Management of gallstones in elderly patients

Gallstone disease and its complications are extremely common in elderly populations; therefore in the context of the UK’s ageing population and recent advances in biliary tract surgery, this review outlines the key aspects of managing gallstone disease. Gallstones most commonly present with pain, and once present, symptoms tend to recur. Laparoscopic surgery seems appropriate for older patients with uncomplicated disease, although conversion to open surgery is sometimes necessary. Medical management is an option for patients with a few small stones. Clinicians need to carefully select the appropriate treatment for each patient.

Dr B J F Dean* Specialty Trainee 1 in Surgery, Oxford Radcliffe NHS Trust, UK.
Mr H Uppal Specialty Trainee 2 in Surgery, University Hospital of Coventry, West Midlands, UK.
Dr S Singh Consultant Geriatrician, John Radcliffe Hospital, Oxford, UK.
Dr K Wright Specialty Trainee 2 in Core Medicine, Oxford Radcliffe NHS Trust, UK.
*email: bendean@doctors.net.uk

Diseases related to gallstones are common in elderly patients. Cholecystectomy is thus the most common abdominal surgical procedure performed in this age group. In recent years, significant advancements have been made in biliary tract surgery; given the UK’s ageing population, this new evidence has the potential to play a vital part in guiding clinical decision-making in this increasingly complicated area.

Gallstones are most commonly cholesterol or cholesterol-predominant stones, accounting for around 80% of cases in the UK; while less common types include black pigment stones and brown pigment stones. Various risk factors have been associated with the formation of cholesterol gallstones including age, female sex, obesity, pregnancy, diabetes, and gallbladder dysmotility. This review summarises current concepts regarding the management of gallstones and their common complications in older patients.

Asymptomatic gallstones

Gallstones can be completely asymptomatic; in fact the majority of asymptomatic patients with gallstones will remain so for many years. Initially, asymptomatic patients with gallstones have a 10% risk of developing symptoms within 5 years, and a 25-40% chance of developing symptoms within 10 years. The fact that a majority of asymptomatic patients will not develop symptoms in the immediate future means that after consideration of the risks and benefits, surgery is generally best avoided in this group of patients (ie, those whose gallstones are seen incidentally when investigating other symptoms).

Biliary colic

The most common presentation of gallstone disease is with biliary pain. Once symptoms begin, recurrent pain and complications become far more common. A comparison of observation versus surgery in patients with symptomatic, non-complicated gallstone disease revealed that 20% of patients in the observation group had recurrent biliary pain requiring hospital admission. Also, at a median follow-up time of 67 months, 4% of patients in the observation group developed complications, versus 1% in the surgery group. Older people are also significantly more likely than younger patients to present with complications such as acute cholecystitis (40% versus 18%), gallstone pancreatitis (19% versus 6%) and common bile-duct stones (21% versus 5%). Younger symptomatic patients are routinely offered surgery for gallstones, so should this be the case for elderly patients, given their increased risk of presenting with complications?

Laparoscopic cholecystectomy has become the gold standard of managing symptomatic gallstone disease. Lower mortality rates, decreased hospital stay,
and improved pain control⁸ are some of the advantages of laparoscopic surgery over open surgery. Elderly patients with uncomplicated gallstone disease appear to be excellent candidates for laparoscopic cholecystectomy;⁴ elderly patients with chronic uncomplicated gallstone disease have similar open conversion rates to younger patients with uncomplicated disease. Sandler et al⁹ showed that patients over the age of 70 had a slightly increased risk of postoperative complications, but it was not statistically significant.

Annamaneni and colleagues⁷ concluded that laparoscopic cholecystectomy was safe and feasible in elderly patients, although those over the age of 70 years did have slightly longer postoperative stays and a slightly higher rate of postoperative complications (17% of patients versus 6% for those younger than 70 years). Obviously, the risk of surgery increases in patients with comorbidities, and this must be weighed against the benefits of surgery; however, laparoscopic cholecystectomy has been shown to be an acceptable surgical alternative for high-risk patients requiring cholecystectomy.⁹

Medical management is another treatment option, however, less than 10% of gallstones are suitable for this treatment. Certain criteria must first be fulfilled; these include stone diameter less than 20 mm, mild symptoms, fewer than 4 stones, and a functioning gall bladder. Results of oral dissolution therapy showed an improvement in symptoms and a gallstone dissolution rate of 59% at one year.⁹

Ursodeoxycholic acid can be taken at a dosage of 8–12 mg/kg daily as a single dose at bedtime, or in two doses. The success rates of oral dissolution therapy do vary widely, but around 50% of appropriately selected patients achieve stone clearance with this method.¹⁰ If the gall bladder is not removed, lifelong bile acid therapy may be necessary to prevent stone recurrence.

**Acute cholecystitis**

Acute cholecystitis occurs in up to 10% of patients with symptomatic gallstones, and is related to an acute inflammatory response that develops secondary to obstruction of the cystic duct. Historically, early surgery for cholecystitis was discouraged; however, recent research has resulted in a dramatic change in practice. A meta-analysis by Papi and others¹¹ showed that early cholecystectomy (within 72 hours of admission) significantly reduced the total hospital stay, but not the overall complication rate, which remained the same, when compared with delayed surgery. This has resulted in early surgery becoming the new gold-standard treatment for acute cholecystitis.

However, this gold-standard treatment of early surgery should not be applied to critically ill patients or to those at very high risk of surgical complications. The mortality rate after emergency surgery in high-risk elderly patients is affected by the patient’s condition, the severity of cholecystitis, and whether the common bile duct has been explored surgically in an emergency case. This high-risk group can be managed conservatively with intravenous fluids, antibiotics, analgesia, and antiemetics. Percutaneous cholecystostomy has recently been shown to be useful in this high-risk group. Borzelino and colleagues¹² demonstrated a mortality rate of zero by combining emergency ultrasonographically guided percutaneous cholecystostomy, preoperative endoscopic treatment of common bile duct stones, and subsequent elective cholecystectomy. Teoh et al¹³ concluded that percutaneous cholecystostomy was a useful alternative means for treating non-resolving acute cholecystitis when surgery was extremely high risk.

**Choledocholithiasis**

Finding common bile-duct stones in an elderly patient presenting with cholecystitis is not uncommon. The management of common bile-duct stones should be tailored to the individual in elderly and high-risk patients.¹⁴ It is generally agreed that endoscopic retrograde cholangio-pancreatography is an effective way of removing stones by endoscopic sphincterotomy, and that the morbidity and mortality of endoscopic interventions are unaffected by age.¹⁴

Recent prospective randomised trials comparing both open and laparoscopic common bile-duct exploration with endoscopic sphincterotomy for bile-duct stones have not shown a significant difference between the morbidity and the mortality of these two approaches.¹⁵,¹⁶ however, these results are relevant to elective surgeries and not emergency situations. A more recent review¹⁷ favoured laparoscopic exploration of the common bile duct over endoscopic sphincterotomy or laparoscopic cholecystectomy. A higher mortality rate and a higher
number of hospital admissions were seen with endoscopic treatment. Other problems are associated with endoscopic treatment, such as an increased chance of developing bile-duct cancer. However, these results applied only to young, fit patients, and generalising these findings to high-risk elderly patients is difficult.

No definitive evidence-based solution to this problem exists. Current evidence thus mandates an individualised approach to every patient. The risks of endoscopic treatment do not appear to increase in the elderly, and in some studies complication rates have even been lower with increasing age. Targarona and colleagues showed that surgery was preferable to endoscopic treatment in elderly patients with non-severe gallstone pancreatitis. Contrasting results were seen in a trial of patients with acute cholangitis presenting as an emergency. A substantial number of patients who undergo endoscopic treatment will develop recurrent biliary symptoms, meaning that they will require surgery with its additional risks. More and higher quality evidence is needed to guide the management of elderly patients at high risk.

What is the gold standard treatment?

In the past few years, several significant changes have been made in the way in which gallstone disease and its complications should be best managed. However, this evidence clearly cannot be automatically extended to high risk elderly patients. Old age alone is certainly not a contraindication for surgical intervention. Additionally, laparoscopic cholecystectomy has shown several distinct advantages over open cholecystectomy in the older population.

The management of individual elderly patients cannot be determined by generalisations and protocols. The risks and benefits of all management options must be weighed up in the decision-making process.

---

**Box: Risks and benefits of surgery**

- The prevalence of gallstones is 14–27%.
- Asymptomatic gallstones have a 25·8% risk of symptoms within 10 years.
- The risk of complications at 5 years is 4% with observation and 1% for surgery.
- The risk of presenting with complications increases with age. Acute cholecystitis is seen in 18% of patients younger than 65 years, rising to 40% in those older than 65 years. Similar increases are seen for bile-duct stones, from 5% to 21%; and for gallstone pancreatitis, from 6% to 19%.
- Complication rates for laparoscopic cholecystomy are 9·7–21·2% in those younger than 65 years versus 17·5–26·7% in those older than 65 years.
- The conversion rate in acute cholecystitis is 2·5–23·3%.
- The rate of complications for elective surgery in elderly patients is 21·2% compared with 44·8% for emergency surgery.
process (box). The clinician must not only compare different interventional procedures, but must also consider the option of watching and waiting. Fit elderly patients with no comorbidity can be managed in a very similar, if not identical, fashion, to fit younger patients. Avoiding the significant risks of surgery is probably better for frail elderly patients with multiple comorbidities.

These clinical decisions must also take into account local availability and expertise for the various interventional procedures. High-quality randomised controlled trials involving high-risk elderly patients would certainly be useful to shed light on optimum management. However, given the complex and varied nature of geriatric patients we believe that an individualised approach determined by an experienced clinician will not become outmoded.

We have no conflict of interest.

References