Acute Cholecystitis in Pregnancy: CURRENT MANAGEMENT

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Overview

- Definition
- Pathogenesis of acute cholecystitis
- Incidence of gallbladder disease in pregnancy
- Principles of management of acute cholecystitis
- Evidence to support use of Laparoscopic Cholecystectomy in pregnancy
Cholelithiasis

- Greek: chole “bile”; lithos “stone”
- One of the most common disorders of the gastrointestinal tract: 10% people in Western countries
- >80% are asymptomatic
Cholecystitis

- **Greek**: cholecyst, "gallbladder"; suffix -itis "inflammation"
- One of the complications of cholelithiasis
- Inflammation of the gallbladder
- Develops in 1-3% of patients with symptomatic gallstones

**Pathogenesis:**
- >90% due to obstruction of the cystic duct by gallstones of biliary sludge
Pathogenesis

- Gallbladder distension
- Oedematous gallbladder wall
- Cystic duct
- Gall stone impacted in Hartmann’s pouch
- Increased intraluminal pressure
- Fluid secretion
- Prostaglandin $I_2$ and $E_2$ secretion

↑ intraluminal pressure & supersaturated bile
- Triggers an acute inflammatory response
Pathogenesis

Local trauma from gallstones:
- Synthesis of prostaglandins
- Mediate inflammatory response
Pathogenesis

Secondary Bacterial Infection
- *Klebsiella*
- *E. Coli*
- *Strep faecalis* spp
  (approximately 20% cases)
Presentation

- RUQ pain
  - Constant for >12 hours
- RUQ tenderness
  - +/- Murphy’s sign
- Signs of inflammation
  - Fever
  - Elevated CRP, WCC
- +/- Past history of biliary colic
- Signs of septicemia
  - Bacterial colonisation
- Jaundice
  - Severe acute inflammation <60μmol/l
  - Choledocholithiasis
  - Mirrizi’s syndrome
Investigations

- Ultra-sound:
  - Confirms cholelithiasis
  - May show features of cholecystitis

**Cholelithisis:**

**Radiological Diagnosis**

**Cholecystitis:**

**Clinical Diagnosis**
Complications

• Complications of acute cholecystitis include:
  – Septicemia secondary to bacterial colonisation of the gallbladder
  – Empyema of the gallbladder
  – Gangrenous cholecystitis
  – Septic shock with multi-organ failure

• Complications of cholelithiasis include:
  – Biliary obstruction: choledocholithiasis, Mirrizi’s syndrome
  – Cholangitis
  – Gallstone pancreatitis
  – Gallstone ileus (small bowel obstruction)
Management of Acute Cholecystitis

- Fluid resuscitation, intravenous antibiotics, analgesia
- Laparoscopic cholecystectomy:
  - Within 72 hours

Aim of treatment:
- Relief of symptoms (pain)
- Prevention of complications
  - Acute cholecystitis
  - Cholelithiasis
Pregnancy

- High oestrogen:
  - Increased cholesterol saturation

- High progesterone:
  - Decreased gallbladder emptying
  - Increased resting gallbladder volume
  - Impaired response to cholecystokinin

Increased incidence of cholelithiasis
Symptomatic Gallstone Disease in Pregnancy

- Second most commonly encountered surgical problem (after acute appendicitis)
  - 0.05-0.1% of all gestations (US)
- Patients present in all trimesters:
  - 1\textsuperscript{st}: 19% - 26%
  - 2\textsuperscript{nd}: 38% - 69%
  - 3\textsuperscript{rd}: 6% - 36%
- Most patients can be managed non-operatively however:
  - recurrence rates of up to 60% reported
  - up to 90% of these patients require hospitalisation
  - fetal loss in 10-20% (higher in acute pancreatitis)
Safety of Laparoscopic Cholecystectomy in Pregnancy

• First described in 1991 by Weber et al
• Primary surgical management: better outcomes compared to patients managed non-operatively
  – Recurrence of symptoms 19% v’s 60%
  – LUCSC rates: 8% v’s 34%
  – Fetal loss: 2.5% v’s 7%
• Laparoscopic surgery has been shown to be safe in pregnancy
  – Laparoscopic appendicectomy
Laparoscopic Cholecystectomy

Conservative management of cholelithiasis and its complications in pregnancy is associated with recurrent symptoms and more emergency department visits.

Mohamed O. Othman, MD; Eric Stone, MD; Mariam Hoskimi, MD; Gabshar Farashter, MD
Albuquerque, New Mexico, USA

Surgical Management of Biliary Gallstone Disease during Pregnancy

Carlos A. Cosenza, MD; Bahman Saffari, MD; Nicolas Jabbour, MD; Steven C. Stain, MD; David Garry, MD; Dilip Parekh, MD; Robert R. Selby, MD, Los Angeles, California

Is there a benefit to delaying cholecystectomy for symptomatic gallbladder disease during pregnancy?

Rajeev Dhupar · Gina Mantia Smaldone · Giselle G. Hamad

Surg Endosc 2010
Laparoscopic Cholecystectomy

Management of biliary tract disease during pregnancy: a decision analysis

Eric B. Jelin, Douglas S. Smink, Ashley H. Vernon, David C. Brooks

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Delay in treatment of biliary disease during pregnancy increases ...
Muench, Jeffrey; Albrink, Michael; Serafini, Francesco; Rosemurgy, Alexander; et al
The American Surgeon; Jun 2001; 67, 6; ProQuest Health & Medical Complete
pg. 539

Delay in Treatment of Biliary Disease during Pregnancy Increases Morbidity and Can Be Avoided with Safe Laparoscopic Cholecystectomy

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Am Surg 2001
I'll never forget our time together...
Special Considerations

- Multi-disciplinary care:
  - Obstetric service
  - Experienced surgeon
  - Anaesthetic service
- Use of peri-operative and intra-operative fetal monitoring
- Left lateral decubitus position to avoid IVC compression
- Hasson trocar technique
- Intra-abdominal pressure 12-15mmHg
- Port positioning determined by size of uterus
Special Considerations

- Abdominal-pelvic shield during intra-operative cholangiogram allows for safe IOC
- Late 3\textsuperscript{rd} trimester
  - Technically very difficult (if possible at all)
  - Non-operative, medical management recommended, with view to proceed to laparoscopic cholecystectomy post-partum
  - Optimal time: not determined
Summary

• Acute cholecystitis not common in pregnancy, however total numbers are significant
• Principles of management are the same as for the non-pregnant woman
• Early laparoscopic cholecystectomy has been shown to be safer than non-operative management for both mother and child, including a lower rate of fetal loss
• Multidisciplinary care by specialised units recommended
• Some technical considerations required
• Patients presenting late in the third trimester may be managed non-operatively until delivery, with cholecystectomy performed post-partum
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