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Asymptomatic gallstones: to treat or not to treat?

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Introduction

Since the introduction of laparoscopic cholecystectomy (LC) in 1989, the number of cholecystectomies has increased.[1,2] This may be explained by the liberal attitude of surgeons towards cholecystectomy for 'silent' or asymptomatic gallstones, which was further encouraged by a lower referral threshold by physicians and the patient's demand of minimally invasive surgery.[2] Under such pressures, it is prudent for surgeons and gastroenterologists to be aware of the appropriate management for asymptomatic gallstones in the laparoscopic era.

The natural history of asymptomatic gallstones suggests that a large number of affected individuals will remain asymptomatic throughout life; only 1-4% of patients per year will develop symptoms, and 10% in the first five years while only 20% by 20 years after diagnosis.[3] Moreover, most if not all patients will experience symptoms for sometime before the development of gallstone-related complication.[3] It is unfortunate that till now there are no identifiable predictive factors and none of the local factors (e.g. stone number, size, nature and wall thickness) or general factors (e.g. age, sex, associated medical diseases such as diabetes, etc.) were found predictive of future symptom development.[4] Hence, as the natural history of asymptomatic gallstones is benign, surgery is generally not recommended and watchful waiting is the best course of management. Nevertheless, in patients with porcelain gallbladders or gallbladder polyps (sessile, equal or larger than 1 cm, symptomatic, rapidly enlarging, associated with gallstones and in patients over the age of 50 years)[5] who may be at high risk of cancer, prophylactic treatment of asymptomatic patients may be justified especially in areas where gallbladder cancer is prevalent.[6]

Despite the strong argument against surgical management of asymptomatic gallstones, some patients may develop symptoms and even gallstone-related complications. It was also argued that emergency surgery for complications may be associated with a significant morbidity and mortality. For these reasons, Patino and Quintero[7] proposed high-risk criteria for elective cholecystectomy in patients with asymptomatic gallstones.[7] The argument for surgical intervention became even stronger in the era of laparoscopic surgery, following the introduction of LC with its well-known associated advantages over the conventional method.[8] It is not surprising, therefore to see the debate for and against surgery for asymptomatic gallstones is continuing in the laparoscopic era. Nevertheless, the expectant approach remained the most commonly adopted line of management by many surgeons. But, in the era of laparoscopy and scarless surgery, does this management approach holds true for some special groups of patients such as diabetics, transplant patients, sickle cell disease patients, cirrhotics and patients who have undergone bariatric surgery for morbid obesity with asymptomatic gallstones?

Diabetic patients

Earlier reports found the risk of acute cholecystitis and perioperative morbidity and mortality for diabetic patients with acute cholecystitis to be significant enough to warrant the performance of an early cholecystectomy.[1,7,9] This prompted surgeons to consider diabetic patients as a high-risk group in whom prophylactic cholecystectomy is recommended.[9] Recent evidence has shown that the rates of operative morbidity and mortality for biliary surgery in diabetics and non-diabetics are comparable.[10] Moreover, the natural history of gallstones in diabetics is benign, and associated with a low risk of major complications.[11] In view of this evidence, diabetics with silent gallstones should be managed expectantly and preemptive surgery is not recommended.[10-12] However, once symptoms develop, early elective LC is advocated.[12]

Transplant patients

Multivariate analysis has shown gallstones to be significantly more prevalent in heart transplant recipients.[13] But, only a small percentage with silent stones will become symptomatic and surgery performed in those who develop symptoms is usually safe. Therefore, based on this multivariate analysis and others, prophylactic cholecystectomy is not indicated in asymptomatic transplant patients.[13,14] A recent decision analysis that looked at probabilities and outcomes as derived from a pooled analyses of published studies has shown less death outcome probability following prophylactic post-transplant cholecystectomy when compared with expectant management of asymptomatic stones [5:1000 vs. 44:1000].[15] Based on this, in cardiac transplant recipients with asymptomatic gallstones, prophylactic LC is recommended.

Some authors have recommended screening ultrasonography for gallstones and subsequent prophylactic cholecystectomy for patients awaiting a renal transplant and found to have incidental gallstones to remove a possible septic focus that carries a potential for complications in immunosuppressed patients.[16,17] Immunocompromized patients form a heterogeneous population group and therefore, most of them at an increased risk of septic complications depending on the level of immunosuppression. Hence, elective surgery should be performed with special precautions to guard against perioperative risks to the patient and the graft.[18]

Nevertheless, the incidence and morbidity of gallstones after renal transplantation is low[19] and the development of gallstones in transplanted individuals does not have a negative impact on graft survival. Furthermore, surgical treatment for gallstones in renal transplant patients has a low risk of complications with one-, two- and five-year graft survival of 98%, 96% and 80%, respectively.[20]

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In summary, post cardiac transplant patients with silent gallstones should be offered LC, but expectant policy should be exercised in other non-hepatic transplant recipients. Once become symptomatic, LC can be safely performed with no adverse impact on graft survival.[20,21]

Sickle cell disease

Sickle cell disease (SCD) patients are at an increased risk of developing pigmented gallstones due to repeated haemolytic crises. Though asymptomatic, their presence causes diagnostic confusion during every abdominal crises. Therefore, some authors advocate prophylactic cholecystectomy to avoid the diagnostic confusion and future stone-related complications. This view was not generally accepted as open surgery in SCD was associated with a high morbidity and mortality due to postoperative acute chest syndrome and vasoocclusive crises (VOCs).[22] Hence, cholecystectomy was not recommended in the pre-laparoscopic era. With the introduction of LC and the establishment of its safety in SCD patients.[23,24] More SCD patients (adults and children) with asymptomatic gallstones are increasingly being referred for LC.[25] Special preparation and precaution to guard against VOC need to be undertaken during the perioperative period to guarantee safer surgery.[26,27]

Cirrhotic patients

Although the incidence of gallstones is high in cirrhotic patients, complications are infrequent, but emergency surgery carries a high risk.[28] Early in the laparoscopic era, liver cirrhosis was considered a contraindication for LC. However, it is now considered safe and is proposed as the surgical treatment of choice in symptomatic patients with cirrhosis and well-compensated liver function.[28,29] As for diabetics and renal transplant recipients, cirrhotic patients with asymptomatic gallstones should be managed expectantly and offered LC once symptoms develop.

Bariatric surgery

It is estimated that about third of patients undergoing bariatric surgery especially Roux-en-Y gastric bypass develop gallstones within 6 months after the procedure.[30] It is therefore recommended to perform preoperative ultrasonography and offer prophylactic cholecystectomy to avoid stone formation. The value of this approach has been recently questioned and expectant approach is advised as newly formed gallstones after bariatric surgery are likely to be asymptomatic.[30]

Also, it may be argued that the expectant approach may simplify the operative procedure when symptoms develop due to the weight loss incurred by the bariatric operation. Moreover, for patients who develop symptoms and do not wish to have surgery ursodiol therapy may be tried.[31]

Incidental gallstones

Management of gallstones discovered incidentally during abdominal surgery is controversial. Nevertheless, cholecystectomy en passant is recommended unless there are specific contraindications.[32] This adds minimal morbidity to the operation and should be performed unless specific contraindications exist. If left untreated, the long-term risk that previously silent gallstones would become symptomatic and cause complications is substantial, and operative intervention for complications is associated with greater morbidity. Therefore, incidental cholecystectomy is safe during gastrointestinal surgery and preoperative detection of gallstones by ultrasonography is recommended. This certainly helps in planning the incision and obtaining the patient's consent for cholecystectomy.[2,33,34] The decision is more difficult in case of pelvic operations as this may require an additional incision. However, this poses no problem if laparoscopic pelvic procedure is contemplated.

Conclusion

In the era of laparoscopic surgery, there seems to be a lower threshold for referral of patients with asymptomatic gallstones to surgery. However, in absence of level I evidence and clear guidelines, the management of most patients with asymptomatic gallstones is expectant as the natural history is benign. For selected group of patients with asymptomatic gallstones, a new management consensus is emerging in the laparoscopic era. In diabetes, cirrhotics and renal transplant recipients, asymptomatic gallstones should be managed expectantly and early surgery is offered when symptoms develop. The management of asymptomatic stones in SCD patients is changing with elective LC is now offered to most SCD patients. Also, for cardiac transplant recipients, prophylactic LC is advocated. Incidental cholecystectomy during abdominal surgery is safe and therefore, recommended unless specific contraindications exist. Also, laparoscopic cholecystectomy is highly considered for silent gallstones in areas where gallbladder cancer is prevalent and in patients with porcelain gallbladders due to its association with cancer.

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Conflicts of Interest

The author declares that there is no conflicts of interest.

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