

## Post cholecystectomy syndrome caused by cystic duct remnant: A case report



<https://doi.org/10.56238/innovhealthknow-011>

### Raíssa Paes Francino

General surgery resident at São José hospital and maternity hospital.

### Kathisuemy Marim

Medical student

### Maria Fernanda Bissa Oliveira

Medical student

### Maria Eduarda Almagro Rossi

Medical student

### Eduarda Gomes Martins

General surgery resident at São José hospital and maternity hospital

### Abraão Rodrigues Valentim do Prado

General surgery resident at São José hospital and maternity hospital

### Paula Gomes Martins

Medical degree from the University Center of Espírito Santo

### Pedro Jose Pagotto

General surgeon at São José hospital and maternity hospital

### ABSTRACT

**CASE PRESENTATION:** Patient, M.R., male, 51 years old, attended the general surgery outpatient clinic of UNESC complaining of bulging in the right inguinal region and pain on exertion with results of imaging studies suggesting the presence of cholelithiasis. Previous pathological history of laparotomy cholecystectomy 12 years ago, due to diagnosis of acute lithiasic cholecystitis. In view of the case, ultrasonography of the total abdomen was requested, which showed echogenic images with

posterior acoustic leftover in the gallbladder topography. In view of the above, computed tomography of the upper abdomen was performed, which found the presence of an image compatible with a hypoplastic neogallbladder, with a thickened wall, containing a 1.5 cm calculus. From the results acquired through imaging exams, it was decided to investigate through cholangioresonance that identified filling failure measuring 1.2 cm in topography of the gallbladder next to the hepatic hilum, maintaining contact and bulging the first duodenal portion measuring 2.2 x 1.8 cm, suggesting a lithiasic biliary neovesicle. From the confirmation of the diagnosis, laparotomy cholecystectomy was indicated. Intraoperatively, an image compatible with a gallbladder of about 3 cm with thin walls and calculus inside was observed. The cystic duct, dissection of the Calot triangle without evidence of cystic artery and ligation of the remaining cystic duct were identified and repaired. The patient evolved with the usual postoperative period and after perishing all criteria was discharged. **DISCUSSION:** Videolaparoscopy is currently the gold standard treatment for symptomatic cases of cholelithiasis. However, some patients report the persistence or recurrence of some gastrointestinal symptoms associated with abdominal pain, which may begin 2 to 25 years after surgical intervention. These cases are described as Postcholecystectomy Syndrome (PCS). As suggested to the patient in question, once a residual calculus or neovesicle is diagnosed, surgical intervention should be performed to resolve the symptoms and avoid possible complications. **FINAL CONSIDERATIONS:** Patients undergoing cholecystectomy with persistence or recurrence of gastrointestinal symptoms should undergo imaging tests to rule out or confirm the diagnosis of neovesicle.

**Keywords:** Neovesicle, Cholecystectomy, Bile Duct.



## 1 INTRODUCTION

The Cholecystectomy is the most common surgery for symptomatic gallstones and laparoscopic surgery is the gold standard choice for it. However, some patients may persist with symptoms such as pain and dyspepsia after surgery. This situation is described as post-cholecystectomy syndrome (PCS) whose frequency varies in the literature from 5 to 30%. [1, 2]

PCS is defined as the continuation or recurrence of symptoms similar to those prior to surgery. The main complaints are upper abdominal pain, associated with gastrointestinal symptoms such as indigestion, nausea, vomiting, jaundice and diarrhea. The syndrome can start in 2 days or up to 25 years. [2]

This occurs due to residual stones in the remnant of the gallbladder due to partial cholecystectomy or in the particularly long cystic duct. Poor visualization during laparoscopic surgery, severe inflammation and dense adhesions in the acute phase of the disease, excessive bleeding, and confusing morphology of the gallbladder are the reasons for incomplete resection of the gallbladder. Therefore, proper dissection and identification of the gallbladder and cystic duct junction are necessary for complete removal of the gallbladder and prevention of post-cholecystectomy syndrome. [1]

Therefore, patients undergoing cholecystectomy with persistence or recurrence of gastrointestinal symptoms should undergo imaging tests to rule out or confirm the diagnosis of neovesicle. Therefore, the objective of this case was to describe the importance of surgical intervention in patients diagnosed with neovesicle to avoid complications. [2]

## 2 CASE REPORT

Patient M.R, male, 51 years old, referred to the general surgery outpatient clinic, complaining of bulging in the right inguinal region and results of post-cholecystectomy control imaging tests. Among the exams, computed tomography of the total abdomen, showing the presence of an image compatible with a hypoplastic neogallbladder, with a thickened wall, containing a calculus of about 1.5 cm.

The patient underwent cholecystectomy 12 years ago due to acute lithiasis cholecystitis and reports an uneventful postoperative period. It also states that every year it performed routine examinations and that in 2022 there were changes in liver enzymes. Therefore, the attending physician requested total abdominal ultrasonography in which she evidenced the presence of echogenic images with posterior acoustic shadow in the gallbladder topography (Figure 1). For this reason, he suggested computed tomography of the upper abdomen. He was then referred to the service where he underwent computed tomography of the abdomen previously mentioned. Then cholangioresonance with identification of bile ducts of normal caliber, without irregularities, dilatations or filling failures, oval

image of thin walls and high signal content on T2-weighted sequences with low signal foci, filling failures measuring 1.2 cm, located in the topography of the gallbladder next to the hepatic hilum, maintaining contact and bulging the first duodenal portion, measuring 2.2 x 1.8 cm, and may correspond to neogallbladder with stones inside.

Figure 1: Ultrasonography of the abdomen with a finding compatible with calculus in gallbladder topography



Due to the surgical diagnoses, cholecystectomy and right inguinal hernioplasty were indicated. As for management, despite the superiority of the laparoscopic technique, the conventional technique may be advantageous in these cases in which the scar tissue has the potential to hinder a safe laparoscopic dissection, and therefore opted for this method.

In the procedure, a right kocher incision was made following a previous incision involving skin and subcutaneous tissue, the inventory of the abdominal cavity showed multiple adhesions, compatible image of gallbladder of about 3 cm with thin walls and calculus inside, liver of normal appearance and rest of the cavity without alterations (Figure 2). Therefore, cystic duct repair was identified and performed, dissection of the triangle of calot without evidence of the cystic artery, ligation of the cystic duct with cotton thread 2 - 0 and cholecystectomy itself (Figure 3), in addition to sending a specimen for histopathological examination (Figure 4).



Figure 2: Intraoperative image showing the presence of a compatible gallbladder image



Figure 3 – Reflecting image illustrating the cholecystectomy itself





Figure 4 – Specimen sent to histopathology



The patient evolved with the usual postoperative period and after meeting all the criteria, he was discharged.

### 3 DISCUSSION

Cholecystectomy, laparoscopic or as open surgery, is the standard of care for symptomatic gallstones. It provides total relief of symptoms in up to 85% of patients. However, some patients may experience upper abdominal pain similar to those prior to surgery, a condition known as post-cholecystectomy syndrome (PCS). [1, 3]

Post-cholecystectomy syndrome (PCS) comprises several conditions that present as recurrence of symptoms prior to cholecystectomy. The onset of the disease can be as short as 2 days and as long as 25 years. The disorder is more common in women. These disorders can be classified as extra-biliary and biliary. Most causes are attributed to extrabiliary causes such as peptic ulcer, reflux esophagitis, chronic pancreatitis, hepatitis, diverticulitis, mesenteric ischemia, and irritable bowel syndrome. Biliary causes include biliary stenosis, age of bile leakage, retained or recurrent gallstones, cystic duct remnant, dyskinesia of the sphincter of oddi and neuroma in the surgical bed. [1, 5]



Uncertain local anatomy, adhesions of the cystic pedicle, severe inflammation can lead to a partial cholecystectomy or a longer cystic duct. Partial cholecystectomy may be accompanied by remaining gallstones or formation of new stones that results in post-cholecystectomy syndrome. [1, 4]

The diagnosis of CPS can be made by means of ultrasound, endoscopic ultrasound, endoscopic retrograde cholangiopancreatography (ERCP), CT and MRCP. Frequently, abdominal ultrasound is the first method of investigation for the clinic of the patient with post-cholecystectomy syndrome. [1, 5]

In our report, ultrasonography reveals echogenic images with posterior acoustic shadow in vesicle topography. For this reason, he suggested computed tomography of the upper abdomen, which found the presence of an image compatible with a hypoplastic biliary neovesicle with a thickened wall, containing a 1.5 cm calculus. Subsequently, we opted for the investigation through cholangioresonance, which confirmed the diagnosis of PCS and was indicated, thus, the performance of surgical treatment by laparotomy cholecystectomy.

Once a patient has been diagnosed as having residual calculus, surgical intervention should be performed. Surgery should involve proper dissection and identification of the gallbladder and cystic duct junction to ensure complete removal of the gallbladder and thus resolve symptoms and avoid life-threatening complications such as carcinoma, recurrent cholangitis, mucocele formation, and Mirizzi syndrome. [1, 4]

#### **4 CONCLUSION**

The post-cholecystectomy syndrome can be a challenge for diagnosis and treatment. Careful and thorough surgery helps reduce the possibility of cystic duct remnants leading to post-cholecystectomy syndrome. Thus, patients undergoing cholecystectomy with persistence or recurrence of gastrointestinal symptoms, clinical history of recurrent biliary colic resembling the pain for which the initial cholecystectomy was performed should be suspected of remnants of the gallbladder. These patients should undergo careful evaluation, rule out non-biliary causes, and imaging tests should also be performed to rule out or confirm the diagnosis of neogallbladder.



## REFERENCES

Zahedian A., Ahangar S. K., Asghari Y. Post cholecystectomy syndrome need to redo laparoscopic completion surgery: a case report. *International Journal of Surgery Case Reports*. (2018) 42:145–147. (PubMed PMID: PMC5985252)

Wafa Ben Hmida, Hichem Jerraya, Souhir Nasseh, Nabil Haloui, Mehdi Khalfallah, Ramzi Noura, The complications of subtotal cholecystectomy: A case report, *International Journal of Surgery Case Reports*, (2021) (PubMed:PMCID: PMC8134978)

Om Tantia, Mayank Jain, Shashi Khanna, Bimalendu Sem, Post cholecystectomy syndrome: Role of cystic duct stump and re-intervention by laparoscopic surgery, *Journal of Minimal Access Surgery* (Julho a setembro) (2008) Volume 4 (Pubmed PMID: 19547688)

RC Popescu, N Leopa, A Dumitru, Cristina D, Alexandru D, Razvan B, E Iordache, Florin Botea et al, Residual Gallbladder and Cystic Duct Stump Stone after Cholecystectomy: Laparoscopic Management, *Chirurgia* (2021) 116: 484-491( Pubmed PMID: 34498567)

PRIYANK S C et al., Cystic duct remnant: a rare cause for postcholecystectomy syndrome, *BJR case reports*. (2017) (Pubmed PMID: 30363197)