Sub mucosal. فيه ش: gi تكلمنا

fat meal → ↑ cholestrol → liver → bile
biliary passing
مكتسب عكري بمرارة .

GBD

أنتحي السلايد هين؟ . للأب لأنه ستأكدكم تحت السلايد

store and conc bile

E J Arteen FRCSI

what the clinical pt ↑ length ↑ cystic duct ?!
لما كمية تزيد عن.

- الطويلة أفضل . تشيلها more safe هو
لما القصيرة ممكن أربط hepatic or bile duct أربطها . أنقصها .
obstructive Jaundice ← يصير تيجي بالغلط

Turtins الا splenic Art شي

In the United States, about 20 million people (10%-20% of adults) have gallstones. **Every year 1%-3% of people develop gallstones and about 1%-3% of people become symptomatic.** Each year, in the United States, approximately 500,000 people develop symptoms or complications of gallstones requiring cholecystectomy.

شو زي ال appendix إليها! [gangrene ماتصير بالغالب] cystic Art خلط ربطنا بالغلط addition blood supply الا فيه
only one Blood supply
[Appendicular Art. → post cecal Art → ileocolic → sup M. SMA.

The phrase "fair, female, fat, and fertile" summarizes the major risk factors for development of gallstones. Although gallstones and cholecystitis are in women, men with gallstones are more likely to develop **cholecystitis (and more severe cholecystitis)** than women with gallstones. [7]

Gall Bladder

Stores & concentrate 50 -80cc of bile

Anatomy: pear shape sac has

Fundus, body & neck

Trans in pyloric plane
كارتلج xiphoid] ←

Fundus project from LB of liver, come in contact of AA wall

[below Soft border liver]
مهم Acute cholecystitis
murphy sign.

Surface anatomy of Fundus of GB

Body of GB is related to

- T colon
- Junction of D1-D2
- **Cystic duct:** 1.5 inch long, MM is folded. wavy (4 cm) ملتوي

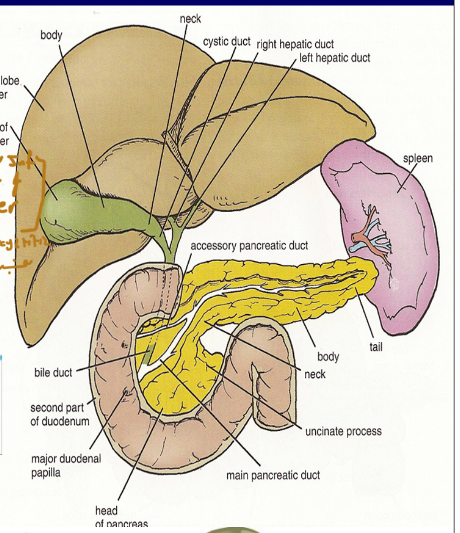
توسع الجدار بتزيد dilatation between cystic & Neck duct.

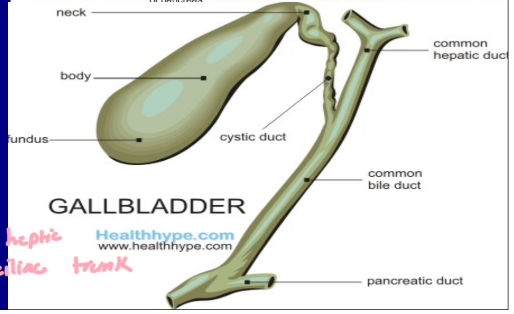
Hartmann's pouch
- Dilated posteromedial wall of neck
- Directed downwards and backwards
- Normal variation
- Gall stones may lodge in it - pathological

Joins CHD To form CBD

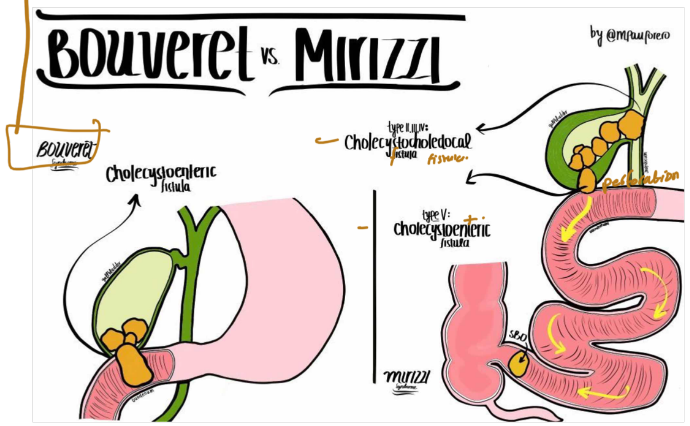
Bld. Supply:

- Cystic a. from right hepatic artery.
  ↳ common hepatic
  ↳ celiac trunk
- + addition liver Bed direct branches



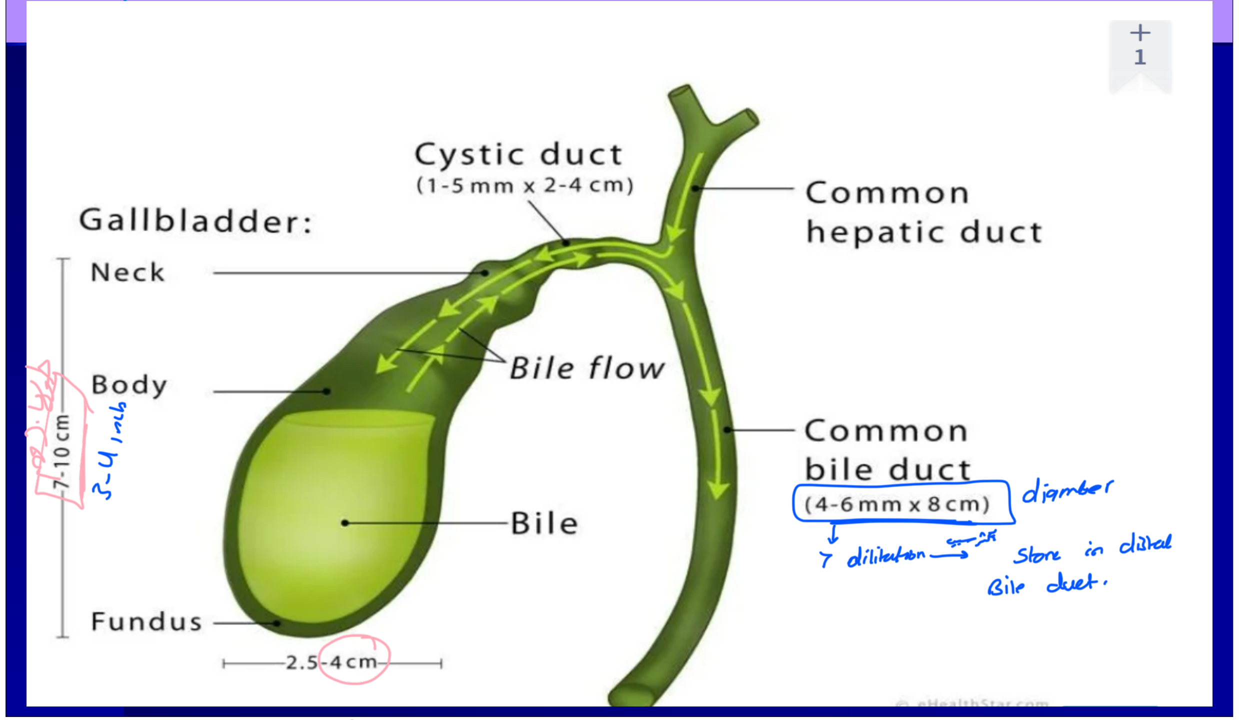


Acidity ↓ bile
to prevent stone
Less Alkaline
بتتبلور لأنها مشتركة
↓ Bicarbonate يعني
in gall bladder



بتدخل ال stone جوانية باب duodenum بتسكره . ولذلك مش بحبينزد.
Repeating vomiting → Alkalosis.

Biliary anatomy



3-4 inch

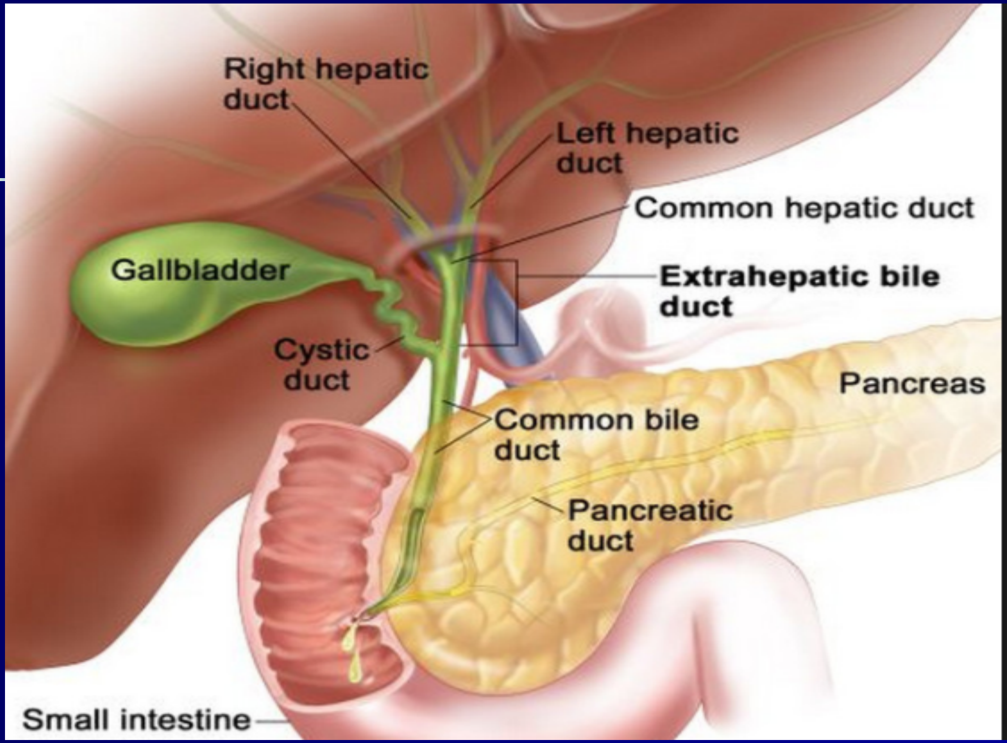
diamber

> dilitation → أكثر سبب Stone in distal Bile duct.

GB image → لغايا عرض > 4cm → Swelling edema (inflammation

wall thickness) Thickness الـ عرض بطلع من م ●
طبيعي 2-3 milli
(3-4) milli, Acute cholycystitis صار أعرض ←

سؤال تعليمي / wall thickness + Not inflation ?!
in edema case, or / hypo proteinemia, Ascites,
اكشياليوم congestive ♡ failure



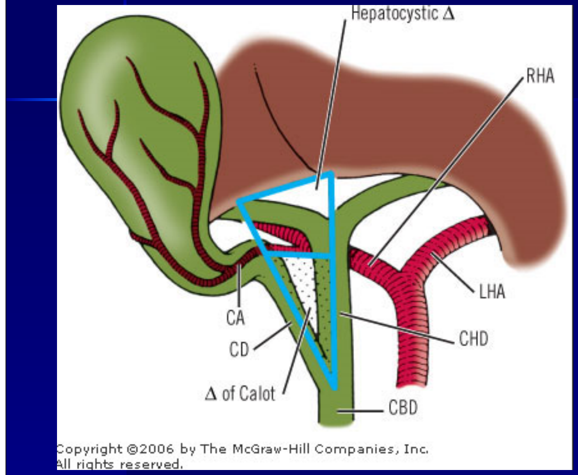
Chlwy' obstruct in cystic duct
E.coli
Bacteroid.

inflamt → tenzle of mubi → perivascular infect
mucocin (pus) → Ischemic → gangran
perforation.

Carotid LN.

Calot's Triangle

of cholesterol gallstones include obesity, a high-calorie diet, clofibrate therapy, gastrointestinal disorders involving major mpalabsorption of bile acids, cystic fibrosis with pancreatic insufficiency, and female sex and the use of oral contraceptives and other estrogenic medications.



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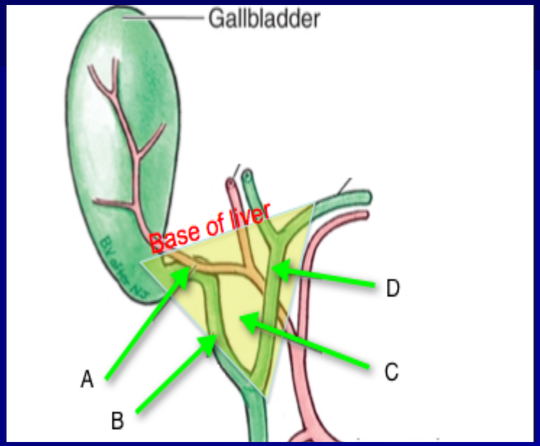


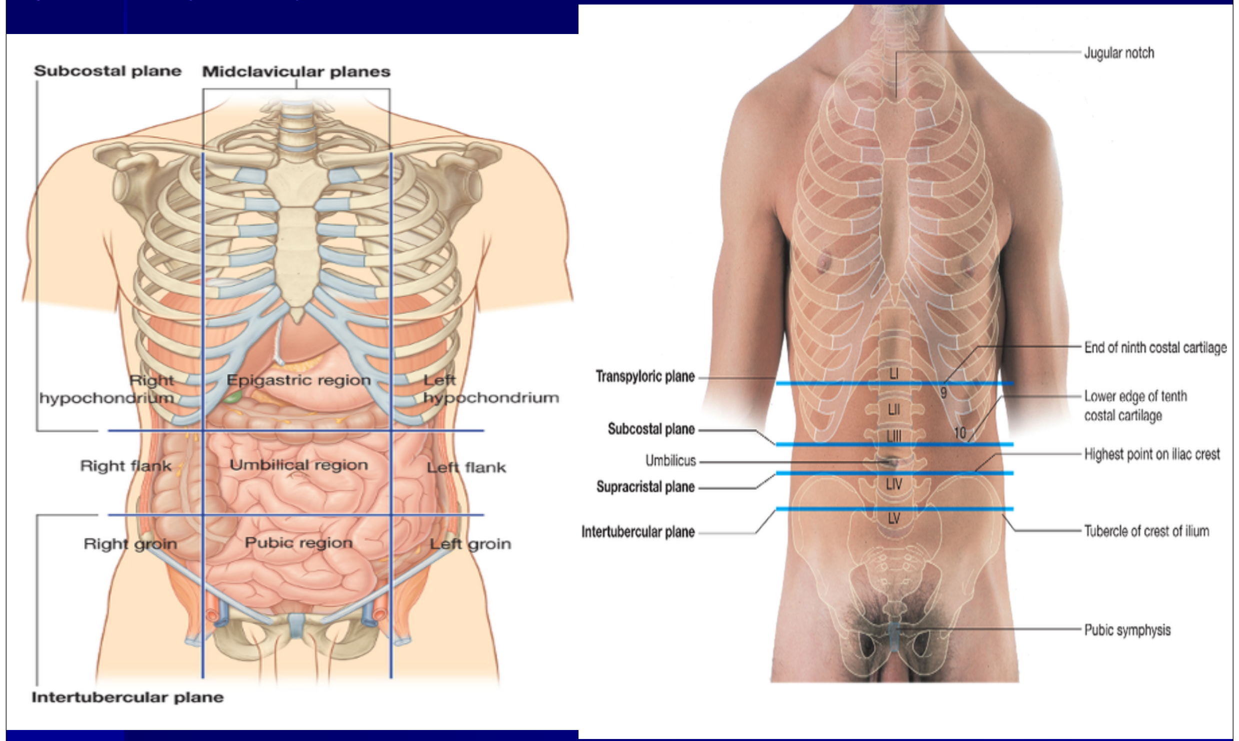
At the junction of the neck of the gallbladder and the cystic duct, there is an out-pouching of the gallbladder wall forming a mucosal fold known as *Hartmann's pouch*, where Gall Stones commonly get stuck.

. بين Inf border of Liver , common hepatic duct , cystic duct.

. جوّاته موجود → Cystic Art

لانه عمليه مهم ناخذ بالنا بال cystic duct Art ترتبط ال cystic duct.

Half the bile produced runs directly from the liver into the duodenum via a system of ducts, ultimately draining into the common bile duct (CBD). The remaining 50% is stored in the gallbladder. In response to a meal, this bile is released from the gallbladder via the cystic duct, which joins the hepatic ducts from the liver to form the CBD



duodenum 1st part → 2 inch [1st inch / 2nd inch ← غالعمليات بنفتح الـ duodenum حتى نشيل حصاة BD }

2nd

- retro duodenal BD :- behind 2nd inch of 1st part of duod.

BD [supra duodenal part بيكون في ① portal hepatis / ② free border of Lesser omentum

الـ 2 part: groove behind head of pancrease - راح الـ duodenum
بيصير عامود Joint BD
سمي Ampulla vater

(3 milli) head الـ بالـ BD عرض الـ
milli) tail

Anatomy of biliary system

Common Bile Duct (CBD)

Formed by union of:CHD+ Cystic Duct (3-4 Inches long 5-6 mm wide).

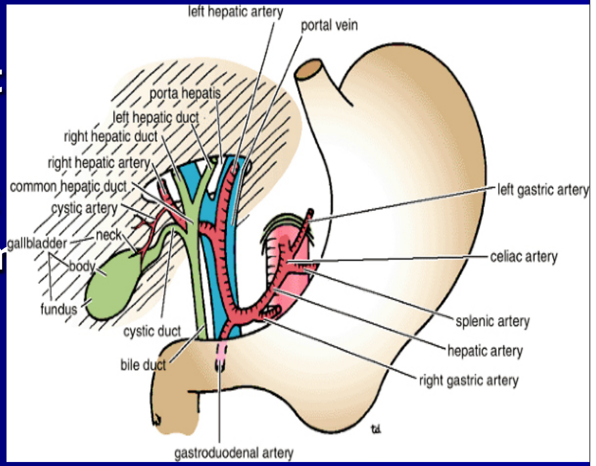
Descends down behind 1st part of D1

Joins the main pancreatic duct

Opens in 2nd part of duodenum Through:

Ampulla of Vater

Into major duodenal papilla



Blood supply; Run longitudinally, at 3-9 0clock from Gastro duod,Sup Pd ,Hepatic a

مهم تعرفوه

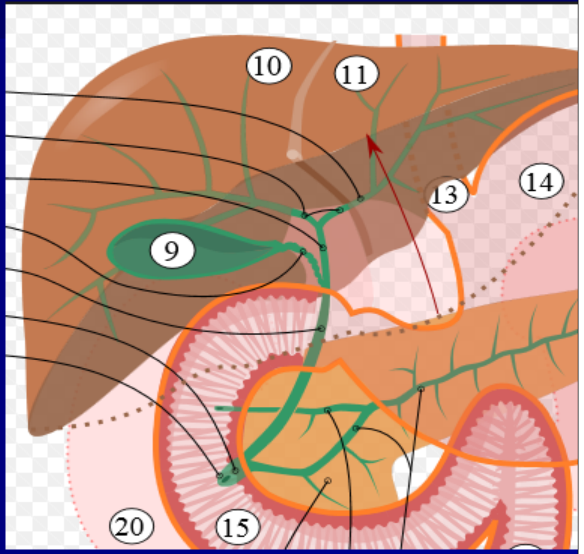
segment

cystic Art ← منحفوة Bsuppy
Rt Hepatic 7 Art.
اهما
sup. pancreat, duodn (gastroduodenal Art) ضعيف منو غني

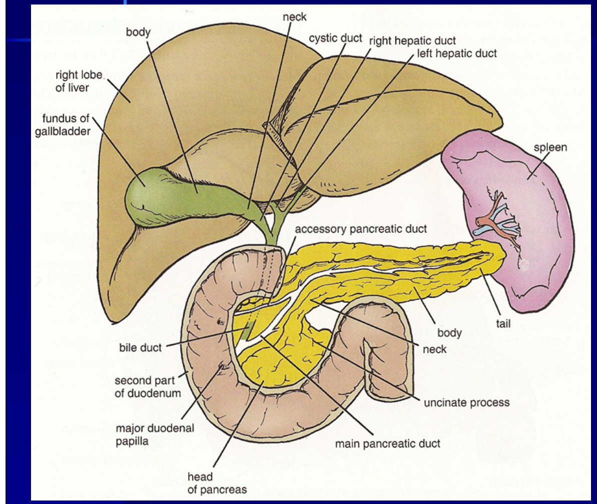
ما نفتح الـ bile duct بالطول ... بالعرض
بالطول عشان ما نجرح الـ Art الي longitudinal

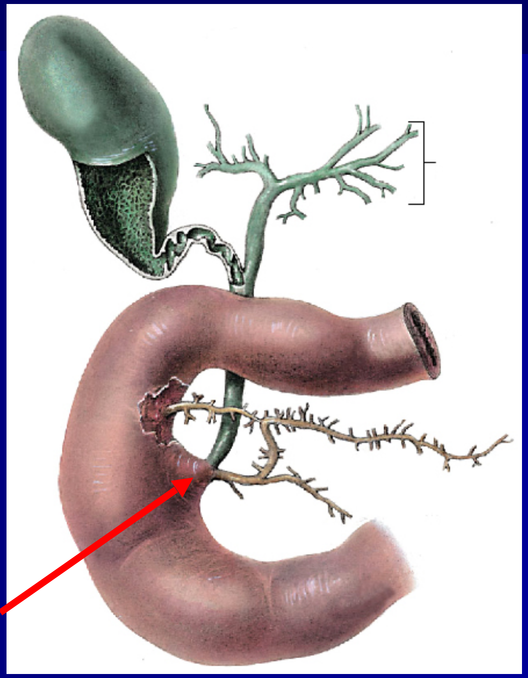
CBD

- **Bile duct has 4 parts**
- **In and just below porta hepatis**
- **In free margin of lesser omentum: lie on Rt side of Hepatic artery**
- **Behind D1 :lie on Rt side of gastro duod a, infront of portal v**
- **Behind head of pancreas; Lie infront of IVC**



Ampulla of Vater & Major duodenal papilla





Ampulla of Vater

2% ← كل سنة

GBD

disease

80% of patients, gallstones are clinically silent. Approximately 20% of patients develop symptoms over 15-20 years, that is, about 1% per year, and almost all become symptomatic before complications develop. **Estrogen increases cholesterol and its saturation in bile and promotes gallbladder hypomotility**. Diminished gallbladder motility is commonly seen during pregnancy Acute cholecystitis develops more frequently in symptomatic cholelithiasis patients with type 2 diabetes mellitus than in symptomatic patients without it.These patients also are more likely to have complications.

- Genetic and environmental factors contribute to GBD.

Asympt بيضل 80% ...

- 80% are asymptomatic 20% develop symptoms in 15-20 years.

مثلا

↳ Asymptomatic بيقلب → symptomatic

اوبتاري. complicity

- Complication is typically in late 40s. Acute cholycystitis, pancritit, obstructive gall stone ileus, carcinoma | GB Jaundice
- Female gender 9:1 , pregnancy, family history are risk factors .

نفس الشي ↓ بالإضافة لكل تحديات كرحا أكبيرة. ستفعل الاسته لكل 8

- 60% of AC are women , disease is more severe in men.

Cholycystitis

biliary colic G stone أكثر female , Acute Cholycystitis أكثر female لكن ستشير 60%

- Increase lipids and carbohydrates in diet.
- High cholesterol ,and triglycerides , Type II DM.

relation cholesterol , Bir salt, Lecithin [solubity of cholesterol in Bir acid

GB stone < طفل] ⟶ شيئ أمر [cholestrol stone ← super satur. لكولستيرول chols in bile

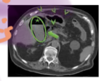
Female male] eldry (60 سنة) + Asymptomatic ⟶ Most of cause (No Always!) don't need surgery

GBD → أكثر female Although worse in female but still if we have common.

Cholycystitis + (more severe → men with Acute cholycytitis (بايفي)

[worse , perforation emphysematous cholecystitis → gangrene اوزاق هميميز

Emphysematous cholecystitis is **a rare form of acute cholecystitis where gallbladder wall necrosis causes gas formation in the lumen or wall**. It is a surgical emergency, due .to the high mortality from gallbladder gangrene and perforation



تحت تضخيم

- Renal transplant.
- Steroid drug (cortisol) → سكر
- Stone > 2.5-3 cm → عندها → gall bladder cancer
- مرضى زراعة + Immuno supression drug → نفضل نشيله
- DM pt → الأفضل نشيلها. السكر بيخلي الأعراض مش ظاهرة → Acute cholycystitis (bad)

Types of GBS

(A) **Cholesterol Stones** (85%) most :Obesity , Pregnancy ,Gallbladder stasis ,Drugs , Heredity.

radiolucent 80% radio opaq 20% (ما بتبين في الأشعة)

- These are divided
  - *Pure 90%-100% cholesterol* : Pure , whitish >2.5cm — smooth ناعمة smooth
  - *Mixed (50%-90% cholesterol):* Small , multiple variable shape and size. but it is MCC of stone in biliary passage

(B) **Pigment stones (15%)** — Ca⁺ bilirubinate

- Pigment stones occur in 2 subtypes .
  - *Brown stones* :formed of Calcium Bilirubinate. + infection
  - *Black stones* :Elderly , Cirrhosis, Haemolysis. / RBCs
    male gender (liver cirrhosis) RBCs

Brown stones are made up of calcium bilirubinate and calcium-soaps. Bacteria are involved in their formation via secretion of beta glucuronidase and phospholipase. The bacterial glycocalyx aggregates with the bile pigment and precipitates out of solution. These stones are more common in Asia and tend to form within the bile ducts. They frequently are associated with periampullary duodenal diverticula . Black stones typically form in the gallbladder and result when excess bilirubin enters the bile and polymerizes into calcium bilirubinate. These stones are more common in patients with chronic hemolysis, alcoholic cirrhosis, and advanced age.

type — نعرفيه بالاعتبار لعشانك

cholesterol — pigmented

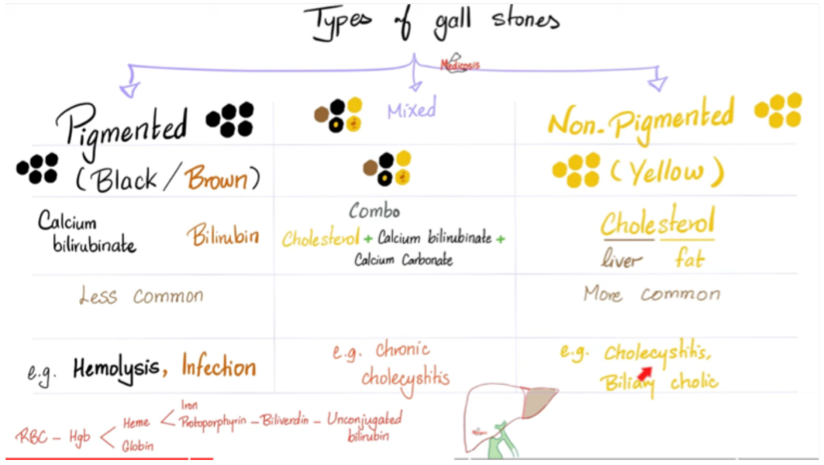
- ثانية infection (Brown)
- (hemolysis) Blood

GBS

except لكن فيه — Asym حصوات ساكنة عند ناس كتير so you don't need to operate on asymptomatic gall stone

- 17% of population has GBS , 50% remains asymptomatic over 10Y periods .
- **Types of GBSs**
- Cholesterol stones.
- Pigmented stones (Bilirubin Stones).
- Mixed stones.
- Calcium bile salts.

The formation of gallstones is often preceded by the presence of biliary sludge, a viscous mixture of glycoproteins, calcium deposit and cholesterol crystals in the gallbladder or biliary ducts.In the U.S., most gallstones consist largely of bile supersaturated with cholesterol. Bilirubin stones, often referred to as *pigment stones*, are seen primarily in patients with infections of the biliary tract or chronic haemolytic diseases (or damaged RBCs)



Types of gall stones

Pigmented	Mixed	Non-Pigmented
(Black / Brown)		(Yellow)
Calcium bilirubinate Bilirubin	Combo Cholesterol + Calcium bilirubinate + Calcium Carbonate	Cholesterol liver fat
Less common		More common
e.g. Hemolysis, Infection	e.g. Chronic cholecystitis	e.g. Cholecystitis, Biliary cholic

RBC – Hgb < Heme < Iron / Protoporphyrin – Biliverdin – Unconjugated bilirubin; Globin

hypersat.

Colic : comes and go
distention منتفخ

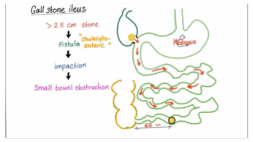
pain of GB c. غالبا pain in epigastric region الدرس Rt hypochondrium
ممكن تكون ال 2 (Rt upper Quadrant

40/50 Years severe epigastric pain, sudden onset →
(Inf. myocardial infraction)
biliary colic ممكن تكون

Indigestion, belching, bloating, and fatty food intolerance are thought to be typical symptoms of gallstones; however, these symptoms are just as common in people without gallstones and frequently are not cured by cholecystectomy.

Stages of GBS

- ① Lithogenic state, in which conditions favour gallstone formation.
  Δ ↑ cholesterol → ↑ gall stone
  بص
  بيعمل
- ② Asymptomatic stage.
- ③ Symptomatic stage.
- ④ Stage of complications.
  = (Acute biliary colic (symptomatic)
  ① Acute choly st ② OJ.
  ③ cholangitis (Salt in BD)
  ④ AP. ⑤ GB cancer
  ⑥ fistula between (gall stone ileus)



Rome Criteria for Biliary Pain

- Located in the Epigastrium and or RUQ. (common)
- Occur at variable intervals.
- Severe enough to interrupt daily activity and lead to ED visit.
- Last at least 30 minutes.
- Builds up to steady level.
- Less than 20% reduced by bowel motion, or acid suppression, Or postural change.
- **N.B :** May be associated with nausea and vomiting ,radiates to back Rt infra-scapular region , awakes Pt from sleep.

fatty meal لما ياكل بعد (6-5 ساعات - 15 min . لما تبدأ pain
ليش بيرجع . بالساعة ممكن بعد but roughly (30 - 90 min) typical biliary colic
الوجع . (peak)

ال biliary colic ما بخف ولا بتغير وضعية
يعني لدرجة تستفرغ/تقيء.
راح الوجع
unlikely GB
الوجع
+ Rt shoulder (tip of shoulder)
المريض بحكي إنه حالته ماكان رح يصحى مع وجع شديد
يعني مش مهم F.

biliary colic is Bad sev
ما بنفع معه . بالحبوب
diclofen . . -
Intra muscular/IV تحتاج Analgesia.

biliary colic تسكير temporary مؤقت ←
Acute cholecystitis ← مستمرة على طول.
[لذلك إذا ضل الوجع
pain for 4-6 h
بطل biliary colic ← تحول Acute cholecystitis

wt cause biliary colic?
contraction in GB c stone) انقباض
After fatty meal (
احتباس الحصوة cystic duct بتسكر ال
biliary وتعمل عندي

Biliary colic is defined as **pain in the abdomen, due to obstruction usually by stones in the cystic duct or common bile duct of the biliary tree**. It typically occurs after eating a large, fatty meal that causes contraction of the gallbladder

Asymptomatic:- blockage to cystic duct تسكير مش

①

pain — (Acute Abdomen) brigade) عدوة

Visceral (ANS)
Fore gut (epigastric)
mid gut (periumbilical)
hind gut (suprapubic

parietal (somatic) sharp severe
.شرح Appendicitis, cholycystitis

Visceral p. → Poorly localized → BC No sign, No tenderness No rigid → exam normal

طب كلية // pt with Acute + Acute cholycystitis perforated ulcer pain is 2. severe Seven ... onset eg. sudden pain
Acute pancreatitis 2. sudden
mesentric Isch 2 " Sudden

③ 1. Symptoms (اخرف بسيط)
Abdomen rigid, tenderness, guarders

→ Mesentric Isch لانه ما بعيد تحركت الـ nerves (بعد 6 ساعات -) → أول 6 ساعات بيروح من الوجع (sign) وبطنه نشوفها حاجة

Appendia (visceral pain in T_{10} → para umbilical)
visceral pain of GB T_8 - T_9

- typical BC → not relive with Analgesia.
- pt with G Stone in image → may cause of stone or Not
  + Bleating, distension (صدفة)
  لو كان سببها الحصوات، هتروح مع السونار وتعمل لها العملية لغير الأعراض ... مش storp

اخصائية بالسلامة

الفرق

مغص الكلى / الحالب Ureter colic	BC
بيروح وييجي	constant type of pain. 30 → 3

Biliary colic خطأ (miss name cas colic: goes and comes
↳ هنا ألم نتيجة distention in gall bladder (لأنه [obstructing + cystic duct]) → constant pain.

How to differentiate BC from AC

Uncomplicated Biliary Colic :Pain that is ***Poorly localized and visceral***; an essentially benign abdominal examination without rebound or guarding; absence of fever.

Acute Cholecystitis : Well-localized parietal pain in the RUQ, usually with rebound and guarding; +ve Murphy sign (nonspecific); frequent presence of fever; absence of peritoneal signs; frequent presence of tachycardia and diaphoresis; in severe cases, absent or hypoactive bowel sounds,70% previous similar attacks.

حجز نفس

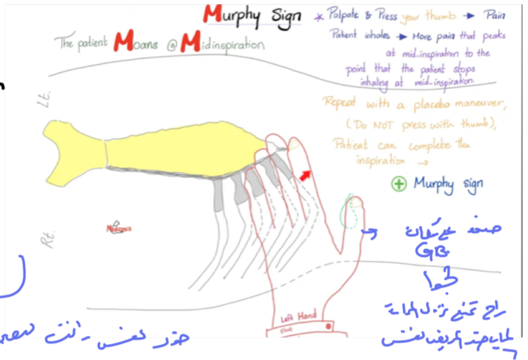
Hematologic Studies

- **CBC** [WBC → AC → ↑ [فقط. < 16 000 | (1/3 - 1/4) من AC (normal WBCs ; > 16000 → شك من Chloangitis, perforation.
- **LFTS** liver function Test
  - ↑ Alkaline phosphatase (half life = 7 days)
  - ↑ enzyme (in AC)
  - لو اتشلت الـ stone هيفضل عالي شهورين normal لا بعد أسبوعين. / Alkalie phosphates بيطلع Bones liver, SI, placenta, kidney —
  - iso enzyme (بنفرق)
  - Addition liver enzyme (gamma glutamyl Transferase)
  - إذا عالي هون ← Liver. مش معهود ← سببه
- **Serum amylase & Serum lipase .**
  ↳ pancreatitis حتى نتأكد انه مش
- **FBS.** Fast Blood sugar
- **RFT.** Renal function test
  حتى نشوف → dehydrate or Not

②

BC	AC
- Visceral pain ↓ (Autonomic - Abdomenal examination is benign مش خطير	parietal (somatic) - tendrness, Rebound, gurdr + Murphy sign. + indirect fist percusion

- العضلة مع الضربتين حجز نفس - انت تضغط عليه



Murphy Sign

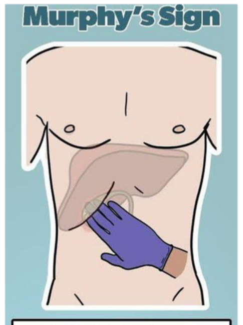
The patient Moans @ Midinspiration

* Palpate & Press your thumb → Pain
Patient inhales → More pain that peaks at mid-inspiration to the point that the patient stops inhaling at mid-inspiration.

Repeat with a placebo maneuver, (Do NOT press with thumb), Patient can complete the inspiration →

⊕ Murphy sign

ضغط على مكان GB لما راح تخلي المريض يوقف تنفس



Murphy's Sign

A positive **Murphy's Sign** indicates potential cholecystitis or inflammation of the gallbladder.

To test, **firmly palpate the RUQ subcostal region**, pushing under the ribs. Ask the patient to take a deep breath.

A positive sign is when significant pain is elicited by this maneuver, usually **stopping them mid-breath.**

هيتوجع

رابالتالي هيتوله عليها
ضغط فا كتهون ملتهبة
ستالف د مزهيد pain

لما يا خد نفس هيتوجع

one Test for thyroid function → (TSH) لوحده كافي

normal <5

>5 hypothyroid.

Investigation of Biliary tract

First investigat todo for pt suspect GS ?!

أسهل حاجة - الرخيصة.

Plain Xray abdomen PFA:.

- Done to investigate causes of abdomen pain.
- Exclude intestinal obstruction or air under diaphragm , renal stones.
- In biliary disease used to identify GB stones, mural gases ,air in biliary tree, mural calcification.

why we do it ?! مش عشان الحصاوي بس

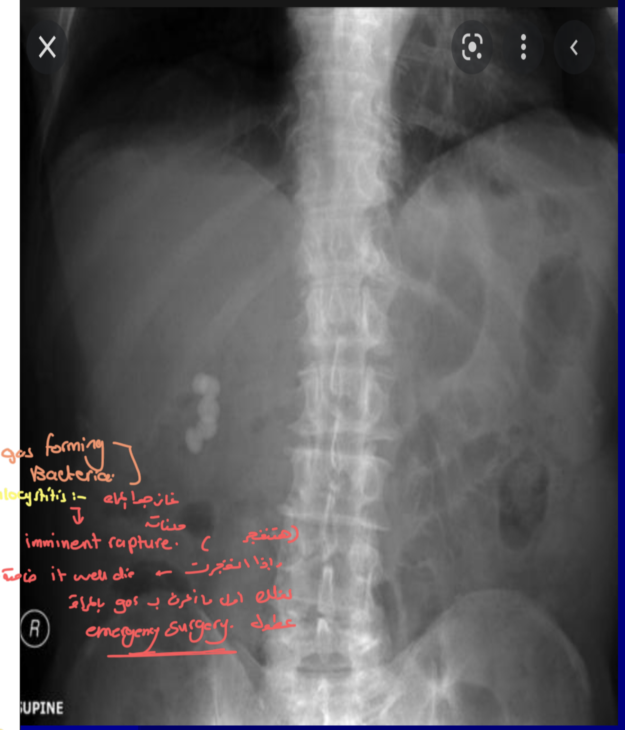
مضاعفات
perforated viscus
[in SI
LI]
مضاعفات ممكن
life threating.
أنواعه
- perforated duodenal ulcer
- gastric ulcer
- Appendix
- p. sigmoid.

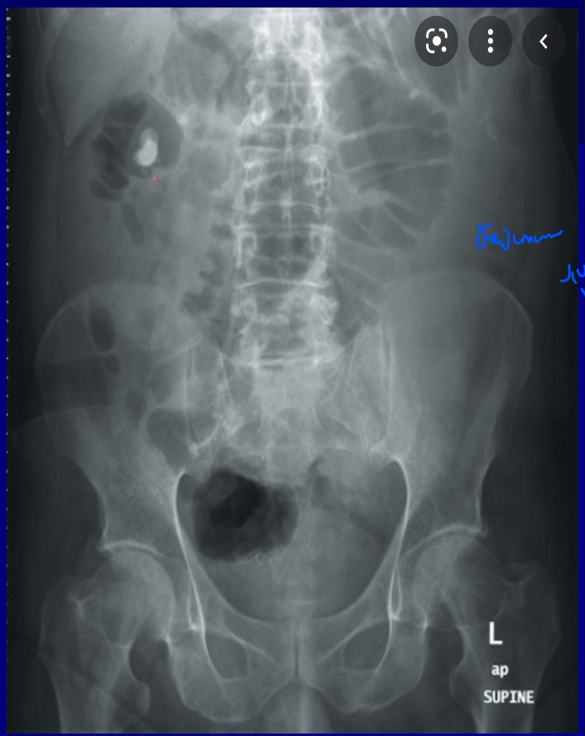
+ air in wall of GB
[emphysematous [gas forming Bacteria]
emphysematous chlocystitis :- غازات جوا الـ حيطان
↓
imminent rapture. (هتنفجر)
Factor خاصة كبار السن it well die ← وإذا انفجرت
elderly, IDM.
عملية طارئة لأنه لو الأمعاء ب gas بالمرارة
emergency surgery.

● 15% GS apperance in xray. (Ca⁺) ملح
85% GS not Appear (cholestrol stone)

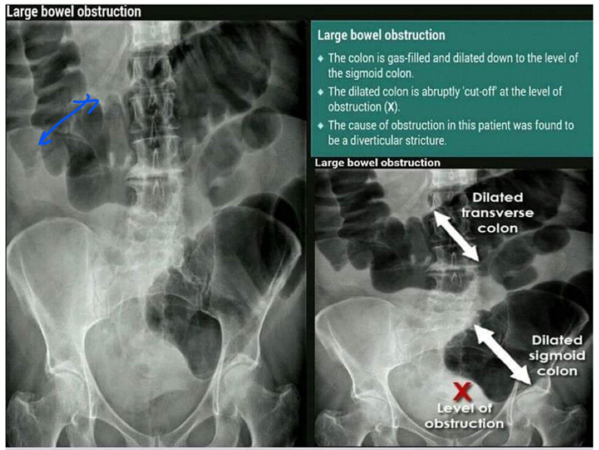
pigment stone

xray. ← 85% stones Kidney عكس





كيف أفرّق / colon
? xray ع SI
. Jejunum
(valvulae conniventes)



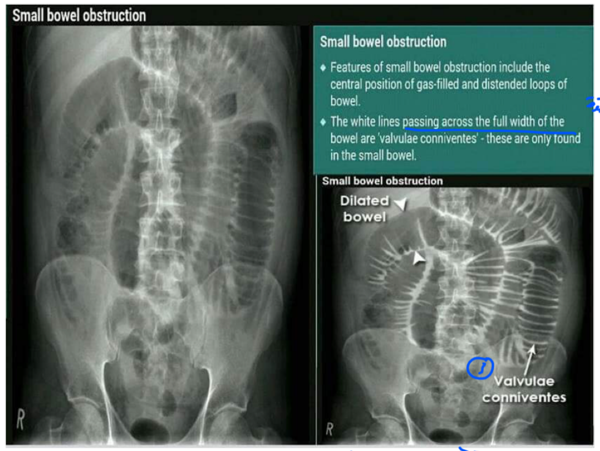
Large bowel obstruction

Large bowel obstruction

- The colon is gas-filled and dilated down to the level of the sigmoid colon.
- The dilated colon is abruptly 'cut-off' at the level of obstruction (X).
- The cause of obstruction in this patient was found to be a diverticular stricture.

Large bowel obstruction

76cm. ماحدش 1/2 في الـwall دائرة مترية



Small bowel obstruction

Small bowel obstruction

- Features of small bowel obstruction include the central position of gas-filled and distended loops of bowel.
- The white lines passing across the full width of the bowel are 'valvulae conniventes' - these are only found in the small bowel.

Small bowel obstruction

ماخذة كل الـ wall

centrally . 73cm. +

Type of U/S → surface
- endoscopic
- Laparoscopy
- trans rectal
  trans vaginal

Sinisivity :- 70.
Stone in BD. معناته لو عندك 100 مريض عندهم
← U/S 70% عندهم +
30 (-) رغم إنه عندهم.

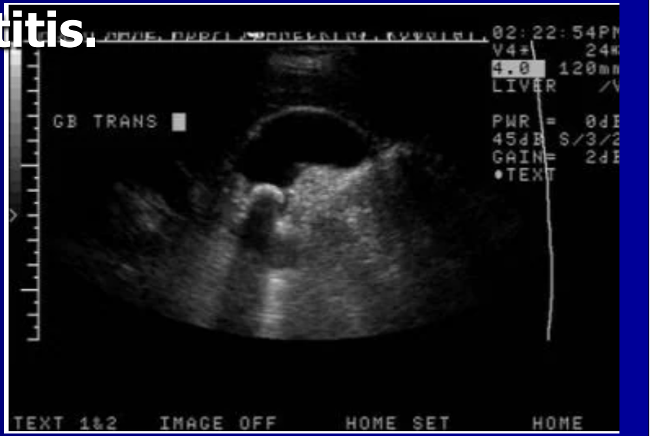
- U/S is better than CT to diagnosis GS.
- sensitivity of U/S to detect Bile stone is operator dependent معتمد على الشخص الي بعمله. (low) 70% (sensitivity) تقريبًا

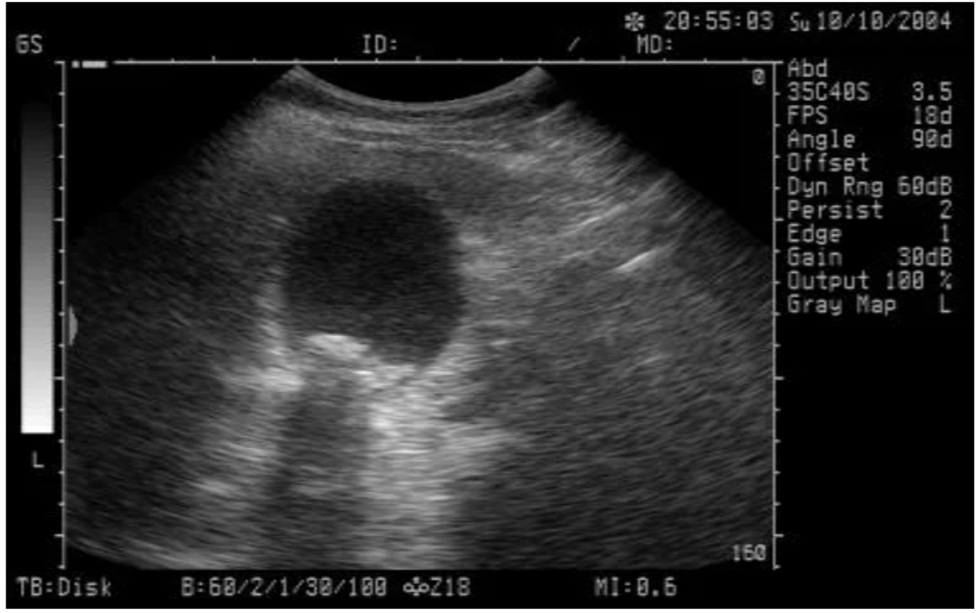
U/S

sensivity

- Accurate more than 98% in identify GB stones.
- Done in supine and lateral decubitus. (post على جنبه ، بتأكد الحصوات .
- Diagnose intra-extra hepatic biliary dilatation. normal BD (4-6 mm) diliameter
- Detect GBS ,and bile duct stones.
- GB polyps , Choledochal cyst
- Detect Acute cholecystitis.
- EUS endoscopic U/S
- Laparoscopic US → لنعمل عملية تنظيف حصوات in BD Stones

surface U/S





The sonogram only shows gallstones within the gallbladder but no evidence of cholecystitis (ie, gallbladder wall thickening, pericholecystic fluid, common bile duct dilatation, sonographic Murphy sign).

View Media Gallery

Can miss stone (small (< 2/1mm .) ممكن ما تشوفها U/S

cristals (AP) لحدهاي فشيان ما تشوفها.

- ***General ultrasonographic features of AC***

Findings include ***Gallstones or Sludge*** and one or more of the following conditions:

- Gallbladder wall thickening (>2-4 mm) - Gallbladder distention (diameter >4 cm, length >10 cm)

+

fluid حواليها

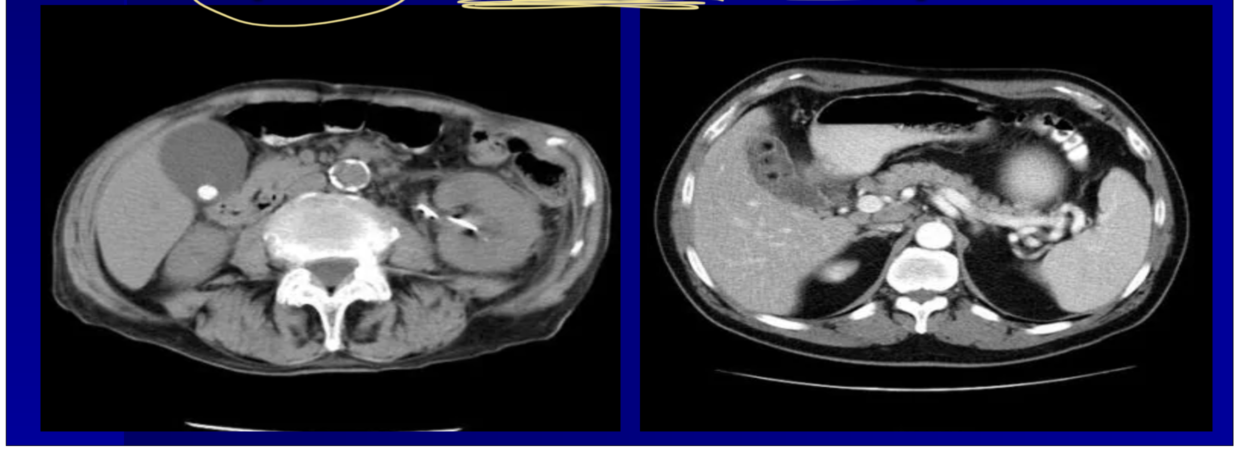
- Pericholecystic fluid from perforation or exudate –
- Air in the Gallbladder wall (indicating gangrenous cholecystitis) → emergency . Surgery
- Ultrasonographic Murphy sign (86-92% sensitive, 35% specific) - pain when the probe is pushed directly on the gallbladder (not related to breathing).

مرة أول ما اضغط بصيرت لحرقنة لما أضغط بناءً ميبطل يوجعه (

تكون مناسبة-

CT Scan

- **Although approximately 20% of gallstones are not identified on CT.**
- **The sensitivity of CT is not higher than us for obstructive jaundice.**
- **It is important for Staging of Biliary tumors.**



Continue

- **HIDA 99 T Scan.**

· صحيحة

بستخدموها صحت

non visualise of GB in HIDA

حالتين (Acute cholecystitis

fund → بتجي cystic duct is Block.

→ Bile leak.

. ماخذ إذ خربة ترجع للمرارة

cystic duct is Block ← cut bile لو لقيت منها ← داخل bile لونه اصفر]

- **PTC.**

CHD. ↓ contrast { بيرجع على cystic وبسرعة ع duodenum.

Percutaneous Trans hepatic cholangiogram (بحقن عن طريق الـ liver بالطرف بنحقن منه duodenum لـ BD.

شو إشي بيوجعها. بس أنبوبة فيه mucus in GB حتى بعيد منها Ulceration.

mucus in stomach to prevent PU.

- **EUS.**

. الفرق

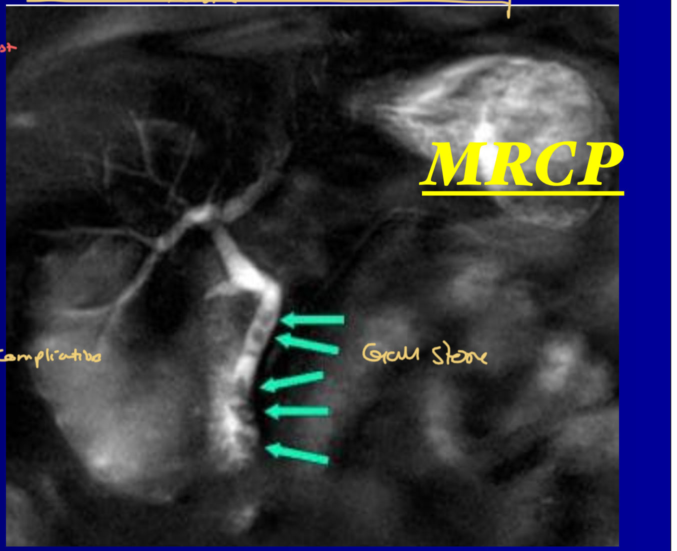
- **ERCP** more Invasive

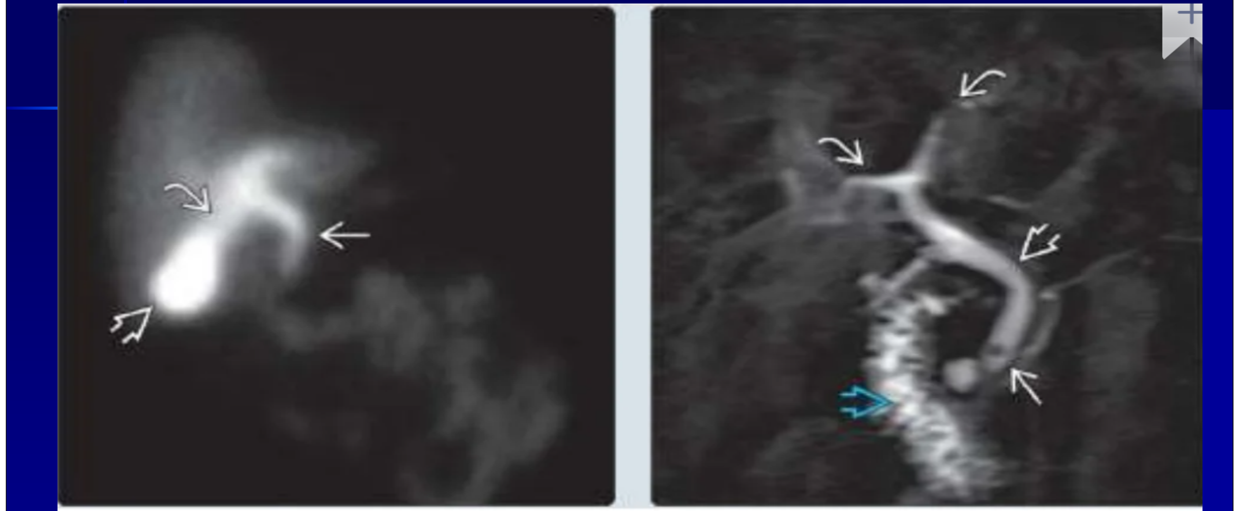
endoscopic retrograde cholangeo pancreatico graphy.

Pancreatitis Complications

- **MRCP** non invasive

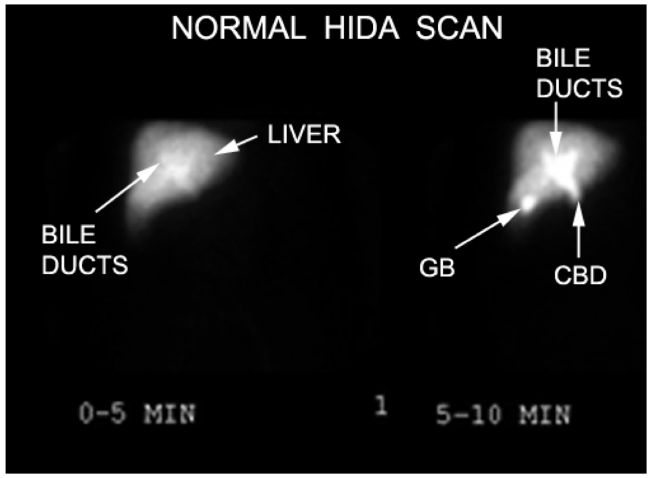
magnetic resonance cholangiopancr.

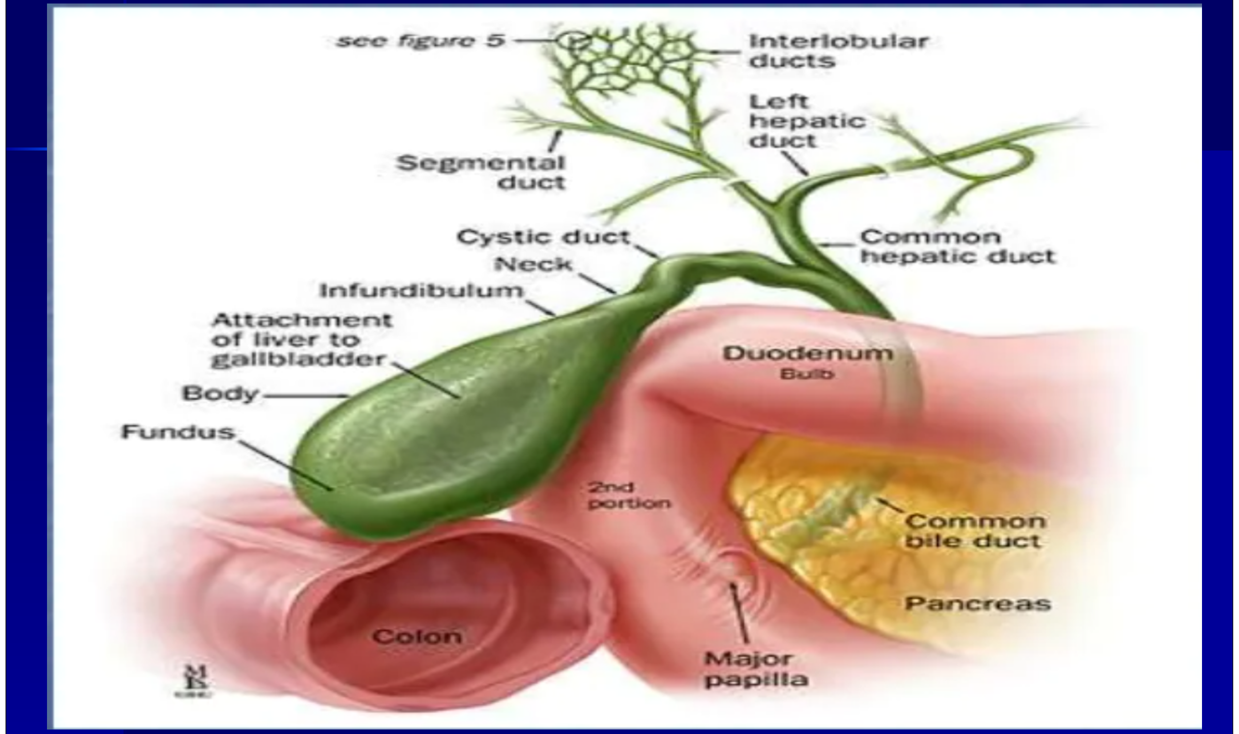




(Left) Normal hepatobiliary scintigraphy study shows. GB , cystic duct and CBD Note faint radiotracer in the liver and bowel.

(Right) MRCP 3D reconstruction of the biliary system in patient post cholecystectomy is shown. Left and right intrahepatic ducts , CBD , second portion of duodenum, gallstone in the distal CBD.





Cholecystectomy in pt with increase risk of GBC

- **Porcelain GB.**
- **Stones larger than 3 cm .**
- **Family history of GBC.**
- **Cholecystectomy at time of Bariatric surgery**

Symptoms of Biliary Disease

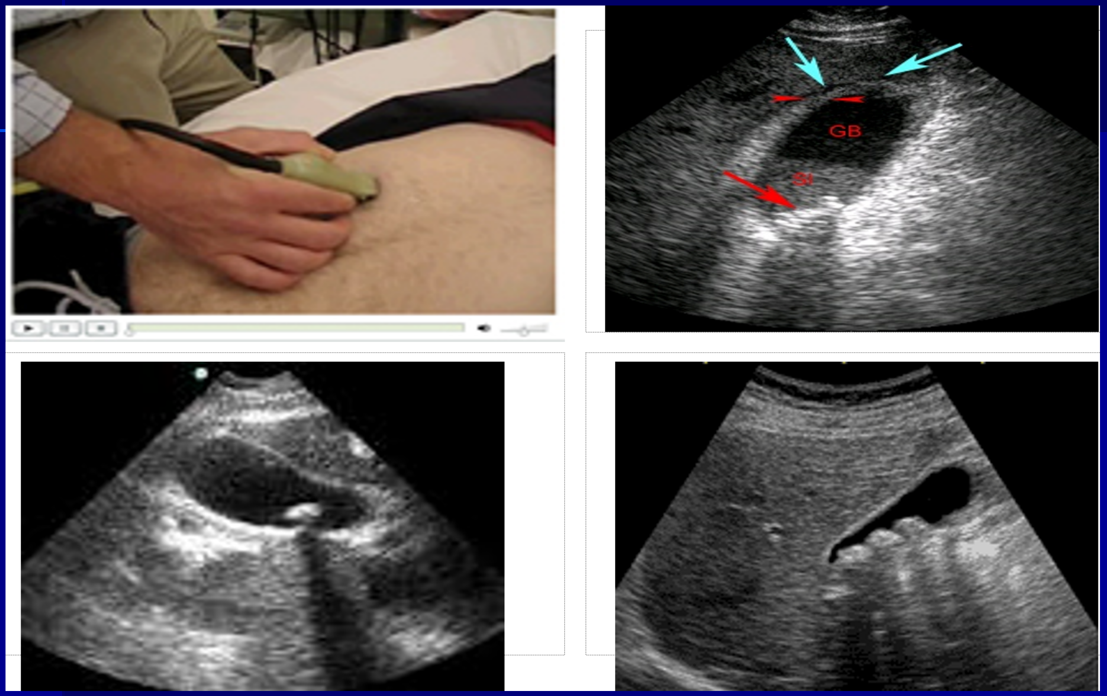
- Abdominal pain.
- Jaundice.
- Nausea and vomiting.
- Loss of appetite.
- Fever , chills.
- Fatigue, Itching [illegible] (Bile Salt.
- Clay colored stool ,tea colored urine.

obstructive J.
hepato cellular J.
or

→ bloating [illegible] , Abdominal distension , blushing. يتكرع
تحس كأن
([illegible] , hiatus hernia
diverticular dis in colon

→ clay → obstructive J.

hemolytic Jaundice → dark brown stool (excessive bilirubin)
→ urine normal.



%, 2-1 [Symptomatic / nonsymptomatic] Stones [illegible] size

Acute cholecystitis

- Surgical Emergency require in hospital admission.
- AC is caused by stone blocking the cystic duct continuously.
- ② Pain in RUQ &Epigastrium more than 4-6 hours.
- Nausea and vomiting.
- Fever not common ,Leukocytosis. (1/3 الحالات normal
- RUQ mass.
- Mild elevation of bilirubin level. + Alkaline phosphatase /
- Most diagnostic sign is Rt upper abdominal tenderness.
- **Murphy's Sign:** Inspiratory Arrest with Palpation over GB.

لازم ينام بالمستشفى . كمان GIS ← متابعة سريعة .

AC

الأعراض ممكن تختفي ، مع

- **Symptoms may be Muted or Absent in**
  - Obese.
  - Immunocompromised.
  - DM.
  - On steroids
  - Change of level of consciousness.

مش واضح .
بعيد perforation.

العلاج دك الي لازم نعمل عملية حتى لو كان Asympm
(95%
منه الحالات ستعمل حصوة .

10-15% من ال pt اللي عندهم GB stone عندهم BD stones,

90% GB نازلة من ← CBD stone.
غالبا

10% بتتشكل بال BD

in BD there's a misl stone (شو الحالة يسببها الحصوة
ماكنت عارف إنو موجودة، عملت أعراض → Stone in common BD نفس أعراض
biliary colic أعراض (cystic)

بيجي المريض بعد العملية بيشكي الوجع الي كان قبلها رجع تاني ؟ .

CBD Stones

- CBD stones is found inn 6-12% of gall stones.
- It is the commonest cause of Obstructive jaundice.
- Mirizzi syndrome: is the presence of a stone impacted in the cystic duct or the GB neck, causing inflammation and external compression of the CHD and thus biliary obstruction. A fistula m… gallbladder and the CBD and the gall… lie in the CBD.

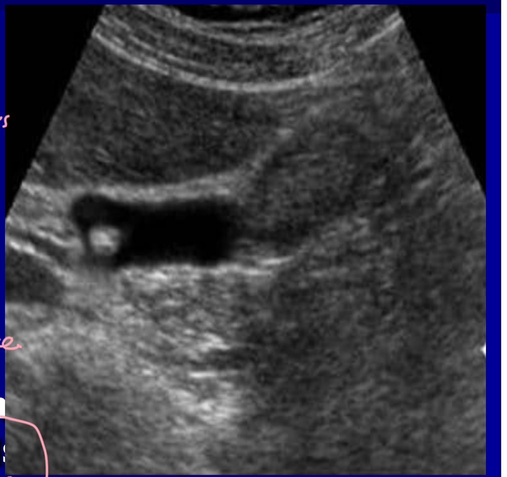
Jaundice ← [illegible]
M1
Fistula (type 2
Gall stone ileus

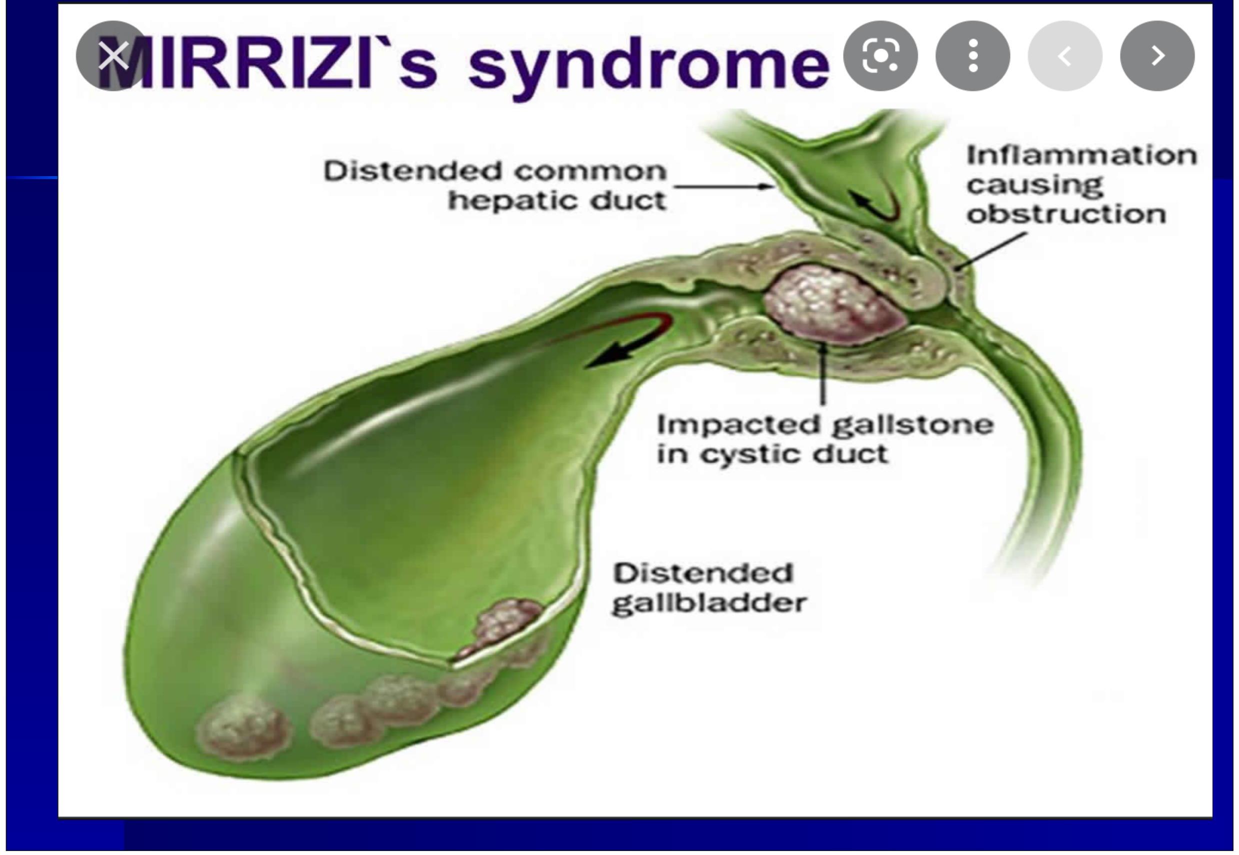
→ Jaundice

لو بيزحم إنه فيه
الحصوة هتطلع BD.

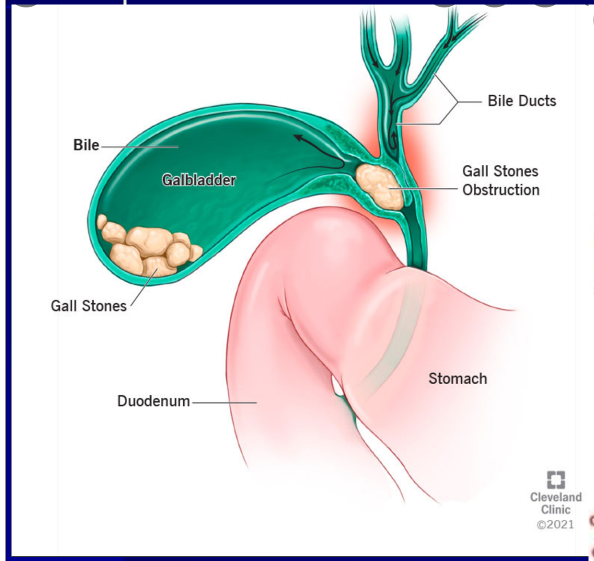
بيشبه
Gall Stone ileus

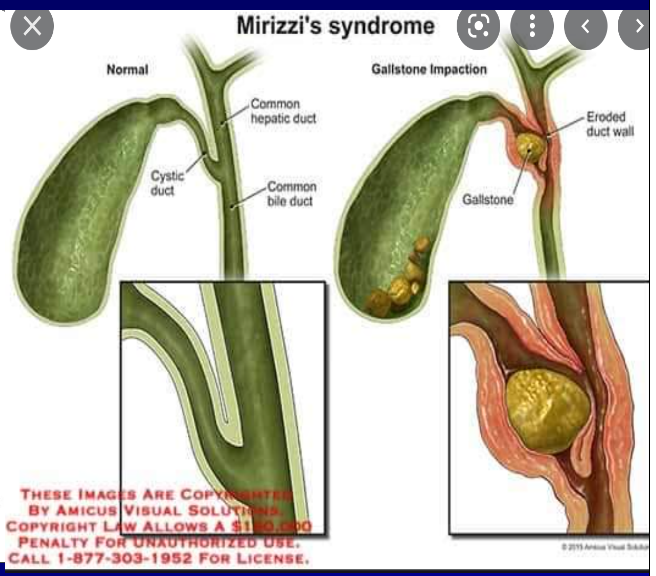
Perforated
duodenum تخترق ال




MIRRIZI`s syndrome
Distended common hepatic duct
Inflammation causing obstruction
Impacted gallstone in cystic duct
Distended gallbladder

Types of Mirzizi's syndrome




Mirizzi's syndrome
Normal
Gallstone Impaction
Common hepatic duct
Cystic duct
Common bile duct
Eroded duct wall
Gallstone
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Extrahepatic causes of CBD obstruction

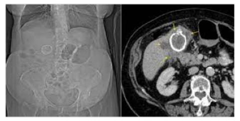
- Extrahepatic causes are subdivided into those that are intraductal and those that are extraductal.
- ***Intraductal Causes:*** include stone disease, neoplasms, biliary stricture, parasites, primary sclerosing cholangitis (PSC).
- Choledochal cysts cause functional biliary obstruction.
- ***Extraductal Obstruction:*** caused by external compression of the biliary ducts may be secondary to neoplasms, pancreatitis (acute and chronic), pancreatic pseudocysts, collaterals of portal hypertension (portal biliopathy), or cystic duct stones with subsequent gallbladder. distension.

سؤال بعيد

Asymptomatic pt → GB. ال إلها بستأصله. ?!

☐ procelain GB (calcification in wall) → Risk to cancer

ص 20



☐ Stone > 3cm

[3] History of GB cancer

cancer in GIT from commonest

[1] Colorectum
[2] Stomach
[3] pancrean
[4] esophageal
[5] GB cancer.
[6] Liver

• %65 from biliary tree cancer is in GB (BD, Ampulla of vater, HD ..)

GB stone - [illegible] } Bad cancer عبارة عن

→ ulcer لحتى

→ أخذت عينة ما كان واصل ال Cancer to deep layer → ضمحلو.

• rapid wt loss → GBS

Cholecystomy not necessary in Bariatric surgery.(GBS. بالعمليات!

Tumors which leads to biliary obstruction

tumor in BD { 2ed commonest malignant tumor of the liver after hepatocellular carcinoma 80%

- ***Cholangiocarcinomas*** :& ampullary carcinomas , and gallbladder carcinomas , cause obstruction within the ducts.
- ***Pancreatic tumours:*** 60% occur in the head of the pancreas and manifest early with obstructive jaundice.
- ***Metastatic tumours:*** usually from the gastrointestinal tract or the breast and the secondary adenopathies in the porta hepatis that may be associated with these tumours can cause external bile duct compression.

ع LN [illegible] Jaundice

Mirizzi syndrome

- MS refers to ***Common Hepatic Duct Obstruction*** caused by an ***Extrinsic Compression*** from an impacted stone in the cystic duct.
- It has been estimated to occur in 0.7-1.4% of all cholecystectomies.
- It is often not recognized preoperatively, which can lead to significant morbidity and biliary injury, particularly with laparoscopic surgery.

emergency / if not relief through (48h) with AB we should make decompression (بتفكرها تنشد.

موسع منقدر BD نكه بيزك

آكثر شيوعا → Bacteria → E.coli, + Klebsiella, Bacillus, proteus

إلي → Gram(-) شو .. pseudomons (كتيرة آثرتين - at surface أخضر)

Cholangitis

Cholangitis :Infection of the biliary system, complicating benign and malignant obstruction of the BT.

The clinical presentation depends on the nature of the illness, patient age, and condition of the patient.

chills . قشعريرة

المهم تركيزهم هون

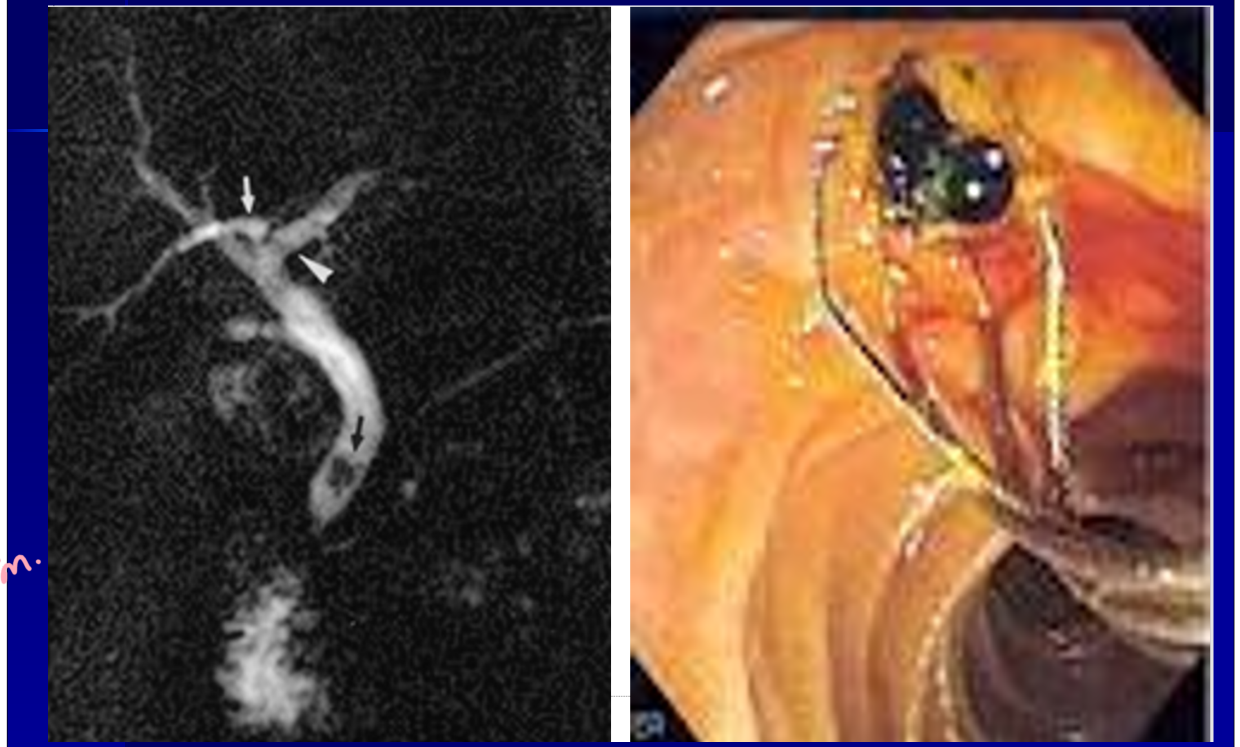
Charcot Triad: (Fever, Right upper quadrant pain, Jaundice) occurs in only 20%-70% of cases.

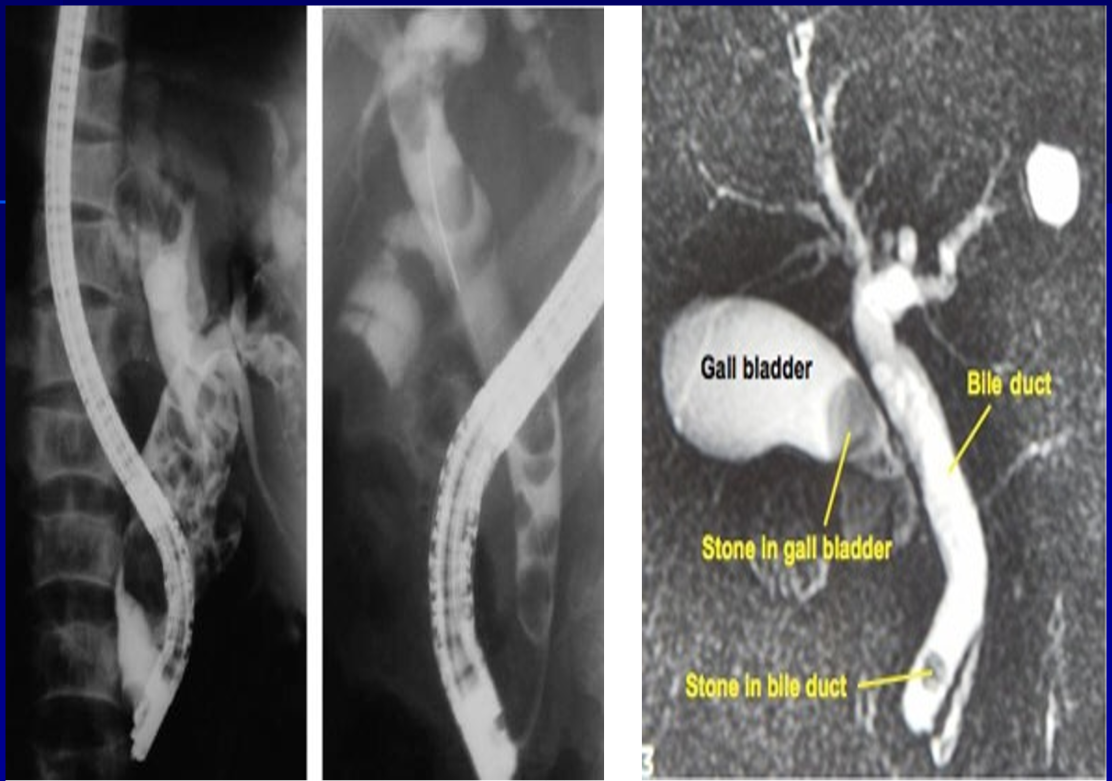
Reynolds Pentad :(Hypotension and Mental status changes) also may accompany severe infection .

more Alarm.

The organisms typically identified are *Enteric in*

The organisms typically identified are Enteric in origin, they probably enter the biliary system via portal bacteraemia





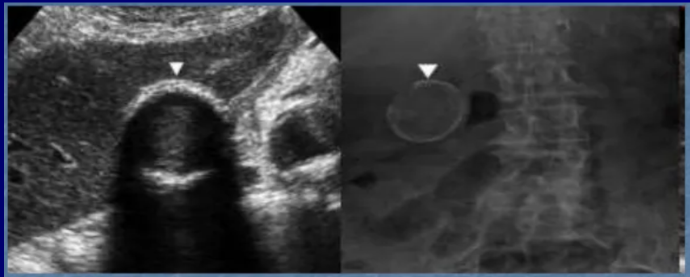
ERCP. C 2nd part of duodenum بنوصل moulter.

Stone: [illegible] sphincterotomy

Porcelain GB

- Rare condition where chronic cholecystitis predispose to mural calcium deposition in GB.
- Precancerous condition.
- **Treatment:** prophylactic cholecystectomy

مهم نعرفها



U/S AND PLAIN RADIOGRAPH SHOWING GB WALL CALCIFICATIONS i.e. PORCELAIN GALL BLADDER

Acalculous cholecystitis

التهاب بال GB بدون وجود stone [رحاي الأسود].

- 5% of patients have cholecystitis with no gall bladder stones.
- **Etiology:** Multifocal include Cystic Duct obstruction , infection and GB ischemia.
- It is common in ICU elderly patients with co morbidities. Staisi to Bile [dehydrate + حاليا]
- Risk factors include diabetes, human immunodeficiency virus (HIV) infection, vascular disease, TPN, prolonged fasting.
- Usually present with Fever and Sepsis with **No** symptoms and signs of GBD. severe Infection.

symptomatic السريري [tenderness (murphy sign)] local sign اصلا شك تلم عنه

- mortality very high (10 – 30 %) مقارنة بال calculous Cho

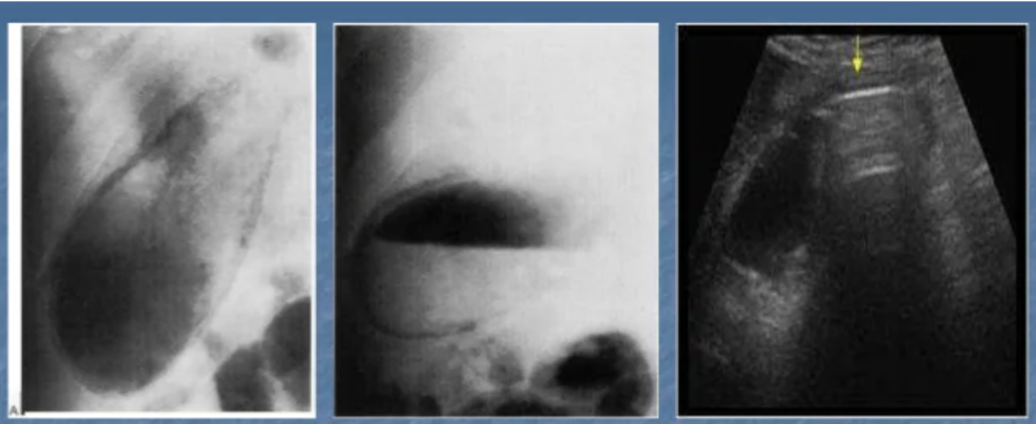
Treatment :– Fit pt we can do for his laproscopy chosectomy. بنشيلها وصح.

فالفتح بتخلي مشك chloangitis [decompression] بطلع ال pus من المرارة.
↓ GB
Chlostomy.

Emphysematous cholecystitis

- Infection from gas forming organism like CW.
- Most common in DM Immunocompromised patients.
- Perforation of GB is 5 times more common.
- Plain X-ray show gas in GB
- U/S:

Emphysematous cholecystitis



Emphysematous cholecystitis showing (A) gas in the lumen and wall of the gallbladder and (B) a gas-fluid level in the erect posture.

Cholesterosis

- Deposition of cholesterol in GB mucosa.
- Generally asymptomatic
- Deposition is 1-2 mm thick

Adenomyomatosis

- Benign, asymptomatic condition.
- Produce local or diffuse wall thinking.
- Mucosal herniation to muscle layer

Asymptomatic gallstones

80%

114

- IN US 25% of females ,12% of males have GBS by age of 60Y.
- 1-2% becomes symptomatic each year.
- Find accidentally in routine U/S abdomen
- Two types
- Asymptomatic GS in Asymptomatic pt
- Asymptomatic GS in symptomatic pt

topical symptoms. مش عنا]

← distent c bloating بعمل (non specific symptoms

Long-Term Monitoring

- Following cholecystectomy, about 5%-10% of patients develop *Chronic Diarrheal.* This is usually attributed to bile salts.
- The frequency of enterohepatic circulation of bile salts increases after the gallbladder is removed, resulting in more bile salt reaching the colon.
- In the colon, bile salts stimulate mucosal secretion of salt and water.

[illegible]

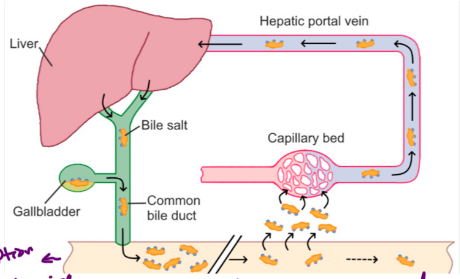
بحالة cholecystectomy ⟸

هنا بتصير الـ enterohepatic أسرع بالتالي

جزء من الـ Bile salt الي بتوصل الـ colon بتعمل

diarrhea.

secretion of salt & water [illegible]



Repsorption ← from terminal ileum

entero hepatic circulation of Bile salt.

Bile salt function → digestion of fat.

without Bile salt → 50% of fat secrete in stool → steatorrhea

[Yellow, ... stool]

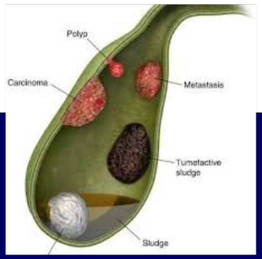
more common is diarrhea

Post-Cholecystectomy Syndrome

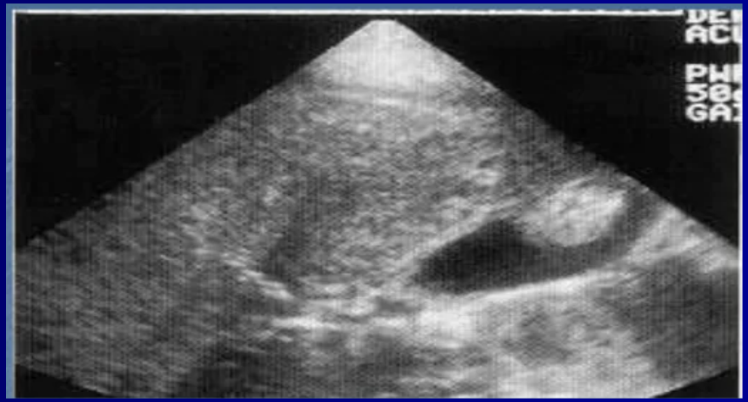
- Following cholecystectomy, a few individuals experience ***Recurrent Pain Resembling Biliary Colic***, The term is sometimes used for this condition is PCS.
- Many patients with PCS have long-term functional pain that was originally misdiagnosed as being of biliary origin.
- 50% biliary ,50% non biliary. [illegible]
- Biliary dyskinesia is the most important biliary cause.
  sphincter of oddi شو بيضيق يتخبط
  duodenum عشان يطلع bile ما بتفتح ال sphin لما بتتقلص
  نعمل ERCP → cut of sphincter
  نعمل sphincterotomy
- Non-biliary PUD,HH, Diverticular disease , IBS.

Belching , Bloating , nausea → not symptoms of GB Stone
تجشؤ
حموضة ، غازات .
شائعة جدا
كأنك
hiatus hernia , GERD تحمل كثير
diverticulum disc , IBS

GB polyp



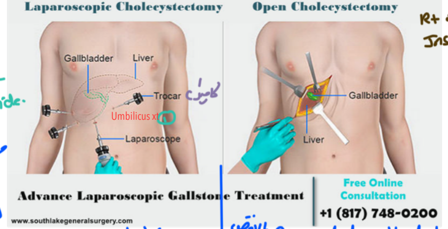
- Usually asymptomatic benign produce cholesterol polyp.
- U/S: non mobile non shadowing ball in the wall.



if small size (as fibrio Adenoma) $\xrightarrow{\text{ما بيصير}}$ Cancer

if size > 1.5 (تشيل المرارة كلها)
laparoscopic cholecystectomy

surgery for symptomatic GB Stones :-



Gallbladder Surgery

① Laparoscopic Cholecystectomy

② Open Cholecystectomy

Advance Laparoscopic Gallstone Treatment

Free Online Consultation

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www.southlakegeneralsurgery.com

← ① umbilicus
② epigastric
③ 2 Rt side.

كاميرا

supra umbilical] umbilical فوق أذكى
Infra أخطر
عشان Bifurcation of Aorta
Infra more safe. والكلية ل

Arrange of ports

لازم نعرف ال

[لأنه لاعادي بالعقاف تخلي ال
خلك منشأ H ← بخلافهم
chlocystectomy. عند ::

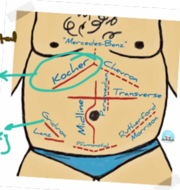
بنزيف غالبا .

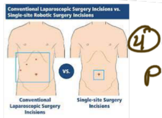
Remnant of cystic duct short .
بتقلص بسبب

لو كانت قصيرة أقصر فيه cause of cholecystectomy syndrome اقرأ .

Rt subcostal Insicion

mc burney

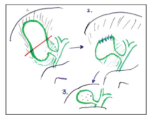



Conventional Laparoscopic Surgery Incisions vs. Single-site Robotic Surgery Incisions
vs.
Conventional Laparoscopic Surgery Incisions
Single-site Surgery Incisions

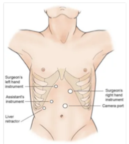
④ single port.

③ sub total chlocystomy.

بأعمل ، بأمسك جزء من المرارة .
Hartmann pouch من عند

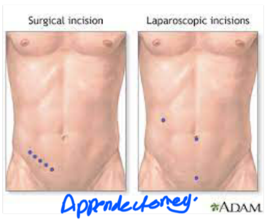


hartmann pouch
ملتزقة مع BD
مش عارف أميز ال Anatomy
بحط هناك ال BD وال cystic


Surgeon's left hand instrument
Assistant's instrument
Liver retractor
Surgeon's right hand instrument
Camera port

① 2cm Above umblicus
② epi gastrium
③ Liver
④ 2 left side.

hiatus hernia.



Appendectomey.

very bad

MCQ commonest symptoms of Biliary tract Neoplasm is wt loss. (90% case)

بس خطاب تعرفي 2 type.

Neoplasms of Biliary Tract

- Carcinoma of the biliary system manifests with clinical symptoms of ***Weight Loss***, nausea, anorexia ,abdominal pain, fatigue ,pruritus, fever malaise, diarrheal constipation and abdominal fullness Symptomatic patients usually have advanced disease, with spread to hilar lymph nodes before obstructive jaundice occurs. It is associated with a poor prognosis.

لانه بيجي Late.

Gallbladder cancer

(most common cancer in Biliary tract.

- 90% have GB Stones.
- M:F 3:1. فيه GS in female (- عشان هيك
- Porcelain GB and Sclerosing cholangitis are risk factors. ← UC اسألها بشكل
- CT, US ,soft tissue mass in GB and near it ,direct extension to the liver. invasive
  لانه GB لازقة تقريبا serosa + wall (2 milli) وما بينهم visceral surface of liver فـ cancer بيغزو الـ liver
- This uncommon malignancy It represents 54% of biliary tract cancers. 71%.
- Cancer that develops in the infundibulum can produce hydrops of the gallbladder that is clinically indistinguishable from an obstructing stone.

- prognossis is poor , 5 year survival (is 5% مابيعيش GB cancer

- most of GB (microsopic is normal لما تفتحها بالعين ما بتميزها.) you don't Need to descending.

[histologi] biopsy. لا تعتبرها inflamed أو شي ثاني لما تفتحها دايماً ابعثها ←

2

Cholangiocarcinoma

(Biliary tract cancer

- Cholangiocarcinoma is an adenocarcinoma of the BD .
- It may occur without associated risk factors, but it is associated more commonly with chronic cholestatic liver disease such as PSC, choledochal cysts .
- Cholangiocarcinoma accounts for 25% of biliary tract cancers. Patients usually present with jaundice, a vague upper or right upper quadrant abdominal pain associated with anorexia, weight loss, and pruritus.

Ampullary cancer

- Ampullary cancer accounts for 8% of biliary tract cancers. It most commonly presents with painless jaundice or acute pancreatitis.

Classified.

① [intra hepatic cholangio carcinoma] 10-15% in small Bile duct [intra hepatic BD]

② perihilar CCA. 55%. (Most common) union of 2 HD قبل cystic duct. insert [CHD.]

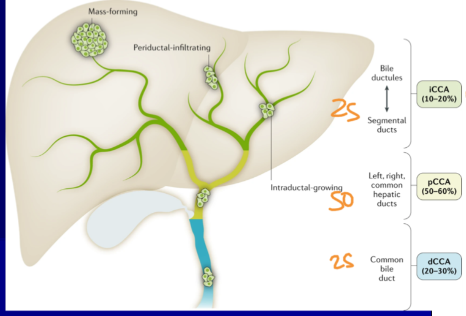
distall. CCA 25 - 35%.

نسبة الدكة

25

50

25



احفظوه

- Mcc tumor in Liver → hepato cellular carcinoma.
- 2ed → Cholangi carcin [intra hepatic].

سلايدات

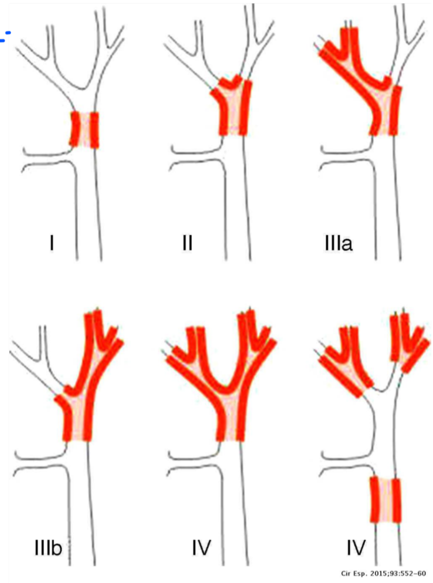
Peri hilum chloangio carcinoma:- If

- below bifurcation → type 1
- ماسك // → type 2
- ماسك 1 من Rt or Lf HD → type 3.
- ماسك 2 HD [Rt, Lf] → type 4.
- multi focal [أكثر من tumor] → type 5

Klatskin tumor- المهم انك تعرفه

peri Hilar tumor.

in common hepatic duct.



Cir Esp. 2015;93:552–60

بتقسم حسب قديش

واصل بال CHD.

﴿إِنَّ اللهَ وَمَلَائِكَتَهُ يُصَلُّونَ عَلَى النَّبِيِّ
يَا أَيُّهَا الَّذِينَ آمَنُوا صَلُّوا عَلَيْهِ وَسَلِّمُوا تَسْلِيمًا﴾
اللَّهُمَّ صَلِّ وَسَلِّمْ عَلَى نَبِيِّنَا مُحَمَّدٍ.💜

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