

Acute Cholecystitis – Current Views

A.M Gakwaya¹, J Jombwe²

¹Senior Consultant Surgeon, ²Senior Registrar, Mulago Hospital,

Correspondence to: AM Gakwaya, P.O. Box 7051, Kampala-Uganda, E-mail: gakwaya@utlonline.co.ug

Acute cholecystitis is predominantly a disease of females who account for 62 percent of cases and mainly affects those between 40 and 50 years¹ and is closely associated with cholelithiasis. It occurs all over the world but Africa is a low risk area as compared to Europe and North America. The disease has been observed in children with ascariasis or those with acquired immune deficiency syndrome (AIDS). The commonest bacteria isolated in acute cholecystitis are E Coli. Clinical presentation includes a raised temperature. Leukocytosis may be absent even in those patients with gangrenous acute cholecystitis. However, Murphy's sign remains very specific. The mainstay of treatment remains surgical either open or laparoscopic cholecystectomy and in high-risk patients percutaneous or open cholecystostomy. Laparoscopic cholecystectomy has greatly increased operating time but reduced hospital stay. The over all mortality has remained 5-12% in the last 2 decades.

Aetiopathology

It is agreed that the disease goes through a definite chain of obstruction, chemical injury, inflammation and bacterial invasion. The commonest isolated bacteria are: E Coli 60%, Klebsiella, streptococcus and others². A total of 95% of acute cholecystitis are associated with stones and 15% of gallbladders with stones develop acute cholecystitis. Other predisposing factors include old age, diabetes mellitus, typhoid fever, renal impairment, arteritis, polyarteritis nodosa³ and malignant hypertension. Five cases have been reported following Trucut liver biopsy and a few following gallbladder torsion⁴. Other associated problems include ductal stones in 20%, chronic pancreatitis in 7% and Cancer of the gall bladder in 1%.

Bacteriology

Csenders⁵ showed that when the common bile duct or gall bladder is aspirated the prevalence of positive bacterial cultures is 0% in normal people, 22% - 46% in patients with gall stones or acute cholecystitis and 58.2% in common bile duct stones without cholangitis or previous cholecystectomy. Similar bacteria were isolated from the gall bladder and common bile duct. Gender or number of stones did not influence the number of positive cultures but advancing age increased the positive cultures.

Acalculous acute cholecystitis accounts for about 5%. The bile is lithogenic or sometimes the stone has already been passed. Acalculous

acute cholecystitis is usually associated with major surgery, burns, fasting, general anaesthesia, analgesics, dehydration, ileus, multiple transfusions, sepsis, ductal stenosis, choledochal cyst, diabetes mellitus, and old age. Sometimes stool may show some stones.

Natural history of patients with acute cholecystitis

Complete recovery following acute inflammation occurs in 75% recover completely and only 25% are met with complications which may even be fatal. Gangrene occurs about the third day in about 15%. Empyema occurs in 5% and it is more common in elderly male with diabetes mellitus. Perforation occurs in about 5%. The perforation may be into the local organs, it may form a peri-cholecystitis abscess or a patient may develop generalized peritonitis.

Symptomatology

The usual symptoms of pain 30-90 min after a meal, fever, nausea and vomiting may not be present in a number of patients⁽⁶⁾. A palpable mass appears after 24 hour in a third of patients, toxicity, guarding, and jaundice indicate complications. Murphy's sign is not useful in elderly patients^{7,8} as illustrated below:

• Predictive	0.58
• Sensitivity	0.48
• Specificity	0.71

Treatment

The treatment is immediate cholecystectomy. On admission to hospital, a nasogastric tube

(3mm) for gastric decompression is passed and intravenous fluids and antibiotics, (cefuroxime or mezlocillin) prescribed. Immediate cholecystectomy carries a mortality of 5-10 percent¹⁰. However there is a small percentage of patients who have other medical diseases which require to be stabilised first. Among these if life is threatened (impending gangrene or rupture) they are offered cholecystostomy and later when they have stabilised cholecystectomy is done. If life is not threatened the medical condition is stabilised and later cholecystectomy is done.

1. Open cholecystectomy.

Moss¹ performed 158 OC in 4 years and was able to discharge all of them the following day. However 3 patients developed complications and required readmission.

2. Laparoscopic cholecystectomy.

Altaca⁹ did 12 OC and 23 LC and had 13% complications in OC as opposed to 15% in LC. Petterson¹⁰ attempted 13 laparoscopic

cholecystectomy but completed it in 9 and the other 4 (31%) required conversion to open cholecystectomy. Laparoscopic cholecystectomy increases the operating time and cosmesis but highly reduces the hospital stay. The difference in complications is not statistically significant.

Differential diagnosis

Conditions to be considered in the differential diagnosis are shown in table 1. However LC is contraindicated where there is an older scar or if one is suspecting adhesions. In terms of relative costs, percutaneous cholecystostomy costs US\$ 1620, open cholecystectomy US\$ 3155, while laparoscopic cholecystectomy costs US\$ 5,000. However LC is contraindicated where there is an older scar or if one is suspecting adhesions. In terms of relative costs, percutaneous cholecystostomy costs US\$ 1620, open cholecystectomy US\$ 3155, while laparoscopic cholecystectomy costs US\$ 5,000.

Table 1. Differential Diagnoses of Acute Cholecystitis

<ul style="list-style-type: none"> • Hiatus hernia, • Ischaemic heart disease, • Hepatocellular carcinoma , • Acute/ chronic pancreatitis, • Pancreatic cancer, • Peptic ulcer, • Ventral hernia, • Carcinoma of the stomach, • Adrenal tumour or haemorrhage. • Herpes Zoster 	<ul style="list-style-type: none"> • Fitz - Hugh Curtis syndrome (gonorrhoea perihepatitis) may cause a diagnostic riddle. • Acute malaria, • Painful sickle cell crisis, • Hepatic porphyria, syphilis, • Diabetes mellitus, ketoacidosis, • Temporal lobe epilepsy, • Conversion reaction.
--	---

Accessory investigations:

<ul style="list-style-type: none"> • WBC is usually raised to more than 10,000mm³. • Bilirubin is raised to 2-4 mg/dl. If it goes beyond it indicates a common bile duct stone. • SGOT and SGPT are increased in 40% but the value falls to normal with 48 hours. • ALP_{O4} and Serum amylase are increased in 15% and they also fall within 48 hours. • Plain radiology will show 15% of stones, which are radiopaque. 	<ul style="list-style-type: none"> • High-resolution ultra sound will detect 95% of the acute cholecystitis however; one worker reported that the ultra sound findings do not sometimes agree with pathological findings in 50%⁽⁸⁾. • Intravenous cholecystography is very informative but expensive. It is no longer popular in most hospitals. • Radionuclide cholecintigraphy using Technetium 99 will yield 95% positive. • ERCP the patient is usually so sick that there is no room for (ERCP) Endoscopic Retrograde Pancreato-Cholecystography
--	--

Cholecystostomy

This procedure is left for those who have other medical conditions, which are a contraindication to cholecystectomy, e.g. congestive cardiac failure. The purpose is to decompress the gall bladder in order to prevent gangrene and perforation. A cholecystectomy should be done as soon as the patient has stabilized. Cholecystostomy may be open or percutaneous. It has a mortality of 5-12 percent^{11, 12, 13}.

Percutaneous cholecystostomy

It may be transhepatic or transperitoneal. It has fewer complications than the open. Ultra sound guided Percutaneous Cholecystostomy (UGPC), Patterson¹⁰ did 43 and 90% improved within 48 hours. However the surgeon must be at hand for further treatment. Special cases: Indin¹⁴ reported 18 children with acute cholecystitis. They all had organic disorders of the gall bladder and cystic duct. Khuroo¹⁵ has described ascariasis as a cause of acute cholecystitis in addition to other complications. Wittman¹⁶ has suggested that acute cholecystitis may occur in Acquired Immune Deficiency Syndrome (AIDS). Surgeons are advised to take extra care while handling these emergencies.

Mortality

Mortality increases with age and poor health but all in all is 5-12 percent¹⁰. The common causes of death are sepsis, pneumonia and cardiac complications.

Conclusion

In spite of the development of new antibiotics, imaging and laparoscopy, the mortality of acute cholecystitis has remained 5-12% for the last two decades.

References

1. Moss G. Pricing the outcome standards for conventional open cholecystectomy Am-J.Surg 1996; 172: 383-5.
2. Asmis-Ds. Vibrio 01 isolated in the gall bladder of a patient presenting with acute cholecystitis Am. J. Gastroenterology 1996; 91: 2241-2.
3. Counihan TL. Acute Cholecystitis resulting from hemobilia after Trucut needle: a case report and brief review of literature. Am surg. 1996; 62 (9): 757-8.
4. Hillejan L. Torsion of the gall bladder – a rare cause of acute cholecystitis Central bl-Chir 1996; 121 (4): 326-8
5. Csenders. A simultaneous bacteriological assessment of bile from gall bladder and common bile duct in control subjects and patients with gall stones and common bile duct stones. Arch. surgery 1996 April: 131(4): 389-94.
6. Grober P.J Presence of fever and leukocytosis in acute cholecystitis. Ann-emerg Med 1996; 28(3): 273-7.
7. Adedeji O.A Murphy's sign in acute cholecystitis and elderly people. J.R.Coll.Surg. Ed 1996 April 41(2): 88-9.
8. Fitz Gibbons R.J. Jr. Acute cholecystitis. Does the clinical diagnosis correlate with pathological diagnosis? Surg – Endosc. 1996; 10(12) 1180-4
9. Altarca G. Laparoscopic Cholecystectomy for acute cholecystitis. Surg – Laparoscopic. Endosc. 1996 Feb; 6(1): 26-8.
10. Petterson E.J. An alternative approach to acute cholecystitis percutaneous cholecystostomy and internal laparoscopic cholecystectomy Surg-Endosc.1996; 10(2): 1185-3
11. Hultman CS. The efficacy of percutaneous cholecystostomy in critically ill patients. Am-Surg 1996; 62(4): 263-9.
12. Horny A. Percutaneous Cholecystostomy for acute cholecystitis in critically ill patients. Surgery 1997; 121(4): 398-401.
13. Van Overhagen H. Percutaneous cholecystostomy for patients with acute cholecystitis and an increased surgical risk. Scandinavian-Intervent-Radiol 1996; 19(2): 72-6
14. Indin I.B. Non-Calculus Cholecystitis in children Khirurgia Mosh 1996; 4: 15-7.
15. Khuroo M.S. Ascariasis Gastroenterol-Clin-North Am. 1996 Sept; 25(5): 553-77.
16. Wittman M.M. Aids emergency operations and infection control. Infect control-Hosp-epid. 1996; 17(8): 532-8