

An Overview on Post-Cholecystectomy Syndrome Diagnostic & Management Approach

Ayman Ahmed Shaban Aldahshan¹, Ahmed Raafat Salamah^{2*}, Noor Mohammed Fayoumi³, Sami Awwadh Alkhudaydi⁴, Alhijji Mohammed Khaled M⁵, Qasem Adnan Abdulhameed Alnahwi⁶, Atyaf Ahmad Balghsoon⁷, Abdulmajid Omran Alomran⁸, Saud Muhaisin Q Altalhi⁹, Badriah Ibrahim Haqawi¹⁰

¹Department of surgery, Saudi German Hospital, Jeddah, Saudi Arabia. ²Department of Anesthesia, Rabigh General Hospital, Rabigh, KSA. ³Department of Surgery, King Abdulaziz Specialist Hospital, Taif, KSA. ⁴Faculty of Medicine, Taif University, Taif, KSA. ⁵Faculty of Medicine, King Faisal University, Al Ahsa, KSA. ⁶Orthopedic Department, Prince Saud bin jalawi hospital, Al Ahsa, KSA. ⁷Faculty of Medicine, King Abdulaziz University, Jeddah, KSA. ⁸Faculty of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh, KSA. ⁹General Physician, King Abdulaziz University Hospital, Jeddah, KSA. ¹⁰Faculty of Medicine, Najran University, Najran, KSA.

Abstract

Post-cholecystectomy syndrome can happen in 10% of patients after undergoing a cholecystectomy. Patients can present with extra-biliary and unrelated organic disorders that they may have been suffering from before the cholecystectomy. The various possible etiologies of post-cholecystectomy syndrome lead to a broad spectrum of treatment options with a variable success rate in reducing symptoms. This article aims to discuss a summary of the different etiologies of Post-cholecystectomy syndrome, the efficacy, and incidences of the different treatment options. PubMed database was used for articles selection, and the following keys were used in the mesh ((“Postcholecystectomy syndrome”[Mesh]) AND (“assessment”[Mesh]) OR (“Management”[Mesh])). In regards to the inclusion criteria, the articles were selected based on the inclusion of one of the following topics: Post Cholecystectomy syndrome, non-invasive assessment. Exclusion criteria were all other articles, which did not have one of these topics as their primary endpoint. Etiologies of the postcholecystectomy syndrome are various, and many may be attributed to extra-biliary causes that can be present before the surgery. Early-onset of symptoms may require an early endoscopy to the upper gastrointestinal tract. Delayed patient presentations are most likely to retain biliary stones. Many of those patients will not have an identifiable cause. Thus, the treatment options will be limited for this group.

Keywords: Post-cholecystectomy syndrome, Abdominal Pain, Pancreatitis, Management

INTRODUCTION

The term commonly used to describe the right upper quadrant abdominal pain is called Post-cholecystectomy syndrome or persistence of biliary colic in the presence of different gastrointestinal symptoms that are similar to the symptoms that the patient may have before undergoing cholecystectomy [1]. The continuation of symptoms caused by gallbladder pathology is considered a syndrome as either development of new symptoms that usually correlate with the gallbladder or the symptoms comprise vomiting, nausea, fatty food intolerance, flatulence, diarrhea, indigestion, jaundice heartburn, and intermittent episodes of abdominal pain [1].

MATERIALS AND METHODS

PubMed database was used for articles selection, and the following keys were used in the mesh ((“Postcholecystectomy syndrome”[Mesh]) AND (“assessment”[Mesh]) OR (“Management”[Mesh])).

In regards to the inclusion criteria, the articles were selected based on the inclusion of one of the following topics: Post Cholecystectomy syndrome, non-invasive assessment.

Exclusion criteria were all other articles, which did not have one of these topics as their primary endpoint.

Around 90 publications were chosen as the most clinically relevant out of 1,202 articles indexed in the previous two decades, and their full texts were evaluated. A total of 31 of the 90 were included after a thorough examination. Additional research and publications were found using reference lists from the recognized and linked studies. Expert consensus recommendations and commentary were added where relevant to help practicing physicians assess

Address for correspondence: Ahmed Raafat Salamah, Department of Anesthesia, Rabigh General Hospital, Rabigh, KSA.
arsstar6@yahoo.com

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 3.0 License, which allows others to remix, tweak, and build upon the work non commercially, as long as the author is credited and the new creations are licensed under the identical terms.

How to cite this article: Aldahshan A A S, Salamah A R, Fayoumi N M, Alkhudaydi S A, M A M K, Alnahwi Q A A, et al. An Overview on Post-Cholecystectomy Syndrome Diagnostic & Management Approach. Arch. Pharm. Pract. 2021;12(4):38-41. <https://doi.org/10.51847/OteX8PLCKi>

postcholecystectomy syndrome most simply and practically possible.

RESULTS AND DISCUSSION

Manifestation of Post-cholecystectomy syndrome may develop early on during the period of post-operative or may also display months to years after surgery. To help patients with symptoms after post-cholecystectomy syndrome, the patient should be provided with a known diagnosis to receive targeted treatment. Accordingly, this review article aims to provide an overview of the literature on etiologies of abdominal symptoms after Post-cholecystectomy syndrome and sequentially to aid physicians in recognizing the situation of patients' symptoms following PSC and optimize the treatment. It has been reported that approximately 50% of patients may experience gastrointestinal disorders and/ or organic pancreaticobiliary disorders, whereas the remaining patients are affected by extra-intestinal or psychosomatic diseases [2]. In addition, for around 5% of patients who undergo laparoscopic cholecystectomy, the etiology behind PCS is unknown [2]. Severe symptoms mostly occur due to a complication of cholecystectomy if they happen early when compared with mild, non-specific, or dyspeptic symptoms. A non-biliary cause of post-cholecystectomy syndrome should be expected if no gallbladder or calculi abnormalities are diagnosed at cholecystectomy, and the symptoms are similar to those suffered pre-operatively [2]. Treatment for Post-cholecystectomy syndrome is tailored to the specific cause and includes medication, biliary stenting, sphincterotomy, surgical revision for severe strictures, and percutaneous drainage of biloma [3].

Post-cholecystectomy syndrome with 5 to 30% of patients having the frequency of postcholecystectomy syndrome differs in the literature. The post-cholecystectomy syndrome international occurrence is almost similar to the United States incidence. Studies have been found in 65% of the patients that did not develop any symptoms, whereas 28% of the cases developed mild symptoms, and only 2% of the patients had severe symptoms [4]. Even though there are no criteria exist in risk stratification preoperative, the post-cholecystectomy syndrome is more likely to develop in a patient due to specific factors [5]:

- Urgent surgeries present a higher risk of developing post-cholecystectomy syndrome.
- 10-25% of patients develop PCS if cholelithiasis is present, whereas approximately 30% develop PCS if it is absent [5]
- With the increasing duration of preoperative symptoms, the increase in the risk of developing PCS is exponential. [5]
- Whether choledochotomy is performed or not, approximately 20% of patients will develop PCS [5].

A study in determining the prevalence of PCS identified sex and age as factors. The incidence around 43% in the age

group aged 30 to 69 years have an incidence of 21 to 31% and a female-to-male incidence ratio of 1.8:1 in patients aged 20 to 29 years [6].

Aetiology

Anatomic abnormalities identified at the time of exploratory surgery focused mainly on early studies. Improvement with advanced imaging studies, technology, and affects the preoperative approach in these cases have a better understanding of the etiologies. The gastrointestinal tract can be resulted from functional and organic diseases of the Post-cholecystectomy syndrome and may be classified further based on the origin of symptoms [7].

- Practitioners most of the time overlook extrabiliary disorders like IBS, reflux esophagitis, peptic ulcer disease, pancreatitis, or as etiologies of PCS [7].
- Extra biliary etiologies commonly reported incorporate gastrointestinal causes like pancreatitis, pancreatic tumors and their complications, hepatitis esophageal diseases, mesenteric ischemia, peptic ulcer diseases, and diverticulitis [7].
- etiology of biliary known to cause post-cholecystectomy syndrome to incorporate such as retained calculi biliary strictures, bile leak, bile salt-induced diarrhea, sphincter of Oddi dysfunction cystic duct remnant, and stenosis, [3].
- Extra-intestinal causes like neurologic disorders and psychiatric diseases wound neuroma, intercostal neuritis, unexplained pain syndromes, and coronary artery disease may cause symptoms consistent with PSC [3].

Pathophysiology

Modification in bile flow is suggested by the removal of the gallbladder reservoir function and gelding the bile flow is mainly related to the pathophysiology [8]. Gastrointestinal symptoms and diarrhea are suggested to be the major Bile with the mild trigger in patients. While the post-cholecystectomy syndrome and its pathophysiology current knowledge had improved with endoscopic retrograde cholangiopancreatography and endoscopic sphincter of Oddi manometry in diagnostic guidelines introduction, understanding the pathophysiology is not fully till now [8]. Post-cholecystectomy syndrome is suggested to be caused by functional or organic diseases of the gastrointestinal tract and may be further classified into patients with symptoms of non-biliary and biliary origin for systematic evaluation [8].

Evaluation

The initial workup for post-cholecystectomy syndrome usually includes [9]:

- Complete blood count (CBC) to roll out infectious causes
- When the patient acutely appear toxic blood gas analysis
- Possible evaluation of hepatobiliary or pancreatic diseases a complete metabolic panel, amylase, lipase, and prothrombin time (PT)

Repeating the laboratory tests if symptoms are present may be considered if the above-mentioned are within the normal ranges. In addition, thyroid function hepatitis panel, gamma-glutamyl transpeptidase, cardiac enzymes like causes may be recognized to exclude others by other laboratory tests [9].

Radiographic studies can be ordered with chest radiography to evaluate for mediastinal conditions and pulmonary diseases. In most cases abdominal imaging may be considered, abdominal ultrasound is a low-cost, noninvasive, and hasty test to appraise the pancreas, hepatobiliary system, and the surrounding areas [9]. A dilation of up to 10mm in the common bile duct is considered to be normal, while in most cases, a dilation of more than 10mm, is thought to be diagnostic of a distal obstruction that is suggestive of CBD stricture, ampullary stenosis, or a retained stone. A computed tomography scan may assist in diagnosing pancreatitis or pancreatitis complications, like pseudocysts [9]. Nuclear imaging as a hepatobiliary iminodiacetic acid scan can benefit analyzing the sphincter of Oddi deterioration as a possible cause or demonstrate a biliary leak even though it is challenging to differentiate between biliary stenosis and dyskinesia [9]. Endoscopic ultrasonography is an important diagnostic method to determine the patients that may require endoscopic retrograde cholangiopancreatography; Approximately 50% and can help find cystic residue stones utilizing EUS helped tremendously in lowering the total of cases who underwent ERCP [9]. Visualizing the ampulla of Vater and evaluating the mucosa of the gastrointestinal tract from the esophagus to the duodenum for abnormal findings directly helps to utilize Esophagogastroduodenoscopy. diagnostic test for the PCS recognized is to be ERCP and the most useful as about half the patients with the postcholecystectomy syndrome may have an underlying biliary etiology for the disease [9]. Stone extraction or sphincterotomy can be performed at the time of the ERCP utilizing therapeutic maneuvers. Patients that are incapable to go through ERCP Percutaneous transhepatic cholangiography and magnetic resonance cholangiopancreatography are other options [9].

Treatment

Post-cholecystectomy syndrome is in general considered a temporary condition as further workup may establish a functional or organic diagnosis. Diagnostic findings according to the investigation that is made and may incorporate procedural or pharmacologic paths therapy will be conducted.

Pharmacologic Approach

The following paths may be considered while managing patients with PCS and the goal of pharmacotherapy is to reduce morbidity and avoid complexities [9].

- The administration of antispasmodics, bulking agents, or sedatives can be helpful in patients with irritable bowel syndrome.
- Cholestyramine can be beneficial for patients with diarrhea.
- To provide some relief in patients with gastritis or GERD symptoms, proton-pump inhibitors, antacids, or histamine-2 blockers may be given.

Procedural Approach

Procedural therapy should be specific to the diagnosis, similar to the pharmacologic approach. Surgery is an option in case there is an identifiable and well-established cause to react to an operational therapy [10]. ERCP is the most commonly ordered method used for both diagnostic and therapeutic purposes. In rare cases, no identifiable etiology is found on ERCP and initial workup. Patients are commonly found to be refractory to a medical treatment for which prior surgery cases may be required [10]. In cases where exploration is not revealing, the patient may acknowledge sphincteroplasty [10].

Surgical excision of the residue cystic duct may be necessary in a few cases to avoid further development of PCS However, in cases of post-cholecystectomy syndrome ensuing from residue cystic duct lithiasis or Mirizzi syndrome, stone removal by endoscopic treatment may be satisfactory [11].

CONCLUSION

Possibly causes of Postcholecystectomy are symptoms by several etiologies and segregate into incidental or unrelenting symptoms. Laparoscopic surgery or coexistent diseases most due to symptoms suggested causing physiological changes. Even though the treatment is available for most causes of persistent symptoms after gallbladder removal, optimized indication for surgery remains the key.

ACKNOWLEDGMENTS: None

CONFLICT OF INTEREST: None

FINANCIAL SUPPORT: None

ETHICS STATEMENT: None

REFERENCES

1. Zackria R, Lopez RA. Postcholecystectomy Syndrome. StatPearls. Treasure Island (FL): StatPearls Publishing. Copyright © 2021, StatPearls Publishing LLC. 2021.
2. Schofer JM. Biliary causes of postcholecystectomy syndrome. J Emerg Med. 2010;39(4):406-10.
3. Girometti R, Brondani G, Cereser L, Como G, Del Pin M, Bazzocchi M, et al. Post-cholecystectomy syndrome: spectrum of biliary findings at magnetic resonance cholangiopancreatography. Br J Radiol. 2010;83(988):351-61.
4. Peterli R, Merki L, Schuppisser JP, Ackermann C, Herzog U, Tondelli P. Postcholecystectomy complaints one year after laparoscopic cholecystectomy. Results of a prospective study of 253 patients. Chirur. 1998;69(1):55-60.
5. Russello D, Di Stefano A, Scala R, Favetta A, Emmi S, Guastella T, et al. Does cholecystectomy always resolve biliary disease? Minerva Chir. 1997;52(12):1435-9.
6. Freud M, Djaldetti M, De Vries A, Leffkowitz M. Postcholecystectomy syndrome: a survey of 114 patients after biliary tract surgery. Gastroenterologia. 1960;93(5):288-93.

7. Redwan AA. Multidisciplinary approaches for management of postcholecystectomy problems (surgery, endoscopy, and percutaneous approaches). *Surg Laparosc Endosc Percutan Tech.* 2009;19(6):459-69.
8. Isherwood J, Oakland K, Khanna A. A systematic review of the aetiology and management of post cholecystectomy syndrome. *Surgeon.* 2019;17(1):33-42.
9. Abu Farsakh NA, Stietieh M, Abu Farsakh FA. The postcholecystectomy syndrome. A role for duodenogastric reflux. *J Clin Gastroenterol.* 1996;22(3):197-201.
10. Sakai Y, Tsuyuguchi T, Ishihara T, Sugiyama H, Miyakawa K, Yukisawa S, et al. The usefulness of endoscopic transpapillary procedure in post-cholecystectomy bile duct stricture and post-cholecystectomy bile leakage. *Hepato-gastroenterology.* 2009;56(93):978-83.
11. Phillips MR, Joseph M, Dellon ES, Grimm I, Farrell TM, Rupp CC. Surgical and endoscopic management of remnant cystic duct lithiasis after cholecystectomy--a case series. *J Gastrointest Surg.* 2014;18(7):1278-83.