

## Conservative Treatment of Acute Cholecystitis with Percutaneous Cholecystostomy and Antibiotics: Retrospective Review of Outcomes

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### ABSTRACT

**Objective:** To review the outcome of patients treated by percutaneous cholecystostomy and antibiotics alone for acute cholecystitis without resorting to elective cholecystectomy.

**Methods:** Data on patients who underwent percutaneous cholecystostomy in our department between March 2008 and June 2009 were retrieved from the radiology information system and logbook of the interventional radiology suite. Using the electronic patient record, their clinical records were also reviewed retrospectively in early July 2010.

**Results:** A total of 31 patients underwent percutaneous cholecystostomy for acute cholecystitis during the study period, of whom 16 patients were treated non-surgically (by percutaneous cholecystostomy and antibiotics only). Among these, 11 (69%) were free from recurrent acute cholecystitis; five (31%) had recurrent acute cholecystitis; 11 (69%) had experienced catheter dislodgement; seven (44%) had undergone revision or reinsertion of their cholecystostomy for recurrent acute cholecystitis or catheter dislodgement. For carrying the cholecystostomy catheter, the median duration was 92 days. At the time of review, only two (13%) of the patients still had their cholecystostomy catheters in situ, whilst four had died. None of the deaths were related to acute cholecystitis or choledocholithiasis.

**Conclusion:** The majority of our patients with acute cholecystitis responded to the treatment of percutaneous cholecystostomy and antibiotics. Elective cholecystectomy was considered to be the preferable and definitive option if the patient's condition allowed such surgery and was desired by the patient. Nevertheless, the outcome of patients not having elective cholecystectomy after percutaneous cholecystostomy was quite favourable and entailed no mortality related to cholecystitis or choledocholithiasis.

**Key Words:** Cholecystectomy; Cholecystitis; Cholecystostomy; Postoperative complications; Treatment outcome

### 中文摘要

#### 經皮膽囊穿刺造瘻術及抗生素療法保守治療急性膽囊炎：治療結果回顧

陳嘉智、李醒芬、陳澤宗

**目的：**回顧急性膽囊炎患者在未有進行開腹膽囊切除術的情況下，單用經皮膽囊穿刺造瘻術及抗生素治療的結果。

**方法：**從放射學資訊系統及介入放射治療室的紀錄中，找出2008年3月至2009年6月期間於本部門進行經皮膽囊穿刺造瘻術的病人。並於2010年7月再透過電子病歷紀錄，回顧這些病人的臨床結果。

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**結果：**研究期間共31名急性膽囊炎患者接受經皮膽囊穿刺造瘻術，其中16人只接受經皮膽囊穿刺造瘻術及抗生素療法，沒有進行開腹手術。16人中，11人（69%）的急性膽囊炎未有復發，其餘5人（31%）出現復發；11人（69%）出現導管移位；7人（44%）因急性膽囊炎復發或導管移位而須再次接受經皮膽囊穿刺造瘻術或重新置入導管。膽囊導管在患者體內逗留的時間的中位數為92天。回顧患者的臨床結果時，只有兩人（13%）仍然保留膽囊導管；另4人死亡，死亡原因均與急性膽囊炎或膽結石無關。

**結論：**經皮膽囊穿刺造瘻術及抗生素治療對大部份急性膽囊炎患者有療效。如果患者病情允許而又得到病人的同意，開腹膽囊切除術應該是一個可取的方法。雖然如此，急性膽囊炎患者如果沒有接受開腹膽囊切除術的話，經皮膽囊穿刺造瘻術亦是一種對病人有利的治療方法。此療法並沒有與膽囊炎或膽結石有關的死亡病例。

## INTRODUCTION

The life expectancy of Hong Kong inhabitants has been increasing due to various factors including: improvements in medical technology, access to the healthcare system, and socioeconomic factors. The frequency of medical co-morbidity has been increasing as people get older and the risks from undergoing surgery also increase. General surgeons tend to be cautious when considering surgery for such elderly patients, many of whom are also not at all disposed to undergo operations for a variety of reasons. Acute cholecystitis is one such condition, for which not all patients are fit for surgery at the presentation owing to their medical co-morbidity. In this group of patients, percutaneous cholecystostomy plays an important part in the management of the septic episode.<sup>1,2</sup> Some of them can be optimised later by an elective operation, while others may remain unfit for surgery for the rest of their lives.<sup>3</sup> Nevertheless, a minority of patients may not show sufficient improvement after percutaneous cholecystostomy and emergency surgery may be deemed necessary. Patients who are treated by percutaneous cholecystostomy and antibiotics alone (without a definite cholecystectomy) face a variety of possible problems. These problems include disease recurrence which may require revision or reinsertion of cholecystostomy catheter, and the need to live with the cholecystostomy catheter and bag. The purpose of this study was to evaluate outcomes in patients treated by percutaneous cholecystostomy and antibiotics alone for acute cholecystitis without undergoing a subsequent elective cholecystectomy.

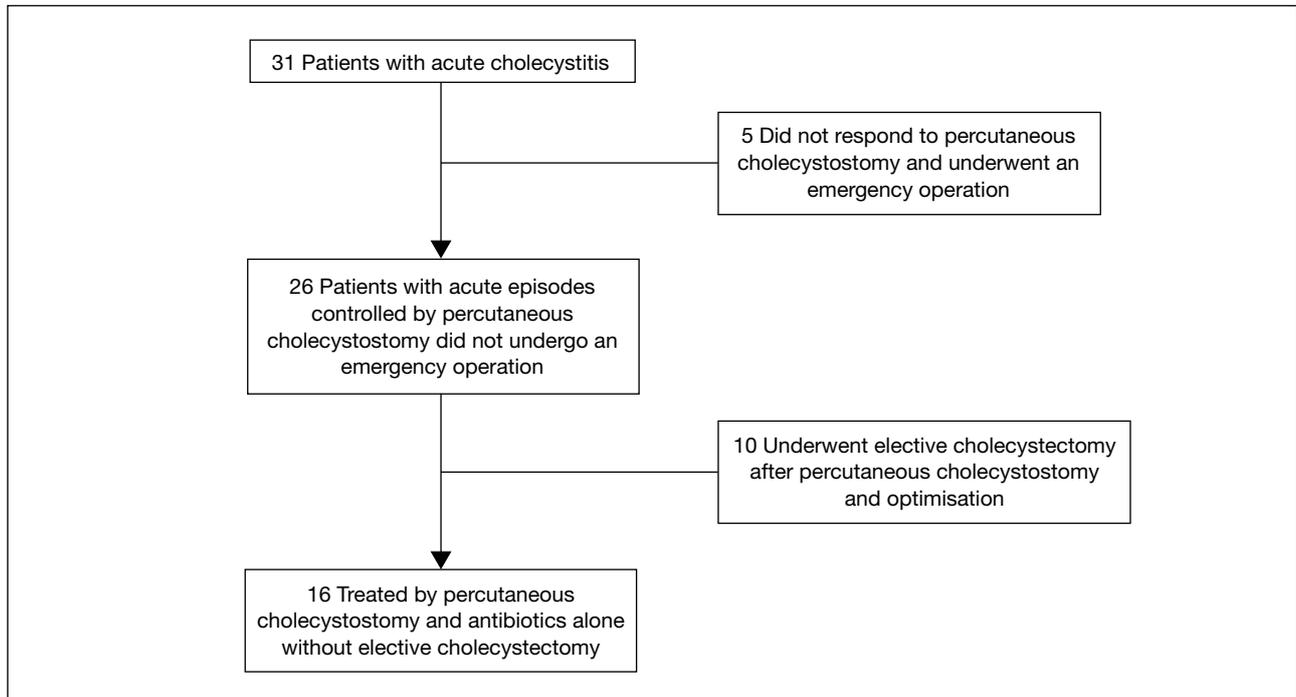
## METHODS

We retrieved data about relevant patients from the radiology information system and logbook of our

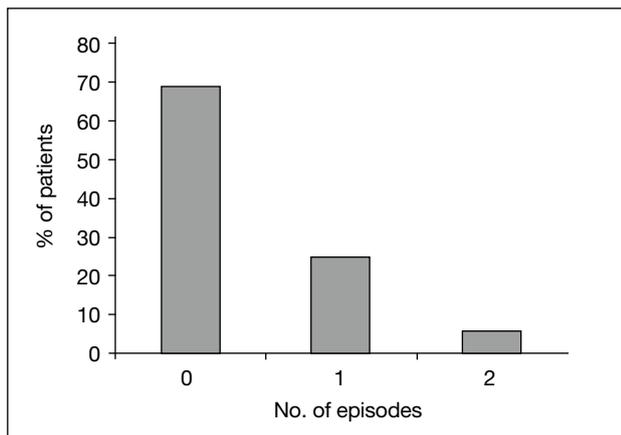
interventional radiology suite. Patients who underwent percutaneous cholecystostomy for the first time from March 2008 to June 2009 were evaluated. Their clinical records were reviewed retrospectively in early July 2010 via the electronic patient record. Outcomes of patients who did not undergo cholecystectomy were analysed.

## RESULTS

In all, 31 patients underwent percutaneous cholecystostomy for acute cholecystitis during this study period. Ten patients who underwent elective cholecystectomy and five (all of whom had gallstones) who underwent emergency surgery were all excluded from our study. The remaining 16 patients did not undergo cholecystectomy (Figure 1). The patients' ages ranged from 38 to 101 years, and the mean age was 81 years; seven were men and nine were women. All the patients had acute cholecystitis, 14 with calculi and two without. The interval between the first percutaneous cholecystostomy and date of review or death ranged from 27 to 852 days (mean interval, 556 days). Regarding these patients, 11 (69%) were free from recurrent acute cholecystitis and their disease-free periods ranged from 27 to 806 days (mean, 527 days). The remaining five (31%) of the 16 patients developed recurrent acute cholecystitis; one experienced more than one episode of recurrence (Figure 2). Recurrent acute cholecystitis was treated by reinsertion or revision of a percutaneous cholecystostomy catheter in three patients, while two were treated with antibiotics alone. In these five patients, the interval between the first percutaneous cholecystostomy and first recurrence of acute cholecystitis ranged from 84 to 440 days (mean interval, 307 days). In all, nine (56%) of these 16 patients underwent percutaneous cholecystostomy



**Figure 1.** Treatment for patients suffering from acute cholecystitis.



**Figure 2.** Number of episodes of recurrent acute cholecystitis after percutaneous cholecystostomy.

only once and did not have any further revision or reinsertion of a cholecystostomy catheter. By contrast, seven patients underwent such revisions / reinsertions (three for recurrent acute cholecystitis and four for catheter dislodgement). Most of whom only had one revision or reinsertion was performed (Table). Only two (13%) living patients still had cholecystostomy catheters in situ at the time of review. For carrying the percutaneous cholecystostomy catheter, the median and mean durations were 92 and 180 days, respectively. In all, four of these 16 patients had died at the time of the

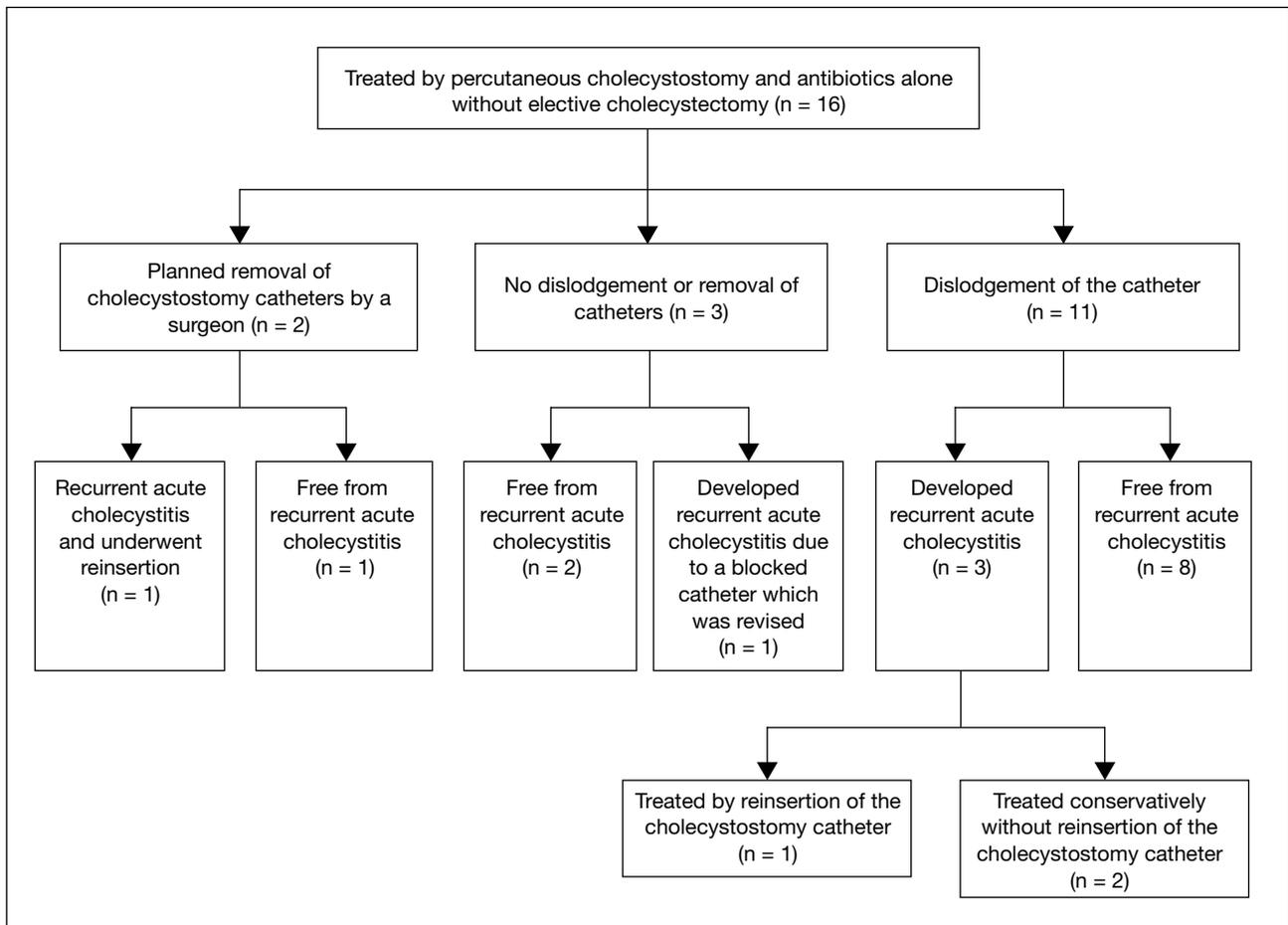
**Table.** Number of episodes of cholecystostomy catheter reinsertion or revision.

No. of reinsertions / revisions	No. of patients
Zero	9
One	4
Two	1
Three	1
Five	1

review, two from pneumonia; none of the deaths were related to acute cholecystitis or choledocholithiasis. In these four patients, the interval between the percutaneous cholecystostomy and death ranged from 27 to 759 days (mean, 290 days).

## DISCUSSION

Percutaneous cholecystostomy is an established treatment modality for acute cholecystitis in patients who are not fit for surgery. In most patients, the acute episodes can be controlled by percutaneous cholecystostomy, but some can be optimised by having a subsequent elective cholecystectomy, which is the definite and preferable treatment.<sup>4</sup> However, for patients who remain unfit for surgery or refuse to undergo the operation, there is no clear consensus about the role of percutaneous cholecystostomy after the acute episode has subsided.<sup>2</sup>



**Figure 3.** Outcomes of conservative treatment of acute cholecystitis with cholecystostomy and antibiotics.

Patients who recover from acute cholecystitis without undergoing definitive elective cholecystectomy are at risk of recurrent cholecystitis.<sup>4</sup> If not removed, having to take care of the cholecystostomy catheters and the drainage bags also diminishes quality of life. In our study, our general surgery colleagues withdrew the cholecystostomy catheters from two patients after due discussion. These two patients had undergone prior elective cholecystography to confirm cystic duct patency. One of them experienced a recurrent episode of acute cholecystitis, which was treated by reinsertion of cholecystostomy catheter, while the other remained symptom free. Of the 11 patients who experienced dislodgement of cholecystostomy catheter, nine were discovered clinically and two when they had elective cholecystography. Among these patients, three experienced recurrent acute cholecystitis but only one had the cholecystostomy catheter reinserted while the other two were treated conservatively with antibiotics. Regarding the three patients whose cholecystostomy catheters were not withdrawn by surgeons or dislodged,

one developed recurrent acute cholecystitis due to a blocked catheter for which catheter revision was performed, while the catheters remained in-situ in two of them till death, without development of recurrent acute cholecystitis (Figure 3).

Patients suffering from acute cholecystitis treated conservatively by cholecystostomy and antibiotics can have the further treatment option of cholecystolithotomy. The rate of gallstone recurrence after cholecystolithotomy was reported to be 10% within one year, 19% within two years and up to 41% within 10 years.<sup>5</sup> However, not all such patients developing recurrent gallstones after cholecystolithotomy are symptomatic; as many as 52 to 77% have no symptoms.<sup>5-7</sup> Although none of the patients in our study underwent cholecystolithotomy after cholecystostomy, such treatment could have improved their quality of life.

In our study, most of the patients were eventually get rid of their cholecystostomy catheters (due to

inadvertent dislodgement or planned withdrawal by surgeons) and no longer needed to take care of the cholecystostomy catheters and drainage bags, which improved their quality of life considerably. The median duration of cholecystostomy catheter carriage was considered reasonable, taking into consideration of the relative old age of our patients. Moreover, the majority of our patients did not experience a recurrence of acute cholecystitis during the study period. None of our patients treated by percutaneous cholecystostomy without undergoing a cholecystectomy died as a result of acute cholecystitis or choledocholithiasis-related conditions.

## CONCLUSION

Although cholecystectomy is the standard treatment for acute cholecystitis, our study shows that for the non-surgical candidates, treatment with percutaneous cholecystostomy and antibiotics alone offers a reasonable alternative with acceptable outcomes.

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