

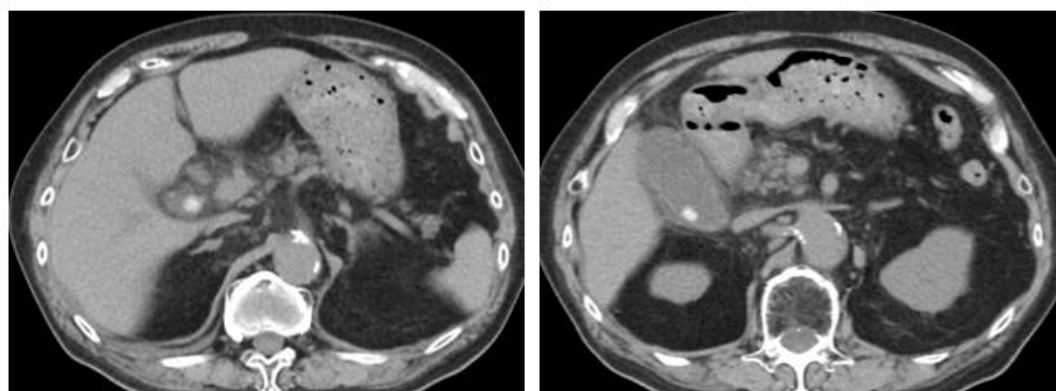
A Case of the Week

Case 445

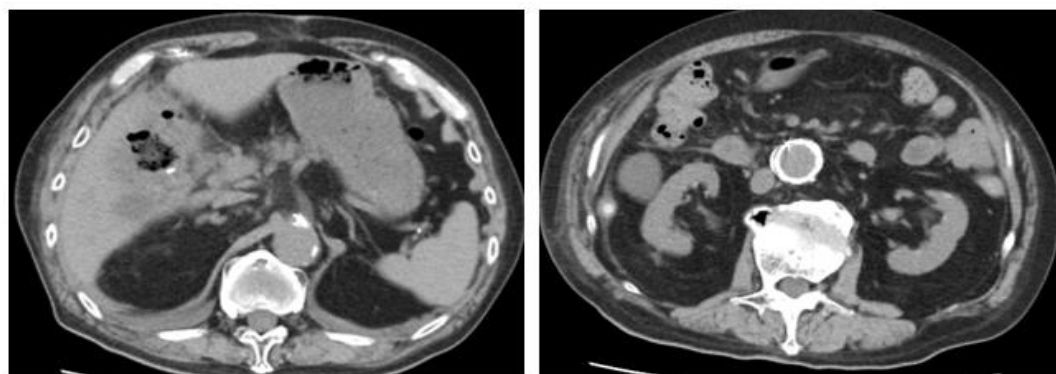
落下胆石

胆石落下肉芽腫症

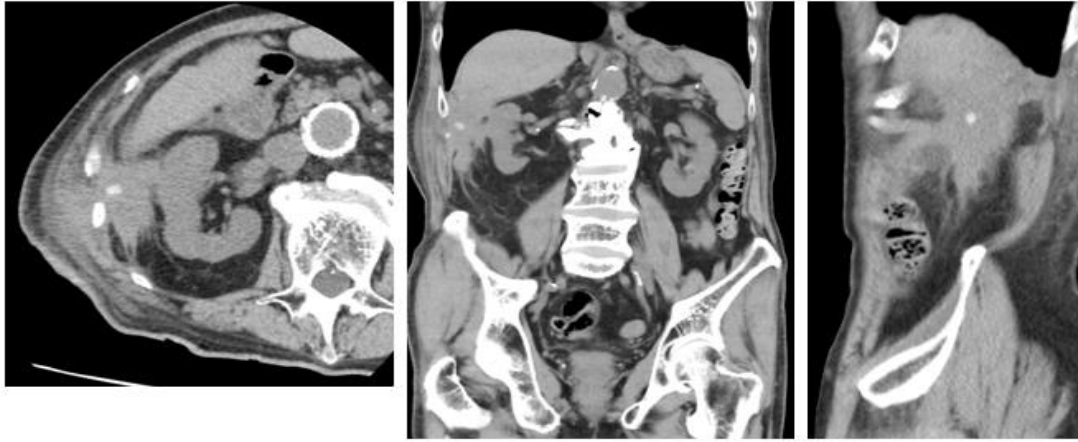
70代 男性



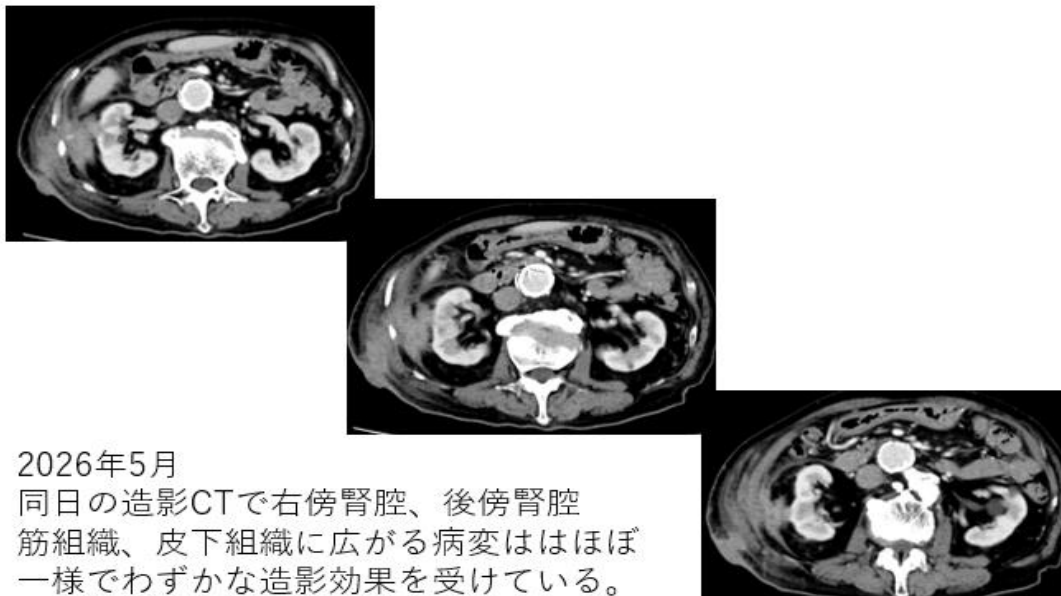
2025年5月
胆嚢摘出前、複数の結石が認められる。



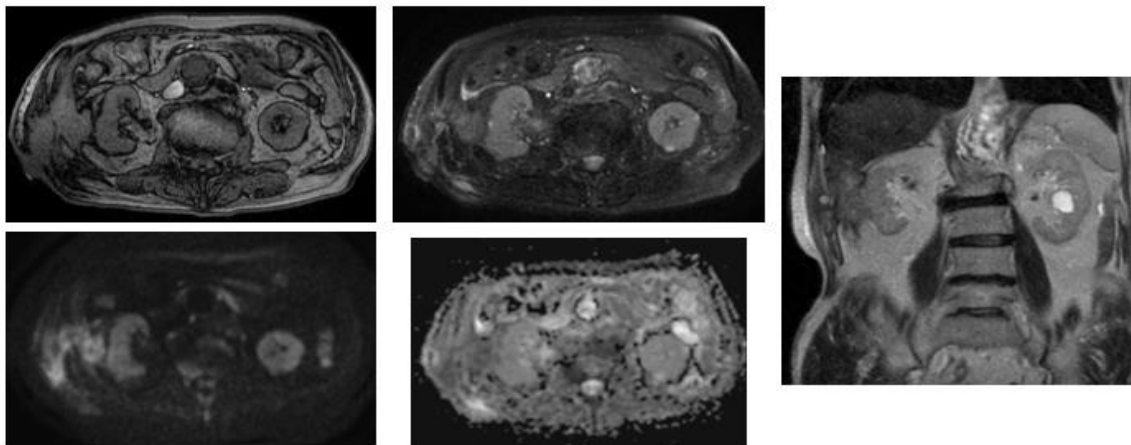
2025年8月
腹腔鏡下胆摘後変化。
肝下面の腹膜に接して落下胆石が認められる。



2026年5月 9か月後
 落下胆石を中心に軟部吸収度が域が広がっている。
 傍腎腔、後傍腎腔 筋組織、皮下組織に及んでいる。



2026年5月
 同日の造影CTで右傍腎腔、後傍腎腔
 筋組織、皮下組織に広がる病変はほぼ
 一様でわずかな造影効果を受けている。



2026年5月
 右傍腎腔、後傍腎腔、筋組織、皮下組織に及ぶ病変はT1WIにてやや等信号、脂肪抑制T2WIで低信号から等信号の混在が認められる。
 Diffusion WIにて、低信号域と等信号が混在している。
 ADC mappingで拡散低下部と保持部の混在を認める。

炎症性肉芽腫症

- ・ 肉芽腫の組織像

主体：単核球主体の肉芽腫：組織球(=マクロファージ)、
類上皮細胞(組織球の活性化)
巨細胞(マクロファージが弱った
マクロファージを貪食)

周囲：T細胞 B細胞(plasma 細胞) 繊維芽細胞

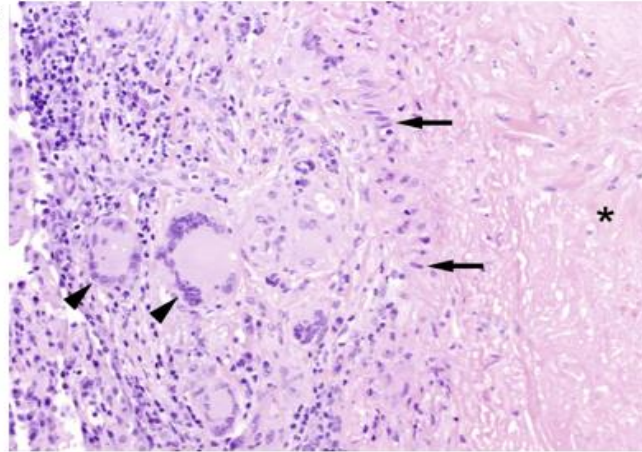
生体の反応：炎症性肉芽腫 (病変の囲い込み、排除)

- ・ Innate immunity (先天免疫)
マクロファージと樹状細胞・・・貪食作用と抗原提示細胞
(組織球と類上皮細胞) 貪食後補体 産生
- ・ Adaptive immunity (獲得免疫)
T細胞とB細胞(プラズマ細胞・・・抗体産生特化)
ケモカイン サイトカイン産生
(TNF, IL-1, IL-6, IL-17, and IFN gamma))
- ・ 繊維芽細胞 線維化

炎症性肉芽腫症

- ・ 原因は種々
- ・ 病理：壊死性肉芽腫 非壊死性肉芽腫 化膿性肉芽腫
びまん性肉芽腫 異物巨細胞反応性
- ・ 代表 壊死性肉芽腫・・・結核、非結核性抗酸菌症
非壊死性肉芽腫・・・サルコイドーシス

壊死性肉芽腫
(結核腫)



壊死周囲に
類上皮組織球
巨細胞
その周囲に
リンパ球
プラズマ細胞

Edge of a necrotizing granuloma seen in mycobacterial tuberculosis showing a peripheral rim of epithelioid histiocytes (arrows) surrounding the central necrotic region (asterisk; H&E, 200x). Some histiocytes are also forming multinucleated giant cells (arrow heads). External to the rim of histiocytes is an outer rim of lymphocytes and plasma cells.

炎症性肉芽腫症の原因

- 感染性(細菌性 真菌性 寄生虫性)
- 非感染性 [Granulomatosis with polyangiitis](#)
サルコイドーシス
自己免疫性(クローン病 多発血管炎肉芽腫)
薬物性
異物

落下胆石後炎症性肉芽腫

- 腹腔鏡下胆嚢摘出術の普及
- 腹腔鏡下胆嚢摘出術前には落下胆石後炎症性肉芽腫の報告皆無
- 5.4–19%：腹腔鏡下胆摘後落下胆石回収頻度
腹腔鏡下胆嚢摘出術中のトロッカーによる損傷
- 4か月から10年で発症
- 落下胆石：腹腔・腹壁多い 肝下面 後腹膜

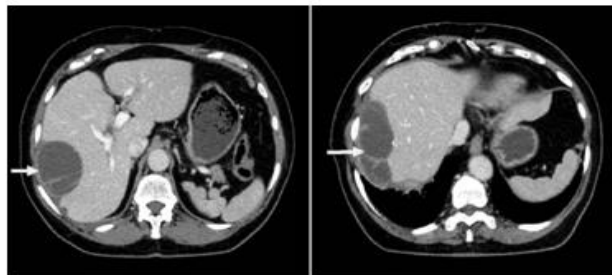
Wang L, et al. Gallstone abscess as a result of dropped gallstones during laparoscopic cholecystectomy. International Journal of Surgery Case Reports 2012; 3: 611-613

落下胆石後炎症性肉芽腫 発症期間

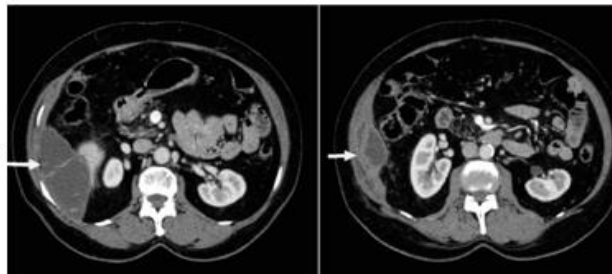
- 5.5 か月, (0–3 years)
- 腹腔鏡下胆嚢摘出術落石頻度 40 %以下
- 落石胆石による合併症 0.17 %
- 腹壁や腹腔に多い
- 色素胆石の落下で多い。細菌の存在・・・膿瘍形成？

Bartels AK, et al. Subhepatic Sterile Abscess 10 Years After Laparoscopic Cholecystectomy. ACG Case Rep J. 2015 Jan; 2(2): 113–115.

Abdominal CT showing a large subhepatic and perihepatic fluid collection with internal septations.



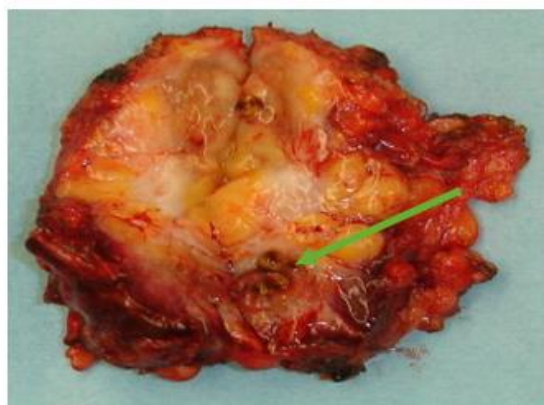
Abdominal CT showing subcutaneous fluid collection in the right flank following fistulization of the complex perihepatic fluid collection.



Bartels AK, et al. Subhepatic Sterile Abscess 10 Years After Laparoscopic Cholecystectomy. ACG Case Rep J. 2015 Jan; 2(2): 113–115.



Computed tomography (CT) scan of a retroperitoneal mass. The arrow depicts the retroperitoneal mass invading the adjacent muscle.



Excised retroperitoneal mass. The arrow indicates a gallstone with surrounding fibroadipose tissue.

Wang L, et al. Gallstone abscess as a result of dropped gallstones during laparoscopic cholecystectomy. International Journal of Surgery Case Reports 2012; 3: 611-613

胆石落下炎症性肉芽腫

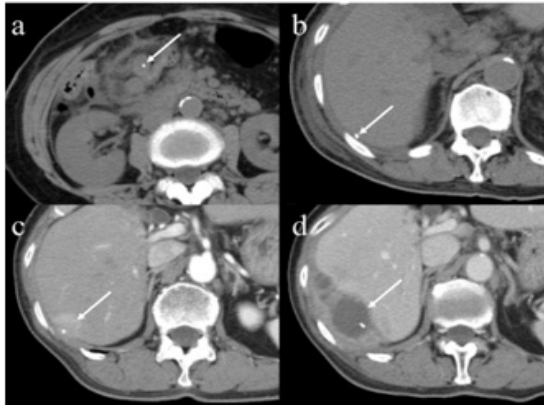
- 腹腔鏡下胆嚢摘出術の0.08%－2.9%
- 落下胆石の20%
- 危険因子：色素結石
1.5cm以上結石
15個以上
- 炎症の長期化－瘻孔を通じて結石が移行、腹腔外スペースへ
：腹壁、後腹膜、横隔膜、消化管への波及

Sato S, et al. Foreign-body granulomas and abscesses caused by dropped gallstones after cholecystectomy: Four cases diagnosed with multimodality imaging. Radiology Case Reports Volume 15, Issue 9, September 2020, Pages 1480-1484



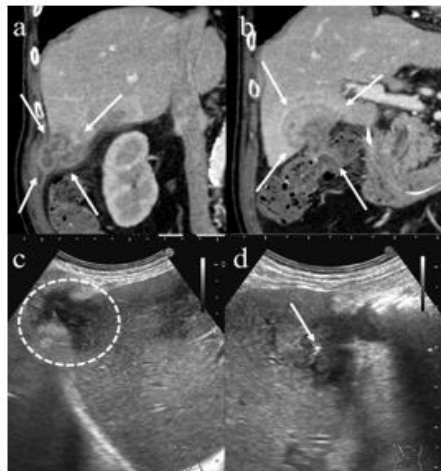
Sato S, et al. Foreign-body granulomas and abscesses caused by dropped gallstones after cholecystectomy: Four cases diagnosed with multimodality imaging. Radiology Case Reports Volume 15, Issue 9, September 2020, Pages 1480-1484

A 67-year-old woman with dropped gallstones (case 1). Numerous gallstones were seen on noncontrast CT before laparoscopic cholecystectomy (a: arrow). An irregular-shaped soft-tissue mass containing punctate calcifications was observed in the right Morrison's pouch on noncontrast CT (b: arrow). The mass invaded into the liver parenchyma and abdominal wall. The other irregular-shaped soft-tissue mass with nodular calcification was seen in the right paracolic gutter on noncontrast CT (c: arrow). The nodular calcification (c: arrow) was similar to the gallstones on CT before laparoscopic cholecystectomy (a: arrow). The tracer accumulated in the right Morrison's pouch lesion (SUVmax; 9.3) (d: arrow) and right paracolic gutter lesion (SUVmax; 8.0) (e: arrow) 120 minutes after intravenous administration of the tracer on ^{18}F -fluorodeoxyglucose positron emission tomography with CT images. SUVmax; maximum standard uptake value



Sato S, et al. Foreign-body granulomas and abscesses caused by dropped gallstones after cholecystectomy: Four cases diagnosed with multimodality imaging. *Radiology Case Reports* Volume 15, Issue 9, September 2020, Pages 1480-1484

A 60-year-old woman with dropped gallstones (case 2). The calcified gallstone was seen in the inflamed gallbladder on noncontrast CT (a: arrow). The calcified stone was moved to the right subphrenic space on noncontrast CT 4 days after the surgery (b: arrow). Newly developed enhanced soft tissue around the calcified stone on contrast-enhanced CT at 3 months after the surgery (c: arrow). The lesion developed into an abscess on contrast-enhanced CT 1 year after the surgery (d: arrow).



Sato S, et al. Foreign-body granulomas and abscesses caused by dropped gallstones after cholecystectomy: Four cases diagnosed with multimodality imaging. *Radiology Case Reports* Volume 15, Issue 9, September 2020, Pages 1480-1484

A 78-year-old man with dropped gallstones (case 3). Two irregular-shaped masses with multilocular fluid collection and thick septation that invaded the liver, abdominal wall, and colon were seen in the right Morrison's pouch (a: arrow) and the gallbladder fossa on contrast-enhanced CT (b: arrows). The hypoechoic mass in the right Morrison's pouch invaded both the liver parenchyma and abdominal wall on US (c: circle). The hypoechoic mass in the gallbladder fossa invaded the liver parenchyma and revealed a hyperechoic lesion on US (d: arrow).