

ORIGINAL ARTICLES

A Survey of Current Surgical Treatment of Acute Gallstone Disease in the West of Scotland

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Abstract

Background

National guidelines exist for the treatment of acute gallstone pancreatitis, but not for the management of acute cholecystitis (AC).

Aims

To establish the preferred management of uncomplicated AC and adherence to guidelines for the management of mild gallstone pancreatitis in the west of Scotland.

Methods

A postal survey of all 100 consultant general surgeons in the west of Scotland.

Results

67 of 71 responses received were suitable for analysis. For uncomplicated AC, 24 (36%) perform urgent laparoscopic cholecystectomy (LC), 16 (24%) perform same admission LC after clinical improvement. 23 (34%) perform interval LC after discharge. Within this group, 9 surgeons (13%) manage AC conservatively due to insufficient operating time or equipment when on call.

In mild gallstone pancreatitis, 33 (49%) perform same admission LC, 13 (19%) perform sphincterotomy, 3 (4.5%) perform one of these depending on the patient and 6 (9.5%) refer to a colleague with an interest in upper gastrointestinal surgery.

Conclusions

The majority of surgeons (over 60%) manage AC with same admission LC. Of those who do not, more than a third report lack of resources as being the reason.

The majority of surgeons in the West of Scotland manage mild gallstone pancreatitis in accordance with current guidelines.

As experience and skill with laparoscopic surgery increase, and new evidence emerges supporting the safety and cost-effectiveness of this procedure, more surgeons are now undertaking laparoscopic cholecystectomy in the acute setting.

This survey was undertaken to evaluate current practice in the West of Scotland. All consultant general surgeons currently working in this area were asked their preferred management of acute gallstone cholecystitis. In addition, opinion was sought on preferred management of acute gallstone pancreatitis in an attempt to establish how this is dealt with as compared with current guidelines.³

Methods

One hundred and fourteen consultant surgeons from all 18 hospitals in the West of Scotland were initially identified from the West of Scotland Surgical Society mailing list. These 18 hospitals include 4 large teaching hospitals and 14 district general hospitals. Additional telephoning of all the hospitals involved was undertaken to ensure completeness of the list, and this identified a further two consultant breast surgeons recently appointed and therefore not included on the initial list. This final list was checked by the authors. Eight vascular surgeons who were known not to participate in any general surgical on call rota and eight paediatric surgeons were excluded. This generated a final list of 100 consultant surgeons who were asked to participate in the survey.

A letter was sent to all 100 consultant surgeons in December 2005 requesting their participation. It was stressed in the letter that all replies would be anonymous. A stamped addressed envelope was included to facilitate response. Included was a questionnaire consisting of nine questions. Three questions dealt with demographics, three with management of acute cholecystitis and three with acute gallstone pancreatitis. The questionnaire is reproduced in full in appendix 1. All replies were received by the end of January 2006.

Results

Responses were received from 71 surgeons, a response rate of 71%. Four reported that they did not undertake general surgical receiving, and were excluded from further analysis, leaving 67 questionnaires for analysis.

Management preferences: urgent v. same admission v. interval

Twenty four surgeons (36%) perform urgent laparoscopic cholecystectomy in patients presenting with uncomplicated acute cholecystitis. However, one of these surgeons reported that this was not always possible due to lack of theatre space.

Introduction

Gallstones affect one in ten of the United Kingdom's population. Acute cholecystitis and acute pancreatitis are two potentially life-threatening complications of gallstone disease. These two conditions accounted for 5630 admissions to general surgical units in Scotland in 2005. Guidelines exist for the management of acute gallstone pancreatitis, but no guidelines as yet exist for the treatment of acute cholecystitis. Consequently, the management of acute cholecystitis is subject to variation.

The acutely inflamed gallbladder has previously been considered a contraindication to laparoscopic cholecystectomy.^{1,2}

Sixteen (24%) surgeons answered that they would perform same admission laparoscopic cholecystectomy following clinical improvement. Twenty three surgeons (34%) answered their preferred management was an interval procedure following discharge.

Four (6%) surgeons did not select one of the options given. One answered both immediate and same admission laparoscopic procedures, depending on the patient and another selected both immediate and interval procedures. One surgeon reported that open cholecystectomy as an emergency was their management as there was no laparoscopic equipment available in that hospital, and one surgeon answered that none of the options we gave matched their preferred management.

Factors influencing management: regular elective laparoscopic work

Of the 67 questionnaires analysed, 55 (82%) undertake regular elective laparoscopic work, 11 (16%) do not. One did not answer the question.

Of the 55 undertaking regular laparoscopic work, 22 (40%) would carry out urgent laparoscopic cholecystectomy, 15 (27%) would undertake same admission procedure following clinical improvement and 17 (31%) would undertake interval procedure following discharge. Two answered a combination, as described above.

Of the 11 not undertaking regular laparoscopic work, 2 (18%) would carry out urgent laparoscopic cholecystectomy, 1 (9%) would undertake same admission procedure following clinical improvement and 6 (55%) would undertake interval procedure. One answered none of our options and one undertook urgent open surgery, as described above.

Factors influencing management: specialty interest

The responses to the question regarding preferred management are shown by specialist interest in table I.

One surgeon expressed no specialist interest and is not included in the table. There were four surgeons (described above) who did not select one of our three management options and these have been excluded.

Factors influencing management: length of time as a consultant

The responses to the question regarding preferred management are shown by length of time as a consultant in table II.

The four surgeons described above who did not select one of our three options have again been excluded. All four have greater than ten years experience as consultants.

Table I: Preferred management of uncomplicated acute calculous cholecystitis arranged by specialty. Percentages are of the total for that specialty.

Specialty	Urgent lap. cholecystectomy	Delayed (same admission) lap. cholecystectomy	Interval lap. cholecystectomy	Total
General surgery	2 (33%)	1 (17%)	3 (50%)	6
Upper GI	8 (53%)	4 (27%)	3 (20%)	15
Colorectal	6 (26%)	6 (26%)	11 (48%)	23
Breast	4 (33%)	3 (25%)	5 (42%)	12
Vascular	4 (67%)	2 (33%)	0	6

Table II: Preferred management of uncomplicated acute calculous cholecystitis arranged by length of time as a consultant. Percentages are of the total for that length of time.

Length of time as a consultant	Urgent lap. cholecystectomy	Delayed (same admission) lap. cholecystectomy	Interval lap. cholecystectomy	Total
<2 years	3 (43%)	0	4 (57%)	7
2-5 years	4 (44%)	2 (23%)	3 (33%)	9
5-10 years	7 (50%)	2 (14%)	5 (36%)	14
>10 years	10 (30%)	12 (39%)	11 (31%)	33

Managing failed conservative treatment

Twenty three surgeons answered that they would adopt a conservative management policy followed by interval laparoscopic cholecystectomy. If conservative management failed, 15 (65%) would personally undertake immediate emergency laparoscopic cholecystectomy and five (22%) would refer to a colleague with an interest in upper GI surgery. Of the remaining three surgeons, one reported that they would proceed to open cholecystectomy, one said their management would be dependent on the experience of their Specialty Registrar and one did not answer the question.

Reasons for preference of conservative management

The 23 surgeons who answered that they would adopt a conservative management policy were asked to select their reason for adopting this approach. Five (22%) reported that they considered interval procedure to be safer, two (9%) reported that they had sufficient elective operating time to offer an interval procedure soon after discharge and nine (39%) surgeons reported that inadequate emergency operating time or equipment was the main reason for this management policy. Seven (30%) did not answer this question.

Changes in practice

Of the 67 questionnaires analysed, only one did not provide an answer to the question regarding changes in practice. Eighteen surgeons (27%) reported that they had changed their preferred management strategy in the past five years. Of these 18, eight report that they now perform urgent cholecystectomy, seven that they perform same admission laparoscopic cholecystectomy after allowing the patient to settle and one selecting both of these options. Interestingly, two report that they now adopt a conservative approach. The remaining 48 surgeons (72%) have not changed their management in the last five years.

Management of gallstone pancreatitis

When asked their management of a patient with gallstone pancreatitis, 33 of the 67 surgeons (49%) said they perform same admission cholecystectomy. Three (4.5%) reported that they would perform either cholecystectomy or endoscopic retrograde cholangiopancreatography (ERCP) with sphincterotomy. Thirteen (19%) would perform ERCP with sphincterotomy as first line. Six (9.5%) would refer such patients to an upper GI colleague for further management.

Three (5%) stated that they would carry out ERCP and base their decision for further management on this. Nine (13%) would carry out no intervention during the initial admission.

The 25 surgeons who would not perform same admission cholecystectomy were asked their preferred timing for interval procedure. One surgeon (4%) performs interval cholecystectomy within two weeks, six (24%) within two to six weeks, 13 (52%) within six weeks to three months and one (4%) after three months. Three were unable to provide a figure, stating that it depended on their waiting list. One surgeon would refer to an upper GI colleague for further management.

Discussion

A 71% response rate by surgeons in the West of Scotland is excellent and much higher than has been observed in previous surveys. Previous studies conducted in the UK and New South Wales, Australia have received response rates of 54% and 57% respectively^{4,5} although a recent study from Queensland

achieved an excellent 92.7% response.⁶ Like the Queensland study, we feel this high response rate makes our results highly relevant and an accurate reflection of surgical practice in the West of Scotland and highlights the strong interest among surgeons in the West of Scotland in current surgical practice.

Management of acute calculous cholecystitis: same admission v. delayed

When to perform laparoscopic cholecystectomy for acute cholecystitis is an area of controversy. Urgent open cholecystectomy for the treatment of acute cholecystitis was widely accepted in the pre laparoscopic era.^{7,8} Since the introduction of laparoscopic surgery, acute cholecystitis has been considered by many a contraindication to laparoscopic surgery.^{1,2} Early studies reported high rates of conversion to open procedure⁹ and increased likelihood of bile duct injury.¹⁰ More recent studies now report that urgent laparoscopic cholecystectomy is as safe, more cost effective and subject to no more complications than conservative management followed by an interval procedure.^{11,12,13,14,15,16} To date, there are no guidelines on the optimal timing of laparoscopic cholecystectomy after acute cholecystitis.

Same admission laparoscopic cholecystectomy prevents further admissions with acute cholecystitis while waiting for definitive surgery. The timing of urgent laparoscopic cholecystectomy is still a matter for debate. There is a window of opportunity to operate early in the inflammatory process when planes of dissection are easily delineated, facilitating laparoscopic cholecystectomy. Some have suggested that this is within 72 hours of admission or seven days of onset of symptoms.^{17,18} A delay longer than this can lead to a more technically challenging procedure with increased risk of conversion to an open cholecystectomy. Others have suggested that same admission procedure can be carried out safely at any time during the index admission.¹⁹

In this study, the majority of surgeons perform same admission laparoscopic cholecystectomy for uncomplicated acute cholecystitis. Sixty one per cent of the surgeons report that they will perform same admission laparoscopic cholecystectomy, either urgently or following clinical improvement. Thirty four percent prefer an interval cholecystectomy following discharge.

In a recent study from Queensland, Australia, 52.3% of surgeons performed same admission laparoscopic cholecystectomy for acute cholecystitis and 28% performed an interval cholecystectomy after discharge.⁶ Both the current study and the Queensland figures are in contrast to two UK reports published in 2003 and 2004.^{4,20} In the 2003 study, 20% of surgeons performed same admission laparoscopic cholecystectomy in acute cholecystitis, and in the 2004 study, only 11% did so. Ours is the first study to our knowledge in the UK to report such a high use of same admission laparoscopic cholecystectomy for acute cholecystitis.

It may be that the difference between our results and these other UK studies is as a result of changing practice since they were published. Certainly, there has been a recent change in practice in the west of Scotland towards same admission cholecystectomy. Eighteen of our surgeons (27% of the total) have changed their practice in the past five years and of these, 16 now perform same admission cholecystectomy. However, 72% of our surveyed group continue to practice as they did five years ago.

The majority of surgeons in our survey were experienced in laparoscopic surgery.

Eighty two per cent stated that they regularly undertake elective laparoscopic work. Our results suggest that undertaking regular laparoscopic work is associated with an increased use of same admission laparoscopic cholecystectomy. Having a specialist interest in upper GI surgery was also associated with an increased use of same admission laparoscopic cholecystectomy. These findings are in keeping with other UK studies.⁴ Interestingly, all the vascular surgeons we surveyed perform same admission laparoscopic cholecystectomy. The reasons for this are unclear.

Conservative management

While there is growing evidence in favour of same admission laparoscopic cholecystectomy, there is still a significant number of surgeons who prefer conservative management and interval cholecystectomy.^{4,20} Reasons for this include optimisation of patient fitness before surgery, and studies which reported increased conversion rates and increased risk of bile duct injury with urgent procedures.^{9,10,21,22}

In this study, 23 surgeons prefer a conservative approach. Thirty per cent of these do so because they consider it to be safer. Thirty four per cent do so because they have inadequate operating time or equipment while on call. This is a significant finding. Askew states that a number of the surgeons in his study would have preferred to perform same admission laparoscopic cholecystectomy, but did not do so due to resource issues.⁶ Other studies in the UK have made similar contentions.⁴ However, no study has quantified this. In the present study, the nine surgeons who state that resource issues influence their clinical decision represent 13% of our overall study group.

Management of acute gallstone pancreatitis

International Association of Pancreatology guidelines (2002)³ recommend that, in mild gallstone-associated acute pancreatitis, cholecystectomy should be performed as soon as the patient has recovered and ideally during the same hospital admission. Endoscopic sphincterotomy is an alternative to cholecystectomy in those who are not fit to undergo surgery in order to lower the risk of recurrence of gallstone-associated acute pancreatitis.

In this survey, 54% of surgeons would carry out same admission cholecystectomy and 9% would refer to an upper GI surgeon on that admission for further management. Nineteen per cent would carry out prophylactic sphincterotomy. In total, therefore, 82% of the surgeons in our survey currently manage gallstone pancreatitis as per IAP guidelines.

Our study group adheres far more closely to the guidelines than has been reported in other groups. One large study conducted in the UK in 2003 reported that 24% of surgeons would remove a gallbladder during the index admission for mild gallstone pancreatitis, and 34% would perform cholecystectomy within 4 weeks of discharge.⁴

Conclusions

Acute cholecystitis remains a condition managed by all sub-specialities of general surgery in the west of Scotland. This study reports a rate of same admission laparoscopic cholecystectomy for uncomplicated acute cholecystitis that is higher than any other of which we are aware in the literature.

It is notable that 13% of the surgeons in this study base their management decisions not on what they consider best practice, but on what they are able to do given the resources at their disposal.

Perhaps the introduction of a national guideline would help to improve this statistic and further streamline the management of uncomplicated acute cholecystitis.

Surgeons in the west of Scotland adhere very closely to the IAP guidelines for management of acute gallstone pancreatitis.

Overall, surgeons in the west of Scotland appears to have a progressive attitude to the management of these two gallstone related conditions.

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Appendix 1:

Emergency Laparoscopic Surgery Questionnaire

1. Years in post as consultant	<2	2-5	5-10	>10
2. What is your major specialist interest?	General Surgery Upper Gastrointestinal Colorectal Breast and endocrine Vascular Other (specify).....			
3. Do you regularly undertake elective laparoscopic surgery?	Yes	No		
4. In emergency admission for ultrasound proven, uncomplicated acute gallstone cholecystitis in an otherwise medically fit patient, please select your preferred management plan:				
a. Urgent laparoscopic cholecystectomy.				
b. Same admission laparoscopic cholecystectomy after clinical improvement.				
c. Conservative management, discharge then interval laparoscopic cholecystectomy.				
5. If you selected option c above, what would be your course of action if the patient fails to settle on conservative management:				
a. Carry out urgent laparoscopic cholecystectomy personally.				
b. Refer to a colleague with specialist interest in upper GI surgery.				
c. Perform open cholecystectomy.				
6. Again, if you selected option c above, which of the following best represents your reasons for adopting this management?				
a. You consider an interval procedure to be safer.				
b. You have adequate elective operating space and can offer interval procedures soon after discharge.				
c. You have insufficient urgent operating time or equipment when on call.				
7. Has your management plan for acute cholecystitis changed significantly in the last five years?	Yes	No		
8. In a second case scenario, a patient is admitted with mild gallstone pancreatitis. Would you remove their gallbladder on that admission?	Yes	No		
9. If no, would they undergo a prophylactic endoscopic sphincterotomy on that admission?	Yes	No		
10. And how soon would the patient have interval cholecystectomy?	<2 weeks	2-6 weeks	6 weeks-3 months	>3months