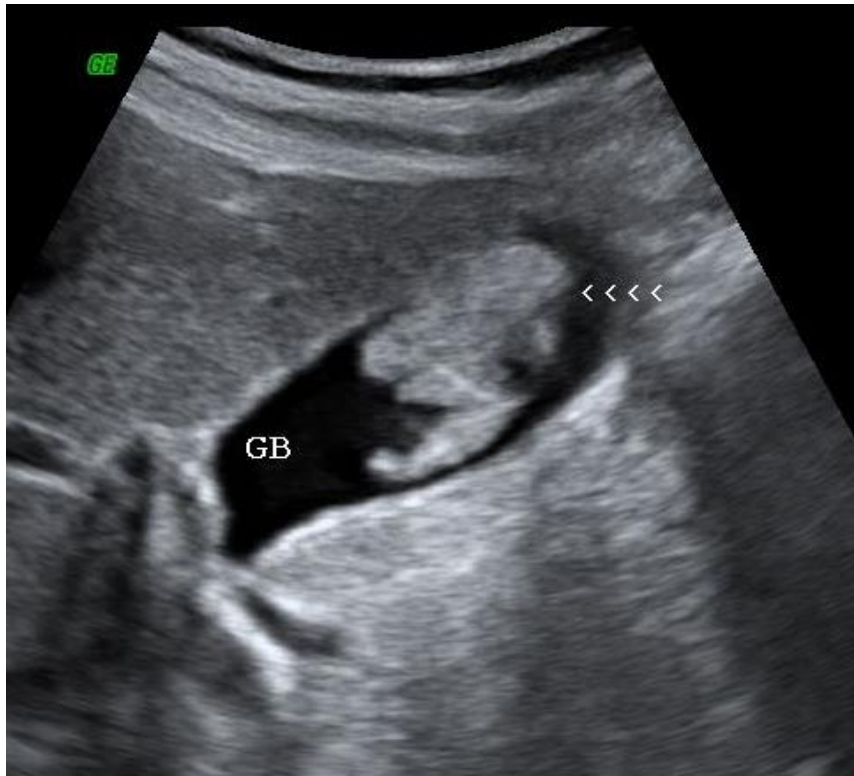
Gallbladder sludge



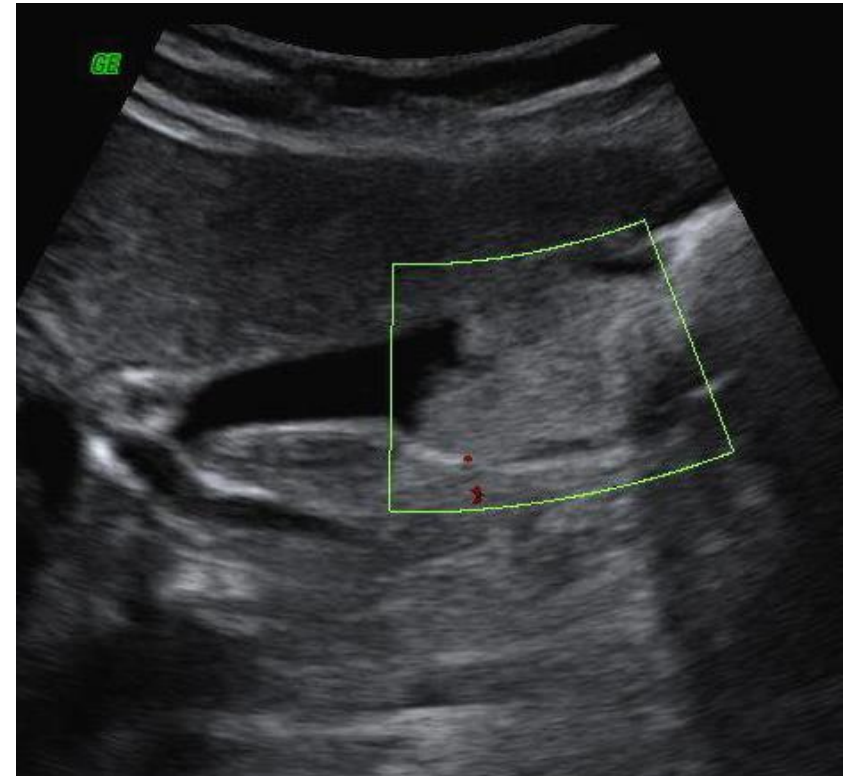
Now we will take a look at some common benign conditions that can be potentially confused for gallbladder carcinoma...



Companion patient 3 – Tumefactive sludge on ultrasound



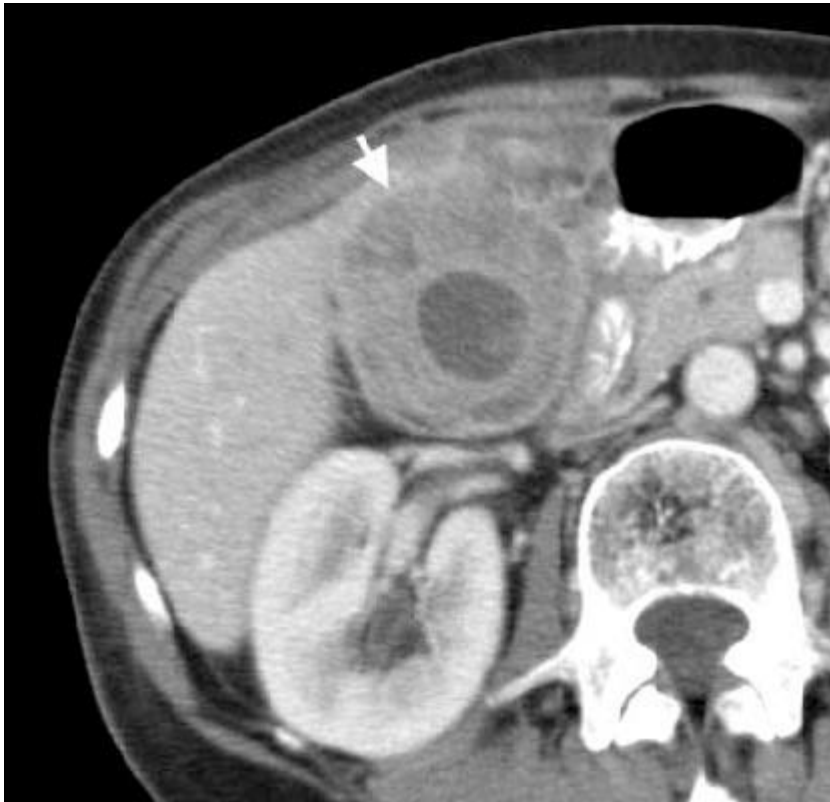
Gallbladder ultrasound
Gandhi D. ultrasound-images.com.



Note the shifting of the mass to a
dependent position



Companion patient 4 – XGC on CT Scan



Diffuse gallbladder wall thickening with marked irregularity, can sometimes be indistinguishable from GB carcinoma

C+ CT axial view

van Breda Vriesman et al. radiologyassistant.nl



Staging

- Chest CT and abdomen/pelvis CT for distant metastases
- Pathologic staging after surgery or biopsy



Common sites of involvement

- Direct invasion of liver, duodenum, bile duct
- Lymphatic spread to porta hepatis
- Intraperitoneal spread to other abdominal organs
- Hematogenous spread to lungs, bones



Our patient – outcome

- Pathology showed adenocarcinoma
- No LN or distant metastatic involvement, T3N0 disease
- Treated with extended cholecystectomy with possible adjuvant chemotherapy and radiation



Conclusions

- Gallbladder carcinoma usually presents **late** with RUQ pain, weight loss, and/or jaundice
- Most patients have advanced disease and prognosis is poor
- Three common radiologic appearances: mass replacing lumen, polypoid lesion, diffuse wall thickening
- Differential on imaging includes adenomyomatosis, XGC, sludge, metastases, other primaries



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