SELECTED ABSTRACTS

Editor - Rohan Siriwardena

Impact of routine intraoperative cholangiography during laparoscopic cholecystectomy on bile duct injury

Alvarez FA et. al. Br J Surg. 2014; 101(6): 677-84.

Background

The role of intraoperative cholangiography (IOC) in the diagnosis, prevention and management of bile duct injury (BDI) remains controversial. The aim of the present study was to determine the value of routine IOC in the diagnosis and management of BDI sustained during laparoscopic cholecystectomy (LC) at a high-volume centre.

Methods

A retrospective analysis of a single institution database was performed. Patients who underwent a laparoscopic cholecystectomy with a routine IOC between October 1991 and May 2012 were included.

Results

Among 11,423 consecutive LCs, IOC was performed successfully in 95.7% of patients. No patient had an IOC related complication. Twenty patients (0.17%) sustained a bile duct injury during a laparoscopic cholecystectomy, and the diagnosis was made during surgery in 18 patients. Most bile duct injuries were type D according to the Strasberg classification. The sensitivity of intraoperative cholangiography for the detection of bile duct injury was 79%; specificity was 100%. All injuries diagnosed during surgery were repaired during the same surgical procedure. Two patients developed early biliary strictures that were treated by percutaneous dilatation, and a Roux-en-Y hepaticojejunostomy with satisfactory long-term results.

Conclusions

The routine use of intraoperative cholangiography during a laparoscopic cholecystectomy in a high-volume teaching centre, was associated with a low incidence of bile duct injury, and facilitated detection and repair during the same surgical procedure with a good outcome.

Commentary

Anura Banagala
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Place of routine cholangiography during laparoscopic or open cholecystectomy remains controversial. The study of the impact of a routine intraoperative cholangiogram (IOC) on prevention of bile duct injury, (BDI) was neither an aim of this study nor feasible in the absence of a control arm. The low incidence of bile duct injury reported could be due to the observation of the critical view of safety (CVS) and mature team experience during the long period of the study from October 1992 to May 2012. The temporal distribution of BDI during this period has not been analyzed particularly before and after the introduction of CVS.

Nevertheless, the value of a routine IOC in the early diagnosis of BDI is clear, leading to early definitive management, and reducing the complications and high cost associated with late diagnosis. Some late leaks, presumably due to electrocautery, would not have been detected by the IOC, and probably explains the four leaks missed. Some cystic duct leaks observed in this study may have resulted directly due to IOC technique, though in retrospect there is no way of proving this, and they were unaccounted for as the cystic duct leaks were excluded.

The patients who were converted to open cholecystectomy were excluded from the study, perhaps resulting in a lower perceived incidence of BDI, as these cases were more likely to have been technically difficult, and presumably associated with a higher

incidence of BDI.

The authors presented a good description, classification and aetiological analysis of the bile duct injuries observed in this study, which is all pertinent in the primary definitive management of BDI and deserves praise.

The NOTA Study (Non Operative Treatment for Acute Appendicitis): prospective study on the efficacy and safety of antibiotics (amoxicillin and clavulanic acid) for treating patients with right lower quadrant abdominal pain and long-term follow-up of conservatively treated suspected appendicitis.

Di Saverio S et al. Ann Surg. 2014; 260(1): 109-17.

Objective

To assess the safety and efficacy of antibiotic treatment for suspected acute uncomplicated appendicitis and to monitor the long term follow-up of non-operated patients.

Background

Right lower quadrant abdominal pain is a common cause of emergency department admission. The natural history of acute appendicitis treated non-operatively with antibiotics remains unclear.

Methods

In 2010, a total of 159 patients [mean AIR (Appendicitis Inflammatory Response) score = 4.9 and mean Alvarado score = 5.2] with suspected appendicitis were enrolled and underwent non-operative management (NOM) with amoxicillin/clavulanate. The follow-up period was 2 years.

Results

Short-term (7 days) NOM failure rate was 11.9%. All patients with initial failures were operated within 7 days. At 15 days, no recurrences were recorded. After 2 years, the overall recurrence rate was 13.8% (22/159); 14 of 22 patients were successfully treated with further cycle of amoxicillin/clavulanate. No major side effects occurred. Abdominal pain assessed by the Numeric Rating Scale and the visual analog scale; median Numeric Rating Scale score was 3 at 5 days and 2 after 7 days. Mean length of stay of patients managed non-operatively was 0.4 days, and mean sick leave period was 5.8 days. Long-term efficacy of NOM treatment was 83% (118 patients recurrence free and 14 patients with recurrence managed non-operatively). None of the single factors forming the Alvarado or AIR score were independent predictors of failure of NOM or long-term recurrence. Alvarado and AIR scores were the only independent predictive factors of NOM failure after multivariate analysis, but both did not correlate with recurrences. Overall costs of NOM and antibiotics were &OV0556;316.20 per patient.

Conclusions

Antibiotics for suspected acute appendicitis are safe and effective and may avoid unnecessary appendectomy, reducing operation rate, surgical risks, and overall costs. After 2 years of follow-up, recurrences of non-operatively treated right lower quadrant abdominal pain are less than 14% and may be safely and effectively treated with further antibiotics.

Commentary

Nilhan Nugaduwa
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Early appendicectomy has, for long, been the "gold standard" of managing appendicitis. This has been challenged recently by the publication of a series of studies by Pisano [1], Hansson [2], Varadhan [3], Eriksson [4] and others advocating the use of antibiotics as safe and efficient management, avoiding unnecessary surgery.

The present NOTA study by Di Saverio et al, is a prospective, observational study of a small population (159), which revealed a 14% 2 year failure rate with antibiotic therapy. These patients underwent appendicectomy and 22% of them had significant intraperitoneal sepsis. Some authors (Andersson 2007 [5]), consider uncomplicated and complicated appendicitis with perforation/ abscess formation as

different entities, that require different management strategies. Thus, an accurate, institutional, diagnostic–therapeutic score/ algorithm, with possible enhanced imaging and inflammatory marker modalities is needed for proper diagnosis and patient selection.

From a Sri Lankan context, the problems of adopting a NOTA approach would be proper patient selection and follow up to detect recurrences. The local conservative practice is usually the use of intravenous antibiotics for delayed presentation of appendicitis and appendicular mass formation. It is noteworthy that several studies indicate that routine use of interval appendicectomy is not justified in asymtomatic patients.

Several large, multicentric RCT's are currently underway, with plans for long periods of follow up. This would hopefully settle the debate on the management of appendicitis, with resultant amendment of accepted guidelines. It is only then that a safe surgeon should change practice.

References

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The impact of routine open non-suction drainage on fluid accumulation after thyroid surgery: a prospective randomized clinical trial

Neary PM et. al. World J Surg Oncol 2012;10:72.

Background

Thyroid drains following thyroid surgery are routinely used despite minimal supportive evidence. Our aim in this study is to determine the impact of routine open drainage of the thyroid bed postoperatively on ultrasound-determined fluid accumulation at 24 hours.

Methods

We conducted a prospective randomised clinical trial on patients undergoing thyroid surgery. Patients were randomly assigned to a drain group (n = 49) or a no-drain group (n = 44) immediately prior to wound closure. Patients underwent a neck ultrasound on day 1 and day 2 postoperatively. After surgery, we evaluated visual analogue scale pain scores, postoperative analgesic requirements, self-reported scar satisfaction at 6 weeks and complications.

Results

There was significantly less mean fluid accumulated in the drain group on both day 1, 16.4 versus 25.1 ml (P-value = 0.005), and day 2, 18.4 versus 25.7 ml (P-value = 0.026), following surgery. We found no significant differences between the groups with regard to length of stay, scar satisfaction, visual analogue scale pain score and analgesic requirements. There were four versus one wound infections in the drain versus no-drain groups. This finding was not statistically significant (P = 0.154). No life-threatening bleeds occurred in either group.

Conclusions

Fluid accumulation after thyroid surgery was significantly lessened by drainage. However, this study did not show any clinical benefit associated with this finding in the non-emergent setting. Drains themselves showed a trend indicating that they may augment infection rates. The results of this study suggest that the frequency of acute life-threatening bleeds remains extremely low following abandoning drains. We advocate abandoning routine use of thyroid drains.

Commentary

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The concept of drain or no drain is a matter of controversy in our practice. A majority of patients in the aforementioned study includes those with a small goitre who did not undergo total thyroidectomy.

By contrast, the majority of our patients have grade III to IV benign multinodular goitres with a retrosternal or retrotracheal component, where dead space and soft tissue handling is more.

Since the neck is a compact area, an appropriately placed and functioning drain is a safe option

in these patients, in a setting where monitoring and observation is not optimum. Accordingly our experience determines that we could safely refrain from use of drains in those patients who undergo small goitre thyroidectomy and lobectomy. There s a famous dictum " when in doubt, drain" which is now a controversial issue. Such a decision is likely going to be based on individual surgeon's preference.

A systematic review of the effects of resident duty hour restrictions in surgery: impact on resident wellness, training, and patient outcomes.

Ahmed N et. al. Ann Surg 2014; 259(6): 1041-53.

Background

In 2003, the Accreditation Council for Graduate Medical Education (ACGME) mandated 80-hour resident duty limits. In 2011 the ACGME mandated 16-hour duty maximums for PGY1 (post graduate year) residents. The stated goals were to improve patient safety, resident well-being, and education. A systematic review and meta-analysis were performed to evaluate the impact of resident duty hours (RDH) on clinical and educational outcomes in surgery.

Methods

A systematic review (1980-2013) was executed on CINAHL, Cochrane Database, Embase, Medline, and Scopus. Quality of articles was assessed using the GRADE guidelines. Sixteen-hour shifts and night float systems were analyzed separately. Articles that examined mortality data were combined in a random-effects meta-analysis to evaluate the impact of RDH on patient mortality.

Results

A total of 135 articles met the inclusion criteria. Among these, 42% (N = 57) were considered moderate-high quality. There was no overall improvement in patient outcomes as a result of RDH; however, some studies suggest increased complication rates in high-acuity patients. There was no improvement in education related to RDH restrictions, and performance on certification examinations has declined in some specialties. Survey studies revealed a perception of worsened education and patient safety. There were improvements in resident wellness after the 80-hour workweek, but there was little improvement or negative effects on wellness after 16-hour duty maximums were implemented.

Conclusions

Recent RDH changes are not consistently associated with improvements in resident well-being, and have negative impacts on patient outcomes and performance on certification examinations. Greater flexibility to accommodate resident training needs is required. Further erosion of training time should be considered with great caution.

Commentary

Duminda Gunawardana
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Recently a Sri Lankan hospital conducted an in-house inquiry over a death, during a long distant transfer at late night, where the resident was alleged to fall asleep. Though not reported in literature this is not the only incidence of this nature.

Resident duty hours (RDH) are still evolving as the debate continues of how best to balance the patient safety, resident wellbeing and education. United states, Canada, Europe (primarily the UK), New Zealand and Australia are some of the countries with established restrictions to duty hours. They have diverse approaches accommodating the needs of different health care systems, cultural diversities and education programs. Some have implemented regulations and some uses the restrictions as guidelines only. However in Sri Lanka there are no RDH restrictions for surgical trainees.

Despite the considerable number of studies, it remains unclear whether these limitations impact patient care and other expected outcomes. This systemic review has analysed 135 articles to evaluate the impact of RDH restrictions on resident well-being, education, and/or patient safety. Majority of the articles has shown that the restrictions have a negative impact on patient outcomes. An improvement of resident well-being and a worsening or unchanged resident education was also shown. However only one study has used the randomised controlled trial model. Mostly, comparison has been made in different time frames and there is a considerable heterogeneity of the study articles.

It's evident that the problem of RDH is not addressed adequately. Also there is a gap between the expectations and the outcomes of implementations made. Flexibility in duty hour restrictions for surgical trainees ("FIRST") trial is a randomised trial planned to conduct from 2014 to 2016 by American Board of Surgery and the American College of Surgeons to gain high quality evidence upon which to base future RDH requirement decisions in USA. Sri Lanka can learn from the experience of these countries and use the available evidence to develop a model fit for the needs and expectations of the country.

The comparison of self-gripping mesh and sutured mesh in open inguinal hernia repair: the results of meta-analysis.

Li J et. al. Ann Surg 2014; 259(6): 1080-5

Objective

The aim of this study was to compare the postoperative chronic pain and other postoperative complications after the use of the self-gripping Progrip meshes and the application of conventional suture-fixed Lichtenstein procedure.

Background

Chronic pain after inguinal hernia repair is a complex problem. Many efforts have been put to reduce the postoperative chronic pain after open inguinal hernia repair, and the results are conflicting.

Methods

A systematic literature review was undertaken to identify studies comparing the outcomes of open inguinal hernia repair with self-gripping Progrip meshes and the conventional Lichtenstein technique.

Results

The present meta-analysis pooled the effects of outcomes of total 1353 patients enrolled into 5 randomized controlled trials and 2 prospective comparative studies. Statistically, there was no difference in the incidence of chronic pain [odds ratio = 0.74, 95% confidence interval (CI) (0.51-1.08)]. And there was no statistical difference in the incidence of acute postoperative pain [odds ratio = 1.32, 95% CI (0.68-2.55)], hematoma or seroma [odds ratio = 0.89, 95% CI (0. 56-1.41)], wound infection [risk difference = -0.01, 95% CI (-0.02 to 0.01)], and recurrence [risk difference = 0.00, 95% CI (-0.01 to 0.01)]. The self-gripping mesh group was associated with a shorter operating time (1-9 minutes).

Conclusions

When the self-gripping mesh compared with the conventional suture fixed Lichtenstein technique, while there was a difference in operative time, there were no differences in pain (chronic or acute) or other complications.

Commentary

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Undoubtedly every surgeon has come across this complication embarrassing him as well as the patient equally. What has not come to light in this analysis is a clear solution to this problem.

Authors while admitting chronic pain as a complication have failed to clearly isolate a causative factor/s. In my opinion, trying to find a remedy without identifying the root cause will very likely end in a futile exercise.

Analysis seems to be rational and scientific. Drawbacks and limitations too have been well addressed. The conclusions drawn subsequent to that appears logical.

Self-gripping mesh as expected is quite expensive rendering no clear gain over the conventional mesh with regard to chronic post-operative pain. It would not be anything but rational for one to choose the less expensive mesh in the absence of any clear clinical advantage. In a country like ours (Sri Lanka) we are, more than in developed countries, compelled to address the cost factor. In other words the cost factor may override even a slight clinical advantage.