ORIGINAL ARTICLE

Percutaneous cholecystostomy in the management of acute cholecystitis-comparative analysis of before and after the COVID 19 pandemic

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ABSTRACT

BACKGROUND: Percutaneous cholecystostomy (PC) is a minimally invasive temporary treatment for patients with acute cholecystitis (AC) who are at high risk for surgery. The aim of this study was to compare the characteristics of patients with AC treated with PC before and during the coronavirus disease 2019 (COVID 19) pandemic.

METHODS: The data of patients who underwent PC with the diagnosis of AC between 2019 and 2021 were analyzed by scanning the hospital registry system. During the COVID 19 pandemic period of March 11, 2020, to March 11, 2021, 110 patients with AC were treated with PC. In the pre-pandemic period of March 2019 to March 2020, 99 patients who underwent PC were added to the study as a control group. The data of the 209 patients included in the study were recorded, and descriptive statistical analysis was performed. The patient characteristics of the two groups were compared.

RESULTS: Evaluation was made of 209 patients who were diagnosed with AC between March 2019 and March 2021 and could not be operated on due to the high risk of surgery. The average age of the patients was 63.84 years (21–97) in the pandemic period and 68.43 years (31–100) in the pre-pandemic period. The rate of female patients was 45.5% in the pandemic group and 44.5% in the pre-pandemic group. The mean procedure-discharge time was 3.85 days in the pandemic period and 3.34 days pre-pandemic. The American Society of Anesthesiologists physical status classification (PS) was determined to be 1 or 2 in 56.4% of the pandemic group patients and 3 or 4 in 78.8% of the pre-pandemic group. There was no comorbidity accompanying AC in 45 (40.9%) patients in the pandemic period, and at least one comorbid condition accompanying AC was detected in 77 (77.8%) patients in the pre-pandemic period. The severity grading for AC was 2 (moderate) in 97.3% of the patients in the pandemic group and 3 (severe) in 26.3% of the patients in the pre-pandemic group. Of the 110 patients in the pandemic period, 14 were Covid 19 positive or suspected. PC-related mortality was not observed in either group.

CONCLUSION: PC is an effective and safe treatment method that reduced the operating room and intensive care burden during the exacerbation of the COVID 19 pandemic. Therefore, it seems like a logical option to expand the PC indications at times when the number of COVID 19 patients increases.

Keywords: Acute cholecystitis; coronavirus disease 2019; percutaneous cholecystostomy.

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INTRODUCTION

Acute cholecystitis (AC) is one of the most common reasons for emergent admission to surgical services. Laparoscopic cholecystectomy (LC) is the gold standard treatment for patients with AC and should be performed early.[1] Percutaneus cholecystostomy (PC) is a bridging therapy which is performed under local anesthesia, generally with ultrasound guidance, especially in patients who are poor candidates for surgery.[2] PC has high technical success and a low complication rate and often leads to regression of AC.[3] The Tokyo guidelines offer a number of recommendations for treatment, depending on the severity of AC.[4] The decision as to whether LC or PC is more appropriate for a patient with AC should be based on the severity of the acute illness, the patient's overall health, and locally available expertise and technology.[5,6]

On March 11, 2020, the World Health Organization declared the novel coronavirus disease 2019 (Covid-19) a global pandemic, and recommended postponing all invasive procedures and surgeries, except in very urgent cases.[7] It is clear that the Covid-19 pandemic had a significant influence on emergency and elective surgical procedures. Concerns about intraoperative transmission to healthcare workers and surgical outcomes in Covid-19 positive patients led to the recommendation for the use of non-operative or minimally invasive techniques wherever possible.[8,9]

In patients who underwent surgery during the pandemic period, there was an increased risk of perioperative severe acute respiratory syndrome coronavirus 2 infection and pulmonary complications, and this resulted in a significant increase in mortality.[10] The American College of Surgeons recommends that antibiotics be given if the patient is at high risk or if operating room conditions are not suitable and that PC should be performed if this treatment fails.[11]

The aim of this study was to present our PC experience during the pandemic and to compare the characteristics of patients treated with PC for AC before and during the Covid-19 pandemic.

MATERIALS AND METHODS

Data were retrieved from the medical records of patients who were admitted to our hospital's General Surgery department for AC and underwent PC in the Interventional Radiology unit from March 2019 to March 2021. First, the pandemic period for this study was defined as from March 11, 2020, when the first Covid-19 case was recorded in Türkiye, until March 2021. A total of 110 patients who were diagnosed with AC and underwent PC tube placement were included in the study as the pandemic group. Then, the last consecutive 99 patients who underwent PC before March 11 (from 11 March 2019 to 10 March 2020) were included as a control group.

The diagnosis of AC was made according to the Tokyo Guidelines, as the presence of one local sign or symptom, one systemic sign, and a confirmatory finding on an imaging test such as ultrasonography (US) or/and computed tomography (CT) (Table 1). The following data for each patient were determined from the hospital database: Sex, age, American Society of Anaesthesiologists physical status (ASA-PS), the severity grading for AC, charlson comorbidity index (CCI), concomitant diseases, duration of PC catheterization, PC-related complications, length of hospital stay, and mortality. The time from PC to surgery was recorded for patients who underwent cholecystectomy.

Table 1. Diagnostic criteria for acute cholecystitis, according to Tokyo guidelines*

Clinical manifestations
Local symptoms and signs
Murphy's sign
Pain or tenderness in the right upper quadrant
Mass in the right upper quadrant
Systemic signs
Fever
Leukocytosis
Elevated C-reactive protein level
Imaging findings
A confirmatory finding on ultrasonography or computed tomography
Diagnosis
The presence of one local sign or symptom, one systemic sign, and a confirmatory finding on an imaging test

*Data are from Takada et al.,[5] Hirota et al.[14] and Strasberg[2]

All patients who underwent PC for AC received medical treatment according to the Tokyo guidelines before the procedure, which included fasting, antimicrobial and analgesic agents, adequate infusion, and electrolyte correction.[12]

Indications for PC were defined as severe or moderate cholecystitis (grade II-III) resistant to medical treatment, in accordance with the Tokyo guidelines (Table 2).[4,13]

PC was performed under local anesthesia, using the Seldinger technique, under ultrasound guidance by interventional radiologists. If the patient was Covid-19-positive or had a suspected infection, everyone on the team involved in the procedure wore protective equipment. After the insertion of a guidewire and successive expansion of the tract, a 10-Fr pigtail catheter was inserted into the gallbladder. A transhepatic route was used in all patients to avoid bile leakage into the abdominal cavity. The contents of the gallbladder were aspirated and sent for bacteriological analysis. The catheter was left open, attached to a collection bag, flushed with saline solution twice daily, and drained by gravity. A cholangiography was performed 4 weeks after tube placement to evaluate whether the cystic duct was open and whether there was free passage into the duodenum. At that time, the catheter could be removed. If the cystic duct was found to be obstructed in the control cholangiography, the catheter was followed up open until cholecystectomy (Figure 1).

Patients were evaluated in respect of clinical findings and laboratory test results, such as C-reactive protein (CRP) and blood leukocytes.

The study was conducted in accordance with the Declaration of Helsinki and was approved by the Local Ethics Committee (Decision number: 2021-10-08). Informed consent was obtained from all patients.

Statistical Analysis

Data analyses were performed using IBM Statistics SPSS version 25 software (IBM Corp.; Armonk, NY, USA). Frequency tables, crosstabs, and box plots were used in the analysis of continuous variables, which were then reported as median and range values. All the patients in the study who underwent PC before and during the pandemic were compared in respect of age, severity grading for AC, and ASA grade. Variables not showing normal distribution were analyzed using the non-parametric tests of the Fisher exact test for categorical variables and the Wilcoxon test for numerical variables. A value of $P<0.05$ was considered statistically significant.

RESULTS

Between March 2019 and March 2021, 226 patients underwent PC for AC in our hospital. Of these, 17 patients were excluded because cholecystitis developed due to a previously placed PC catheter becoming dislodged, or endoscopic retrograde cholangiopancreatography was applied. The mean age was 68.43 years (range: 31–100 years) in the pre-pandemic group and 63.84 years (range: 21–97 years) in the pandemic group ($P=0.038$). A significant difference was found between the mean age of the patients who underwent PC for AC before and after the pandemic ($t=2.090$, $P<0.05$). The average

Table 2. Severity grading for acute Cholecystitis, according to Tokyo Guidelines*

Grade	Criteria
Mild (grade 1)	Acute cholecystitis that does not meet the criteria for a more severe grade Mild gallbladder inflammation, no organ dysfunction
Moderate (grade 2)	The presence of one or more of the following: Elevated white-cell count (>18,000 cells per cubic millimeter) Palpable, tender mass in the right upper quadrant Duration >72 hr Marked local inflammation including biliary peritonitis, pericholecystic abscess, hepatic abscess, gangrenous cholecystitis, emphysematous cholecystitis
Severe (grade 3)	The presence of one or more of the following: Cardiovascular dysfunction (hypotension requiring treatment with dopamine at ≥5 μg per kilogram of body weight per minute or any dose of dobutamine) Neurologic dysfunction (decreased level of consciousness) Respiratory dysfunction (ratio of partial pressure of arterial oxygen to the fraction of inspired oxygen <300) Renal dysfunction (oliguria; creatinine level, >2.0 mg/deciliter) Hepatic dysfunction (prothrombin time-international normalized ratio, >1.5) Hematologic dysfunction (platelet count, <100,000 per cubic millimeter)

*Data are from Hirota et al.[14]

Figure 1. (a) The cystic duct, common bile duct and the passage of the contrast material into the duodenum were normal in the cholangiography taken at the 4th week after PC. Since the patient had no complaints after 3 days of closed follow-up, the catheter was removed. (b) Contrast transition to the cystic duct was not observed in the cholangiography performed at the 4th week. There are filling defects compatible with multiple stones in the gallbladder. The patient was followed up with a catheter until the operation.

Table 3. Severity of disease, ASA score and CCI

	Prepandemic (n=99)	Pandemic (n=110)	χ^2/U	P-value
Severity				
Grade II	73 (73.7)	107 (97.3)	χ^2=24.152	0.001[1]
Grade III	26 (26.3)	3 (2.7)		
ASA-PS				
I-II	21 (21.2)	66 (60.0)	χ^2=32.262	0.001[1]
III-IV	78 (78.8)	44 (40.0)		
Pancreatitis	9 (11.0)	6 (5.5)		>0.05
Perforated GB	20 (20.2)	19 (17.3)		>0.05
CCI (mean rank)	med=4 (124.51)	med=3 (87.45)	U=3.514	0.001[2]

[1]Pearson Chi-square test; [2]Mann–Whitney U Test; ASA-PS: The American Society of Anesthesiologists physical status classification system; GB: Gallbladder; CCI: Charlson comorbidity ındex; med: Median.

age of the patients in the pandemic period was found to be lower. The calculated effect value (d=0.29) showed that the difference was moderate. According to this result, it can be stated that the average age for PC indication decreased during the pandemic period.

In the comparisons of gender distribution, no significant difference was observed between the pre-pandemic and pandemic periods. Male dominance was noted in both periods (pandemic: 55.5%, pre-pandemic: 54.5%).

According to the results of the Chi-square test performed to determine the relationship between the patient groups and the ASA-PS, a significant relationship was found between the ASA-PS of the patients who underwent PC procedure before and after the pandemic (χ^2=32.262, P=0.001). The Cremer's V test showed a moderate-level relationship between the two variables (r=0.393, P=0.001). Based on the frequency and percentage distribution, the ASA-PS of the majority of the patients who underwent PC in the pre-pandemic period was III or IV (78.8%), while this score was found to be I or II (60.0%) in the majority of the patients who underwent the procedure during the pandemic period (Table 3).

The distribution of comorbidities of the patients is summarized in Table 4. No comorbidity was determined in 45 (40.9%) patients who were admitted to the hospital due to AC and underwent PC during the pandemic period, and at least one comorbid disease was found in 77 (77.8%) patients who had a drainage catheter inserted into the gall-

Table 4. Demographic data of patients

	Pre-pandemic (n=99) n (%)	Pandemic (n=110) n (%)	X^2	P-value
Age (mean)	68.43	63.84		0.038[1]
Male	54 (54.5)	61 (55.5)		
Comorbidities				
No	22 (22.2)	45 (40.9)	8.354	0.004[2]
Yes (at least one)	77 (77.8)	65 (59.1)		
DM	29 (29.3)	30 (27.3)		
HT	45 (45.5)	43 (39.1)		
CAD	33 (33.3)	25 (22.7)		
CHF	9 (9.1)	6 (5.5)		
CVD	10 (10.1)	11 (10.0)		
COPD	3 (3.0)	12 (10.9)	4.855	0.028[2]
CRF	4 (4.0)	6 (5.5)		
Malignancy	6 (6.1)	9 (8.2)		

[1]Independent samples test; [2]Chi-square test; DM: Diabetes mellitus; HT: Hypertension; CAD: Coronary artery disease; CHF: Chronic heart failure; CRF: Chronic renal failure; CVD: Cerebrovascular disease; COPD: Chronic obstructive pulmonary disease.

Table 5. The onset of symptoms, length of hospital stay and laboratory values of the patients

	Pre-pandemic (n=99) mean (min-max)	Pandemic (n=110) mean (min-max)
Symptom duration (day)	4.30 (1–20)	4.03 (1–15)
Hospitalization (day)	5.10 (1–24)	5.76 (1–23)
PC to discharge (day)	3.34 (1–18)	3.85 (1–14)
Laboratory Pre		
WBC (10e3/uL)	16.19 (7.98–33.38)	16.30 (2.53–40.59)
CRP (mg/L)	203.60 (17–465)	220.89 (16-459)
Tot Bil (mg/dL)	1.56 (0.11–9.36)	1.46 (0.14–6.40)
Laboratory Post		
WBC (10e3/uL)	8.99 (2.10–19.71)	9.16 (3.82–37.11)
CRP (mg/L)	121.38 (4–391)	149.97 (3–392)
Tot Bil (mg/dL)	1.21 (0.11–19.10)	0.71 (0.10–5.13)

WBC: White blood cell; CRP: C-reactive protein; Tot Bil: Total bilirubin; PC: Percutaneous cholecystostomy.

bladder in the pre-pandemic period (χ^2=8.354, P=0.004). According to the result of Cremer's V test, the relationship between the two variables was at a moderate level (r=0.200, P=0.004).

The CCI estimates the 10-year mortality for a patient with a range of comorbid conditions. In this study, the CCI was calculated considering the comorbid characteristics of all patients. According to the Mann–Whitney U test results, the CCI was found to be significantly higher in patients in the pre-pandemic period (median=4) compared to those in the pandemic period (median=3) (U=3.514, P=0.001).

Severity grading for AC was determined according to the Tokyo Guidelines.[14] Of the patients with AC who underwent PC, grade III disease severity was determined in 26 (26.3%) patients during the pre-pandemic period, and in only 3 (2.7%) patients during the pandemic period (χ^2=24.152, P=0.001).

The time between the onset of symptoms and hospital admission was similar in both groups. No significant difference was determined between the two groups in terms of length of stay in hospital and time to discharge after the PC procedure (Table 5). In both patient groups, a significant difference was determined between the laboratory values (white blood

Table 6. Pre- and post-PC laboratory values in the pandemic and pre-pandemic period

	WBC (mean) (10e3/uL)	CRP (mean) (mg/L)	Neut (med) (10e3/uL)	Tot Bil (med) (mg/dL)
Pre-pandemic				
Pre PC	16.19	203.60	12,32	1,03
Post PC	8,99	121.38	6,14	0,63
t/Z	17.863	7.221	49.00	723,5
P	0.001[1]	0.001[1]	0.001[2]	0.001[2]
Pandemic				
Pre PC	16.30	220.89	13,64	1,04
Post PC	9,16	149.97	6,22	0,47
t/Z	17.948	7.912	12.00	233.00
P	0.001[1]	0.001[1]	0.001[2]	0.001[2]

[1]Paired-samples T-test; [2]Related-samples Wilcoxon Signed-Rank Test; WBC: White blood cell; CRP: C-reactive protein; Neut: Neutrophil; Tot Bil: Total bilirubin; med: Median; Pre PC: Before percutaneous cholecystostomy; post PC: After percutaneous cholecystostomy.

cell, CRP, neutrophil, and total bilirubin) before PC and the control laboratory values performed within 24–48 h after PC (Table 6). According to these results, the PC procedure was effective in reducing inflammatory values in both groups.

Of the patients in the pandemic group, 14 had a confirmed diagnosis of Covid-19 with a polymerase chain reaction (PCR) test. While the thorax CT findings of 9 of these patients were compatible with Covid-19, no CT findings were observed in 5 patients. Of the 14 Covid-19-positive patients, 5 were followed in the intensive care unit (ICU) after the procedure due to symptoms related to Covid-19. Of these 5 patients admitted to ICU, 3 died due to Covid-19-related organizing pneumonia and acute respiratory distress syndrome. ICU requirement due to PC was not observed in either group.

In patients who developed abscess due to perforated AC, if the abscess was large, a drainage catheter was placed in the fluid collection in addition to the PC. Perforated AC was observed in 20 patients in the pre-pandemic period, and additional drainage catheters were inserted in 12 (60%). In the pandemic group, fluid collection drainage was performed in 13 (68%) of 19 patients with perforated cholecystitis.

Catheter dislocation is one of the most frequently reported complications in the PC procedure, with a frequency of <10%.[15] In the current study, catheter dislocation occurred in 9 (8.1%) patients during the pandemic period and in 11 (11.1%) patients during the pre-pandemic period, and all the catheters were changed successfully. Other complications such as bleeding, biliary peritonitis, pneumothorax, secondary infection, and sepsis were reported at low rates.[16]

Cholangiography was performed on patients who underwent PC at approximately 4 weeks after the procedure. In cholangiography, if the transition of the contrast material into the common bile duct and duodenum was normal, then the catheter was closed and monitored for another 2–3 days. Drainage catheters of patients without clinical symptoms were removed. If the patient complained of abdominal pain, etc., in closed follow-up, or if the passage of contrast material into the common bile duct and duodenum was not observed on cholangiography, the patients were followed up with a catheter, which was changed at 3–6-month intervals. The follow-up period of patients with a catheter was 79 days on average in the pre-pandemic period, which was significantly longer than the 61 days recorded in the pandemic period. Surgery was applied to 38.4% of the patients in the pre-pandemic period, with the time from PC procedure to operation found to be 168 days. These values were 36.4% and 175 days, respectively, during the pandemic, with no significant difference determined between the two groups.

DISCUSSION

The aim of this study was to compare the characteristics of patients who underwent PC for AC during the Covid-19 pandemic with patients in the pre-pandemic period. The results showed that PC was performed on more patients during the pandemic compared to the previous similar period, thereby providing an idea about the course of the event. Especially in the early days of the pandemic, it was not known whether a surgeon would be exposed to aerosolized viral particles by laparoscopy. A paper published to protect surgical teams during the Covid-19 pandemic reported that the virus had been found in gastrointestinal tissues, peritoneal fluid, and tracheal aspirate. Although it is unclear whether the surgical team would be exposed to aerosolized viral particles during

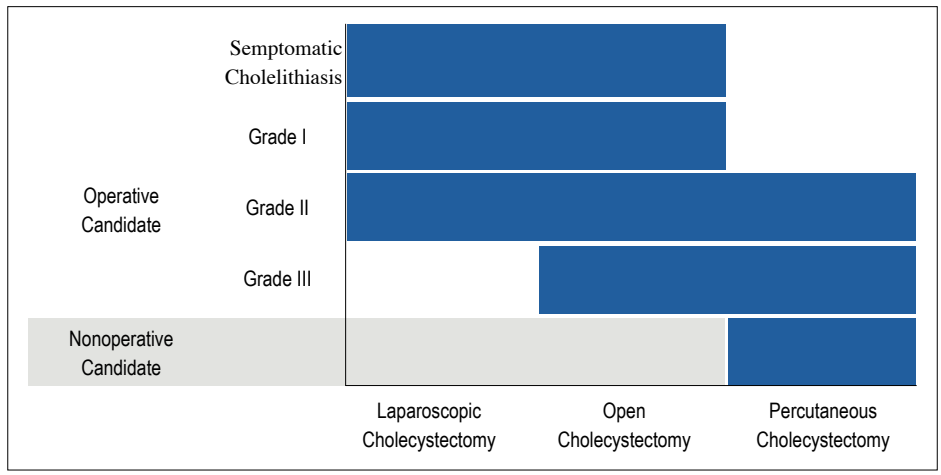

Figure 2. Procedures for the Treatment of Symptomatic Gallbladder Disease, Stratified According to Patient Operative Status and Disease Severity. Baron et al.[6]

laparoscopy, high-velocity surgical equipment such as carbon dioxide insufflation devices and energy devices are known to generate significant aerosols.[17,18] The Covid-19 pandemic has led to significant restrictions in surgical procedures and hospital capacity worldwide. The fact that some of our hospital's operating rooms simultaneously served Covid-19 patients, there were more urgent patients who needed surgery, and the fact that AC can be temporarily treated with PC caused the expansion of PC indications during the pandemic. In response to these challenges, minimally invasive surgical techniques such as PC have been increased.

In a study conducted by Wuhan University, it was reported that of 34 patients who were operated on for different reasons during the Covid-19 incubation period, 44.1% needed intensive care after surgery, and the death rate reached 20.5%.[19]

In the international study of the COVID-Surg Collaborative group, it was stated that 26.1% of 1128 patients who underwent surgery during the Covid-19 pandemic developed Covid-19 infection. It was reported that pulmonary complications developed in approximately half of these patients (51.2%), and 23.8% died. Therefore, postponing non-emergency surgeries should be considered, and it was recommended to encourage non-surgical treatment to delay or prevent the need for surgery.[20]

Approximately 60% of patients with AC are female. However, AC develops more frequently in males than would be expected from the relative prevalence of gallstones,[21] and cholecystitis tends to be more severe in males.[22] In the current study, the majority of patients with AC who were surgically high-risk and for whom PC was indicated in both groups were male.

PC performed under local anesthesia with US guidance is generally used in patients who are poor candidates for surgery. PC has high technical success and a low complication rate, and usually results in the resolution of AC.[3] This method is less invasive, carries less risk than surgical procedures, shortens hospital stay and recovery time, and increases patient satisfaction. Therefore, it seems understandable that during the intense period of the Covid-19 pandemic, PC was preferred over LC in patients with AC, even if the severity of the disease was moderate and the patient was a suitable candidate for surgery. The benefits of PC include shorter hospital stays, faster recovery times, and fewer complications compared to traditional surgery. In addition, PC can be performed on an outpatient basis, reducing the risk of exposure to Covid-19 in a hospital setting.

The Tokyo guideline provides recommendations for disease management, depending on the severity of AC (Figure 2).[4] Early LC is recommended for mild (grade I) AC. For moderate (grade II) AC, the guidelines state that early or delayed cholecystectomy may be selected. In a small minority of patients with severe (grade III) AC, initial conservative treatment with antibiotics is recommended, with the use of PC as needed. As mentioned above, due to reasons such as the inherent risks of laparoscopic surgery during the pandemic period and the prolongation of the hospital stay of the patients who underwent late cholecystectomy, PC can contribute to the management of the disease by accelerating the treatment process in the acute period in patients with high-risk and severe AC, and for those with moderate AC. In the current study, severe AC was detected in very few (2.7%) of the patients who underwent PC during the pandemic, while this rate was 26.3% in the pre-pandemic period, which supports this hypothesis. Similarly, it should come as no surprise that the CCI, which predicts 10-year mortality for a patient with a range of comorbid conditions, was higher in AC patients treated during the pre-pandemic period (Table 3 and 4).

The purpose of the ASA Physical Status Classification System is to assess and communicate a patient's pre-anesthesia medi-

cal comorbidities.[23] Therefore, in patients with AC with a high ASA score, the rate of preference for PC instead of LC is increasing.[24] In the current study, the majority of the patients were found to be ASA Class III-IV in the pre-pandemic period (78.8% vs. 40%), and the preference for PC in patients with lower ASA Class during the pandemic can be attributed to the specific conditions of the pandemic, as previously mentioned. Similarly, while at least one comorbid condition accompanying AC was observed in 77 (77.8%) patients in the pre-pandemic period, the absence of any comorbidity in 45 (40.9%) patients during the pandemic was consistent with the previously mentioned findings.

If patients had a positive PCR test or suspected Covid-19 on thorax CT, the PC procedures were performed considering the guidelines created for the prevention of Covid-19 for IR (Interventional Radiology) units.[25] Before the patient entered the IR room, proper coordination was established between the staff in the isolation room and the IR in charge so that there were no patients or relatives in the adjacent hallways. The corridor was evacuated to prevent cross-transmission. The PC procedure was then carried out as usual, with all the involved team members wearing appropriate personal protective equipment (PPE) and paying special attention not to leave the room unless necessary. After the patient left the IR room, PPE was removed from the designated areas and disposed of appropriately. Cleaning was done after the procedure and the cleaning staff wore a full PPE kit. The room was then ventilated for 30–60 min.

In both groups of the current study, the time from PC to discharge and the length of hospital stay were similar to the rates reported in literature, and no significant difference was found between the groups. In both groups, the clinical recovery time after PC was also similar to the literature.[26,27]

As this was a retrospective cohort study, there could have been some bias in the selection of patients. Approximately 35% of the patients were lost to follow-up in long-term follow-up, and recurrence or operation history after lost-to follow-up could not be known for sure. The absence of a group managed with LC for comparison was another limitation of the study.

CONCLUSION

PC is a highly effective, minimally invasive interventional radiological procedure that is a bridging therapy for surgery, which can be preferred in patients with AC in elderly patients at high risk for surgery as well as in younger patients with relatively low comorbidity. During the Covid-19 pandemic, the increased use of minimally invasive techniques such as PC has become a valuable solution to the limitations in health-care services. However, patient selection and appropriate follow-up care are crucial to ensure successful outcomes.

Ethics Committee Approval: This study was approved by the University of Health Sciences Bakirkoy Dr. Sadi Konuk Training and Research Hospital Research Ethics Committee (Date: 17.05.2021, Decision No: 2021-10-08).

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ORİJİNAL ÇALIŞMA - *ÖZ*

Akut kolesistit tedavisinde perkütan kolesistostomi – COVID 19 pandemisi öncesi ve sonrasının karşılaştırmalı analizi

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AMAÇ: Perkütan Kolesistostomi (PK), cerrahi açıdan yüksek risk taşıyan akut kolesistit (AK) hastaları için minimal invaziv bir tedavi yöntemidir. Bu çalışmanın amacı, COVID 19 pandemisi öncesi ve sırasında PK ile tedavi edilen akut kolesistitli hastaların özelliklerini karşılaştırmaktır.
GEREÇ VE YÖNTEM: 2019-2021 yılları arasında akut kolesistit (AK) tanısı ile PK uygulanan hastaların verileri hastane kayıt sistemi taranarak analiz edildi. 11 Mart 2020 - 11 Mart 2021 arasındaki COVID 19 pandemi döneminde akut kolesistitli toplam 110 hasta PK ile tedavi edildi. Mart 2019-Mart 2020 arasındaki pandemi öncesi dönemde PK uygulanan 99 hasta kontrol grubu olarak çalışmaya eklendi. Çalışmaya dahil edilen 209 hastanın verileri kaydedildi ve tanımlayıcı istatistiksel analiz yapıldı. İki grubun hasta özellikleri karşılaştırıldı.
BULGULAR: Mart 2019-Mart 2021 tarihleri arasında AK tanısı konulan ve cerrahi açıdan yüksek risk taşıması nedeniyle ameliyat edilemeyen 209 hastanın değerlendirilmesi yapıldı. Hastaların yaş ortalaması pandemi döneminde 63.84 (21-97), pandemi öncesi dönemde 68.43 (31-100) olarak bulundu. Pandemi grubunda kadın hasta oranı %45.5, pandemi öncesi grupta %44.5'ti. Ortalama işlem-taburculuk süresi pandemi döneminde 3.85 gün, pandemi öncesi 3.34 gün saptandı. American Society of Anesthesiologists fiziksel durum sınıflaması (ASA-PS) pandemi grubu hastaların %56.4'ünde 1 veya 2, pandemi öncesi grubun %78.8'inde 3 veya 4 olarak belirlendi. Pandemi döneminde 45 (%40,9) hastada AK'ye eşlik eden komorbidite yoktu, pandemi öncesi dönemde 77 (%77.8) hastada AK'ye eşlik eden en az bir komorbid durum saptandı. Akut kolesistit için şiddet derecesi, pandemik gruptaki hastaların %97.3'ünde 2 (orta) ve pandemi öncesi gruptaki hastaların %26.3'ünde 3 (ağır) olarak saptandı. Pandemi dönemindeki 110 hastadan 14'ü COVID 19 pozitif veya şüpheliydi. Her iki grupta da PC ile ilişkili mortalite gözlenmedi. Pandemi döneminde PK yapılan 40 hastaya, pandemi öncesi dönemde ise 38 hastaya cerrahi uygulandı.
SONUÇ: Perkütan kolesistostomi, COVID 19 pandemisinin alevlendiği dönemde ameliyathane ve yoğun bakım yükünü azaltan etkili ve güvenli bir tedavi yöntemidir. Bu nedenle COVID 19 hasta sayısının arttığı dönemlerde PC endikasyonlarını genişletmek mantıklı bir seçenek gibi görünüyor.
Anahtar sözcükler: Perkütan kolesistostomi; akut Kolesistit; COVID 19.

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