Lecture Notes
The Gastrointestinal System

W. P. Howlett

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Main Symptoms

Loss of Appetite & Weight loss
Asthenia
Nausea & Vomiting & Haematemesis
Dysphagia
Heartburn & Reflux
Flatulence & Flatus
Abdominal Pain & Discomfort
Altered bowel habit: diarrhoea, constipation
Melena or blood: in stool
Abdominal swelling/distension
Jaundice

Loss of Appetite & Weight

Significant appetite & weight loss: suggests serious disease

Occurs in: malignancy, infections (HIV & TB) diabetes etc and non organic disease *e.g.* depression

Document: time course

Nausea & Vomiting

Nausea: feeling of wanting to vomit

Contents *or* what's in it: food eaten, bile, blood

Timing: <1hour post food ?gastric/outlet obstruction

Frequency: how often

Time course: onset, duration

Nausea & Vomiting

Causes

Pregnancy

Infections: food poisoning, gastrointestinal, hepatitis etc

Medications & Toxins: alcohol, digoxin etc

Bowel obstruction

Metabolic: diabetes, renal failure

Raised intra cranial pressure (RAICP)

Heartburn & Acid Reflux

Heartburn: burning pain or discomfort retrosternally due to regurgitation of stomach contents into oesophagus

Acid Reflux: sour *or* bitter taste coming up into mouth

Occurs: after meals, worse bending, stooping & lying flat

Aggravating factors: incompetent gastro oesophageal sphincter, hiatus hernia, fatty meal, alcohol etc

Water Brash: mouth filling up with tasteless fluid i.e. *saliva*

Dysphagia

Definition: difficulty swallowing; solids/liquids/both

Deglutition: difficulty starting swallowing

Differentiate between: pain & difficulty swallowing

Localize site of difficulty in swallowing: *e.g.* lower retrosternal *versus* middle *or* upper

Time course: intermittent; *e.g. oesphageal spasm or* progressive; *e.g. stricture, malignancy*

Abdominal Pain

General

Site: patient points to site of maximum pain

Radiation: → *back* (pancreatic & duodenal origin) → *shoulder* (diaphragmatic origin)

Type : colicky *or* continuous

Severity: how bad

Frequency & Time Course: how often & how long etc

Aggravating/Relieving/Associating : moving, position, vomiting, antacids

Past History: similar pain

Main Pain Patterns

Peptic ulcer: epigastric relieved by food, milk

Pancreatic: epigastric, deep boring → to back: *vomiting*

Biliary: continuous *or* colicky, epigastrium → RUQ, severe lasts hours

Renal: very severe colicky: upper abdomen, flanks & renal angles → to lower abdomen: *vomiting*

Bowel Obstruction

Site: periumbilical suggests *small bowel*

Type: colicky & severe

Frequency: every 2-3 mins suggests *small bowel*
every 10-15 mins suggests *large bowel*

Associated Features:

- vomiting
- constipation
- distension

Diarrhoea

Definition: >2-3 stools/day *or* loose & watery

Stool content: large/small volume, blood, mucus/pus

Frequency & Time course: continuous *or* intermittent

day/night, acute/chronic, duration

Aggravating/Relieving factors: type food eaten, meds

Associated factors: pain, nausea, vomiting & Past Hist

Constipation

Definition: passage of infrequent stools <3 times /week *or* hard stool difficult to evacuate

How often do bowels empty: daily *or* per week & time straining

Time Course: recent *or* chronic/lifelong

Is there any associated: pain *or* bleeding

Any recent change: drug therapy

Stool: Colour

Melena: tarry *or* jet black stools: bleeding from upper GIT *(above ligament of Trietz)*

Slate grey: due to iron therapy but can mimic melena

Blood: Haematochezia *or* bright red colour: bleeding from lower GIT (*usually large bowel/rectum)*

Pale stools: fat malabsorption & obstructive jaundice

Jaundice 1

Jaundice arises: because of excess bilirubin in blood

Enterohepatic circulation: unconjugated→ conjugated→ stercobilinogen→ urobilinogen in urine

Ask re: appetite, wt loss, itching, dark urine/pale stools

Past Hist: hepatitis, jaundice, abd surgery, transfusion (sickle cell disease)

Social Hist: alcohol, travel, sexual contact, drugs

Jaundice 2

Examination

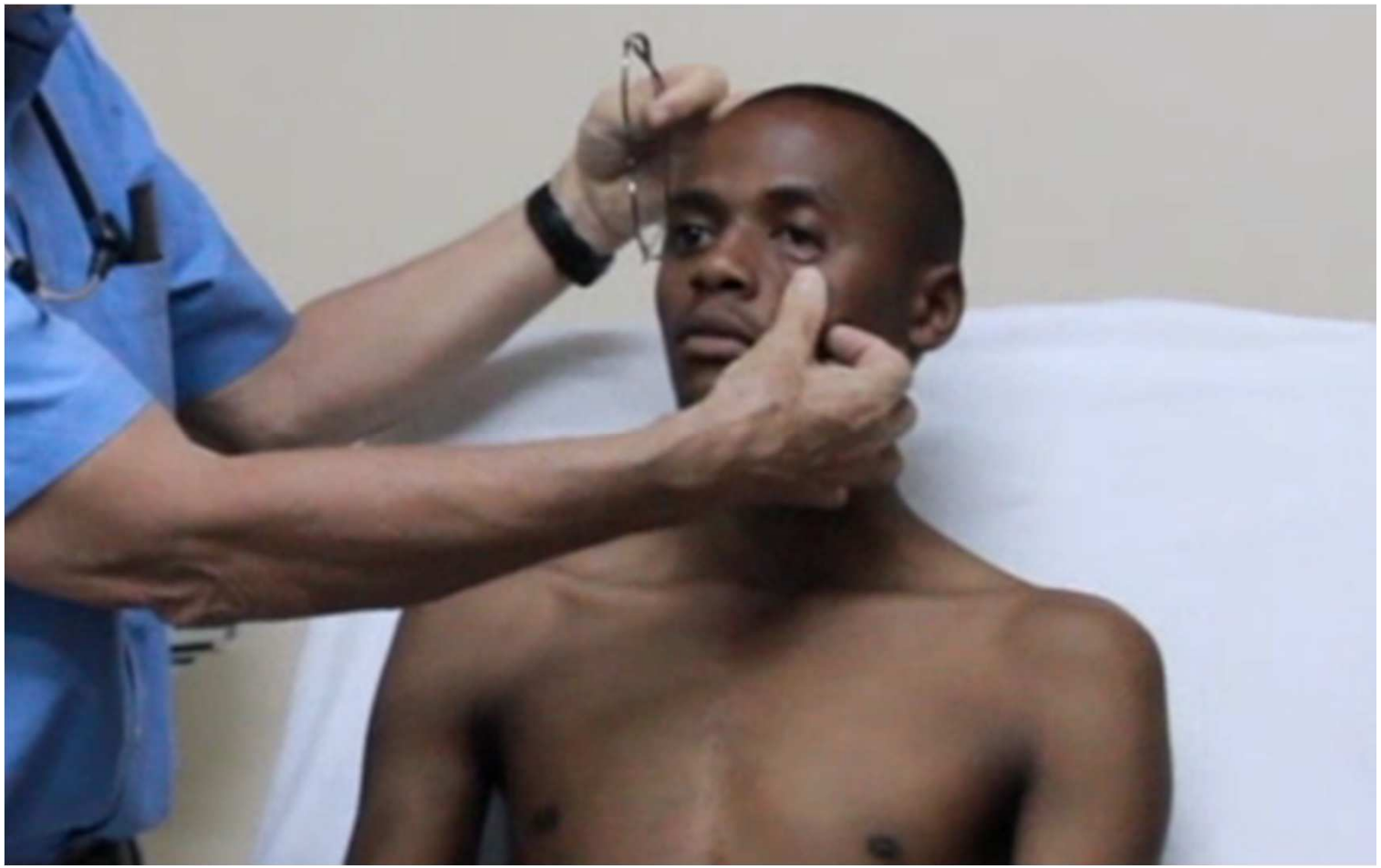
Sclera & under tongue (frenulum): yellowness

Abdomen: hepatosplenomegaly and ascites

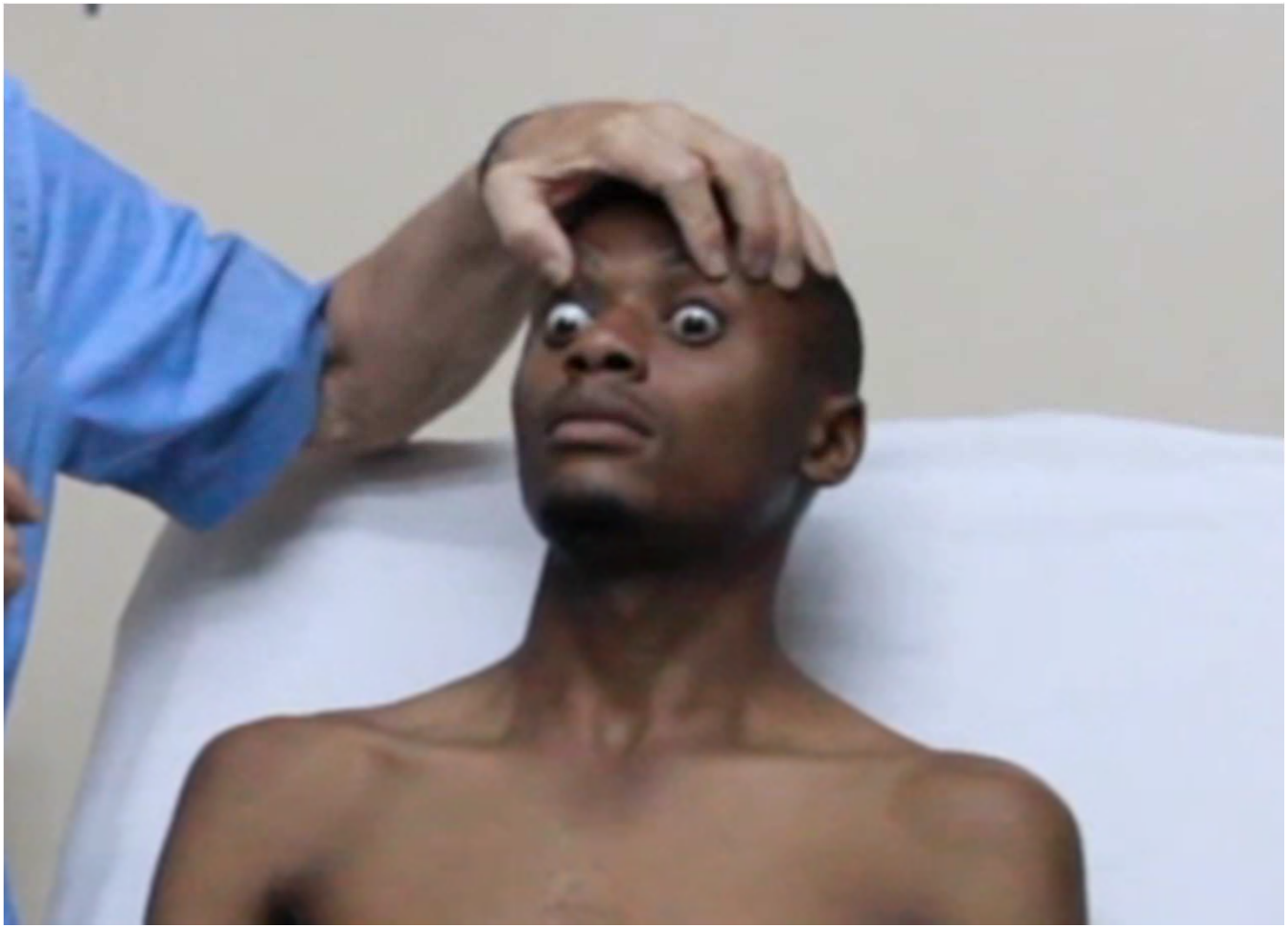
Stool: colour

Urine: colour, bilirubin and urobilinogen

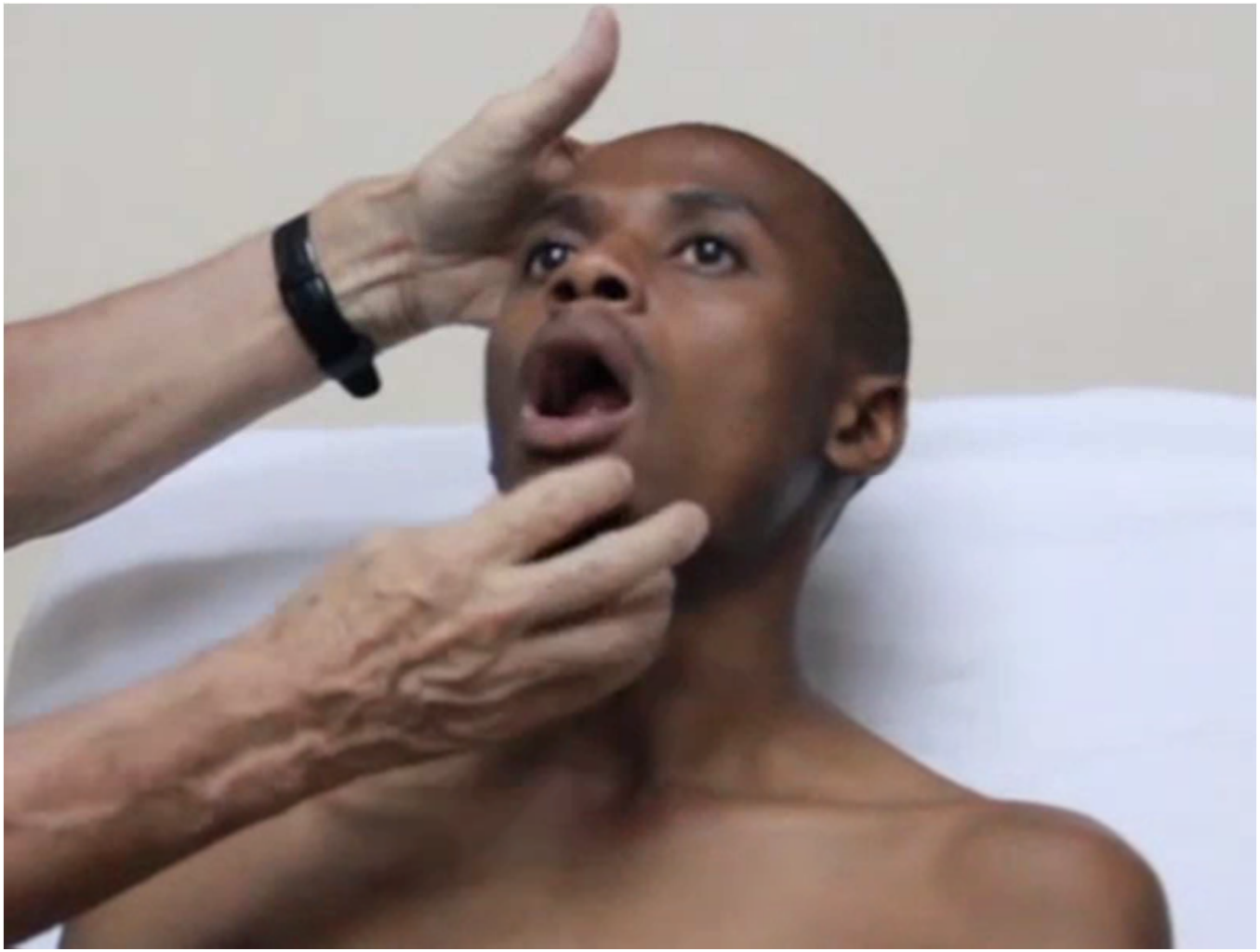
Examining conjunctiva for anaemia



Examining sclera for jaundice



Examining frenulum for jaundice



Jaundice 3

Types

Prehepatic: may be asymptomatic and urine clear

Cause: *haemolytic anaemia*

Hepatic: anorexia, nausea, vomiting, pain RUQ

Causes: *hepatitis, hepatoma*

Post Hepatic: itching, dark urine, pale stools

Causes: *gallstones, cancer: eg head of pancreas*

Key Points

- History is often more helpful than physical examination
- Main symptoms, time course & pattern often diagnostic
- Anorexia, weight loss, dysphagia, pain, change in bowel habit, melena are major warning symptoms
- Melena indicates upper GIT bleeding source
- Fresh blood in stool usually indicates lower GIT bleeding

Genitourinary Symptoms

Dysuria: pain before, during *or* after micturition

Frequency: increased rate of micturition *(not amount)*

Urgency: urge to pass urine may be followed by incontinence

Haematuria: presence of blood in urine

Polyuria: increase in urinary volume *(the amount)*

Nocturia: need to pass urine at night

Genitourinary Pain 1

Sites

Renal: dull, aching pain in loin and renal angle

Renal & Ureteric Colic: renal angle & loin pain →iliac fossa, groin, genitalia, continuous *or* colicky very severe & sustained associated with: restlessness, nausea & vomiting

Genitourinary Pain 2

Sites

Bladder: suprapubic pain & associated frequency, dysuria, fresh blood with clots

Prostate/prostatitis: perineal and rectal pain: associated frequency and dysuria

Key Points

- Renal disease may be asymptomatic
- A careful history helps to make the correct diagnosis
- Pain of ureteric colic is distinctive, severe, sustained & associated with vomiting
- Testicular pain may be referred to the abdomen or groin
- Painless visible haematuria in SSA most often due to schistosomiasis, *but* a bladder stone & cancer should also be considered

Past & Family History

Illnesses, hospitalizations, operations & year of onset: active *or* inactive and on treatment

PH *or* FH: bowel disease, malignancy, liver, kidney disease, diabetes & others

Social History

Cigarettes & Alcohol: quantity & duration

Occupation: workplace

Lifestyle: food/calories, exercise etc

Dependants: number in household

The Abdominal Examination

Inspection

Palpation

Percussion

Auscultation

The Abdominal Examination

Patient Position: lying flat & abdomen exposed *(groin to ziphi sternum)*

Examiner Position: seated on stool beside pt

Examination involves: Peripheries and Abdomen

Examining position

Peripheries

Hands: clubbing, white nails, Dupuytren's contracture, palmar erythema, liver flap

Legs: bruising, ulcers, oedema

Head: jaundice, anaemia, hepatic fetor

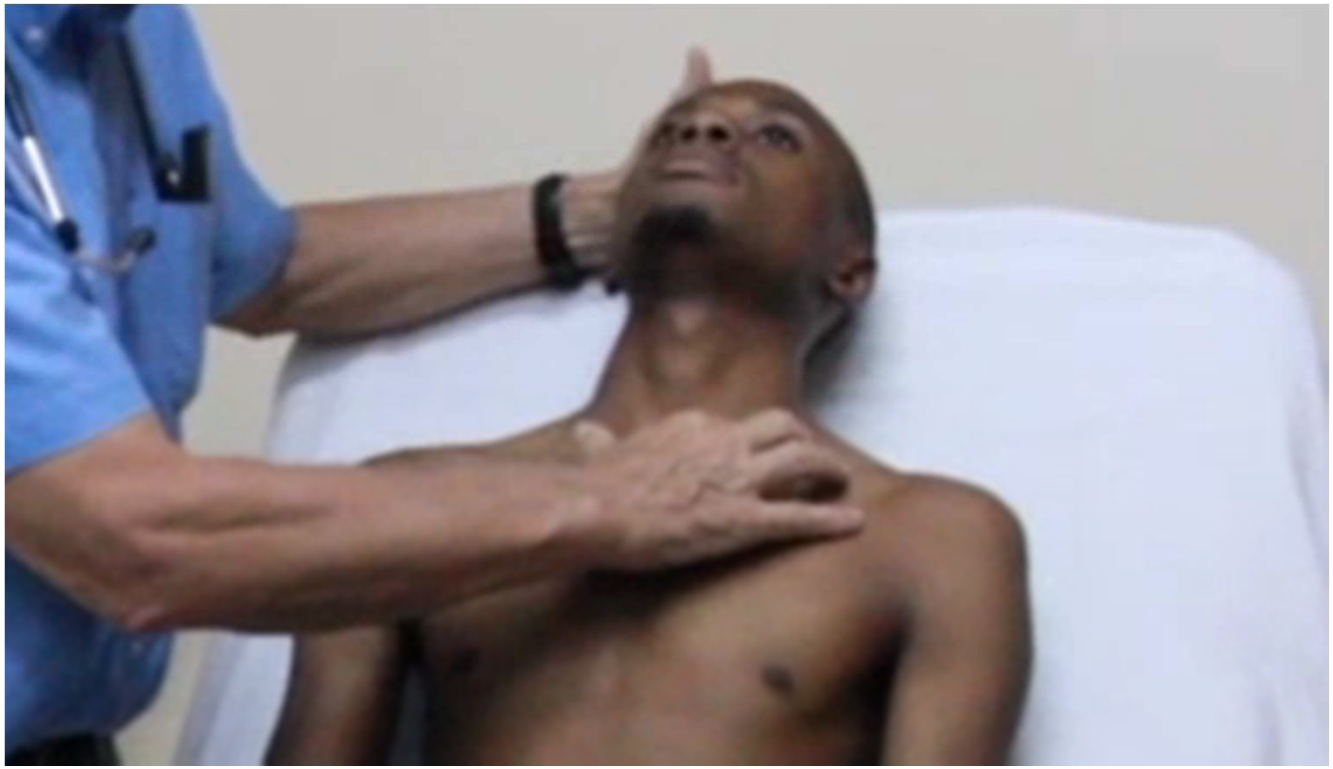
Neck: lymph glands

Genitalia: testicular atrophy

Hands inspection dorsum

Hands inspection palmar

Lymph glands



Abdominal Examination

Inspection

Palpation

Percussion

Auscultation

Superficial Anatomy 1

Divide abdomen into 9 parts by: drawing two *imaginary* horizontal lines & two vertical lines

Horizontal line upper: joins the subcostal borders

Horizontal line lower: joins the superior iliac crests

Vertical lines: bisect the mid-inguinal & mid-clavicular points

Superficial Anatomy 2

9 areas of abdomen

Right & Left hypochondrium with epigastrium in between

Right & Left lumbar with umbilical in between

Right & Left Iliac fossa with hypogastrium in between

Superficial Anatomy 3.

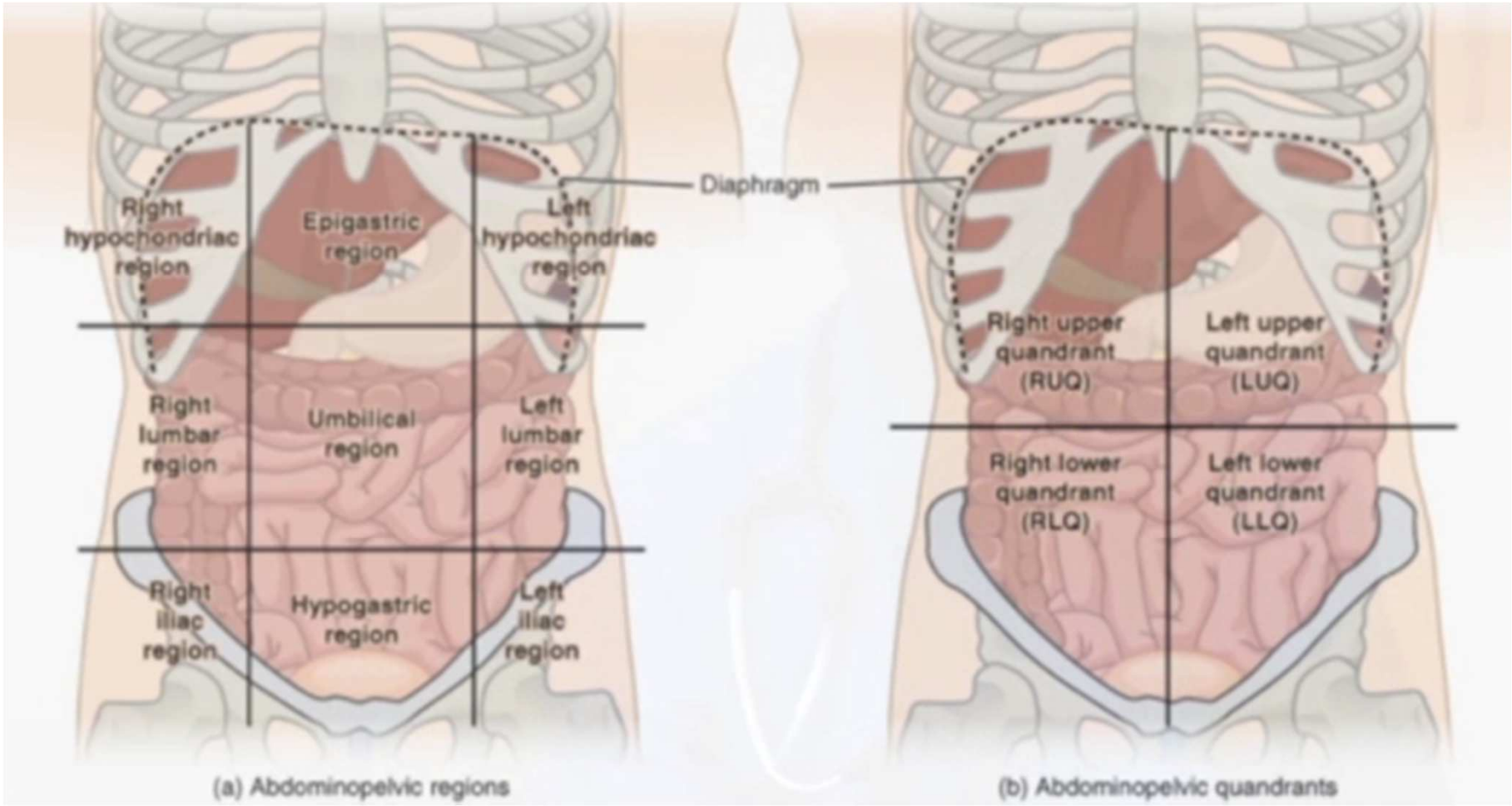
The 4 Quadrants

Right Upper (RU)

Right Lower (RL)

Left Upper (LU)

Left Lower (LL)


Diaphragm
Right hypochondriac region
Epigastric region
Left hypochondriac region
Right lumbar region
Umbilical region
Left lumbar region
Right iliac region
Hypogastric region
Left iliac region
(a) Abdominopelvic regions
Right upper quandrant (RUQ)
Left upper quandrant (LUQ)
Right lower quandrant (RLQ)
Left lower quandrant (LLQ)
(b) Abdominopelvic quandrants

Inspection 1

Examine: in good light

Lie: pt flat with head supported by 1 pillow

Expose abdomen: ziphi sternum to pubis

Inspect: from side & front *or* end of bed

Observe: movement, shape, symmetry, scars

Inspection 2

Skin: scars, pigmentation, straiae

Hair: pubic for normal sex distribution

Veins: distended/collaterals, caput Medusa

Shape: scaphoid, distension, ascites

Movements: respiration, pulsation, peristalsis

Masses: organomegaly, tumours

Hernias: inguinal, umbilical, incisional

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Normal Anatomy 1

Abdomen: normally moves on respiration

Liver, spleen & kidneys: move downwards on inspiration

Liver descends 1-3 cms on inspiration: can be palpated below the right costal margin in the right hypochondrium

Normal Anatomy 2

Spleen lies in the concavities of 9-11 ribs behind the mid axillary line: *it is not palpable normally*

Kidneys lie adjacent to vertebra: L1-3 on *right side* & T12-L2 on *left side*

Lower pole of right kidney: may be palpable especially in thin persons *(left is less so)*

Palpation

Sit *or* kneel: at patient's bedside

Ask to: place arms alongside body to relax abd

Ask if: there is any tenderness present

Observe face: during palpation

Examination sequence: *superficial palpation* followed by *deep palpation*

Superficial Palpation

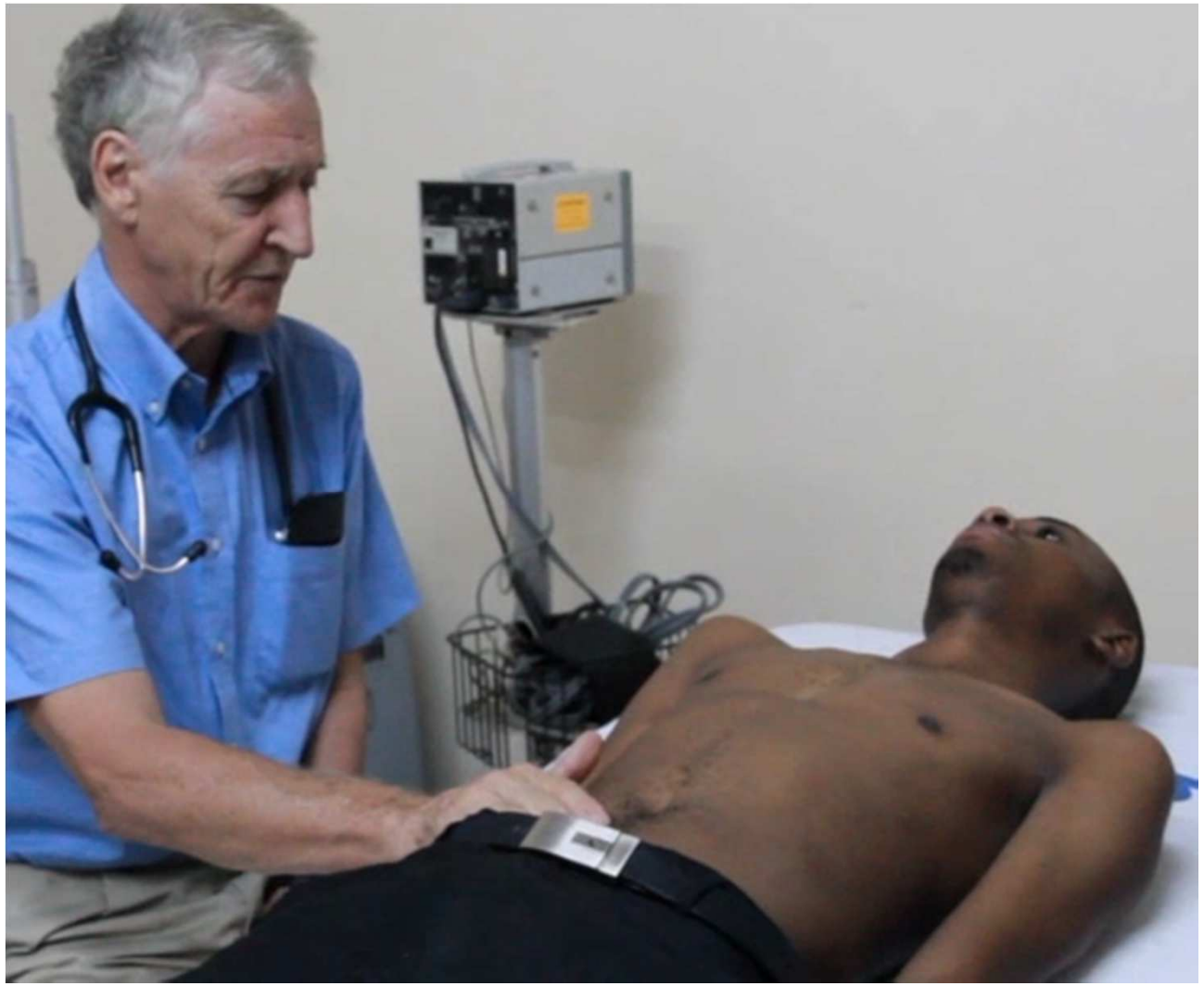
Place hand: gently on abdomen in *right iliac fossa*

Looking at pts face: gently flex fingers in *dipping movement* feeling for resistance, tenderness, mass

Slowly move hand: in an *anticlockwise direction* around abdomen, repeating the dipping movement

Repeat: same examination across *middle* of abdomen

Palpation Superficial



Deep Palpation

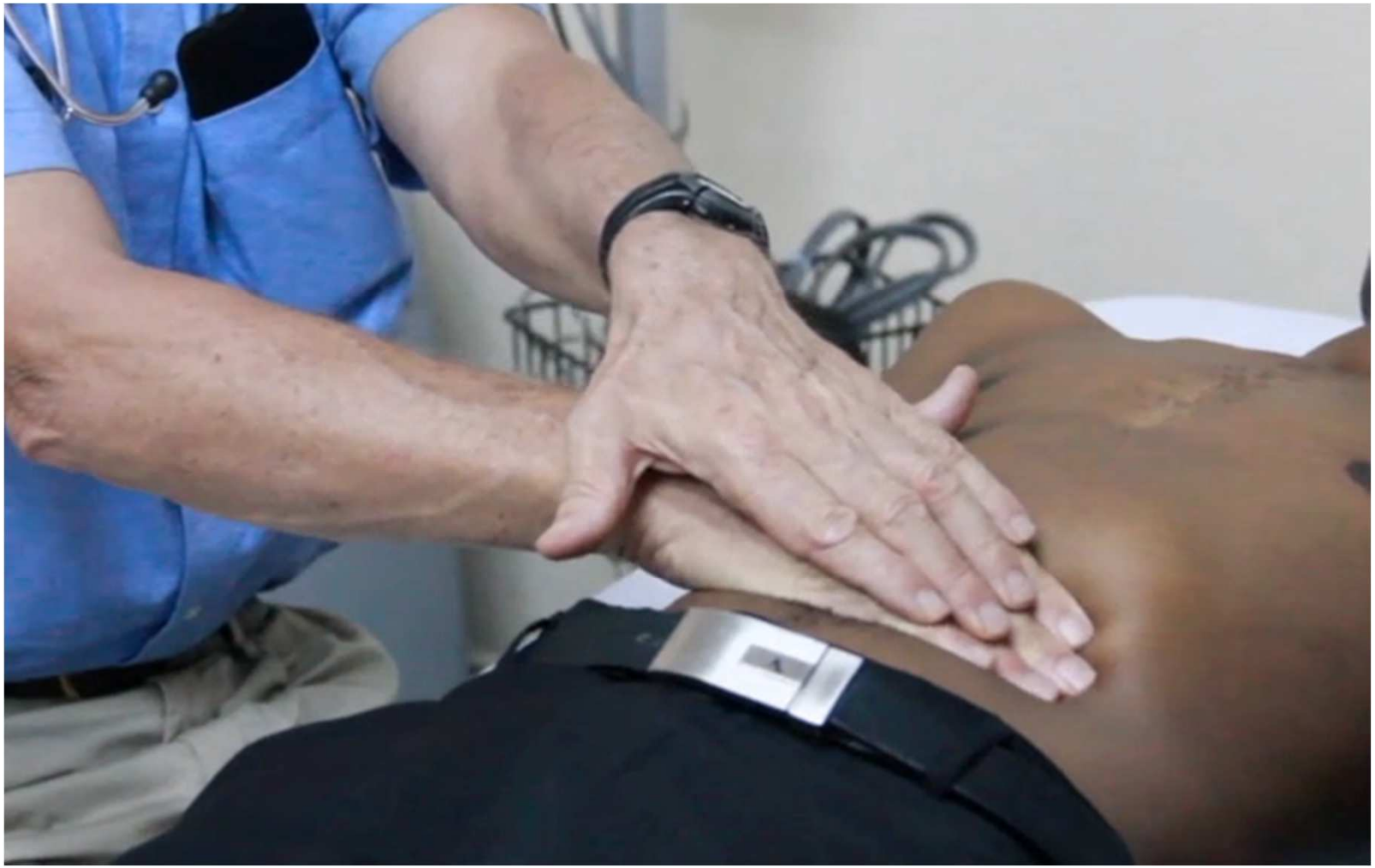
Repeat same technique: as for superficial palpation.

Palpate abdomen: *more deeply* with *flat* of hand

Start at site opposite: from any area of tenderness

Palpate for: masses, organomegaly, tenderness etc

Palpation Deep



Liver 1

Place hand on abdomen in RIF: just *lateral to rectus sheath* with *fingers pointing upwards*

Press hand firmly inwards & upwards: whilst pt takes a *deep breath*

At inspiration if no liver edge is felt: release inward pressure & *move the fingers upwards by 2-3 cms gaps*, repeating manoeuvre until liver edge is felt

Liver 2

Define: edge & surface, & lobes of the liver

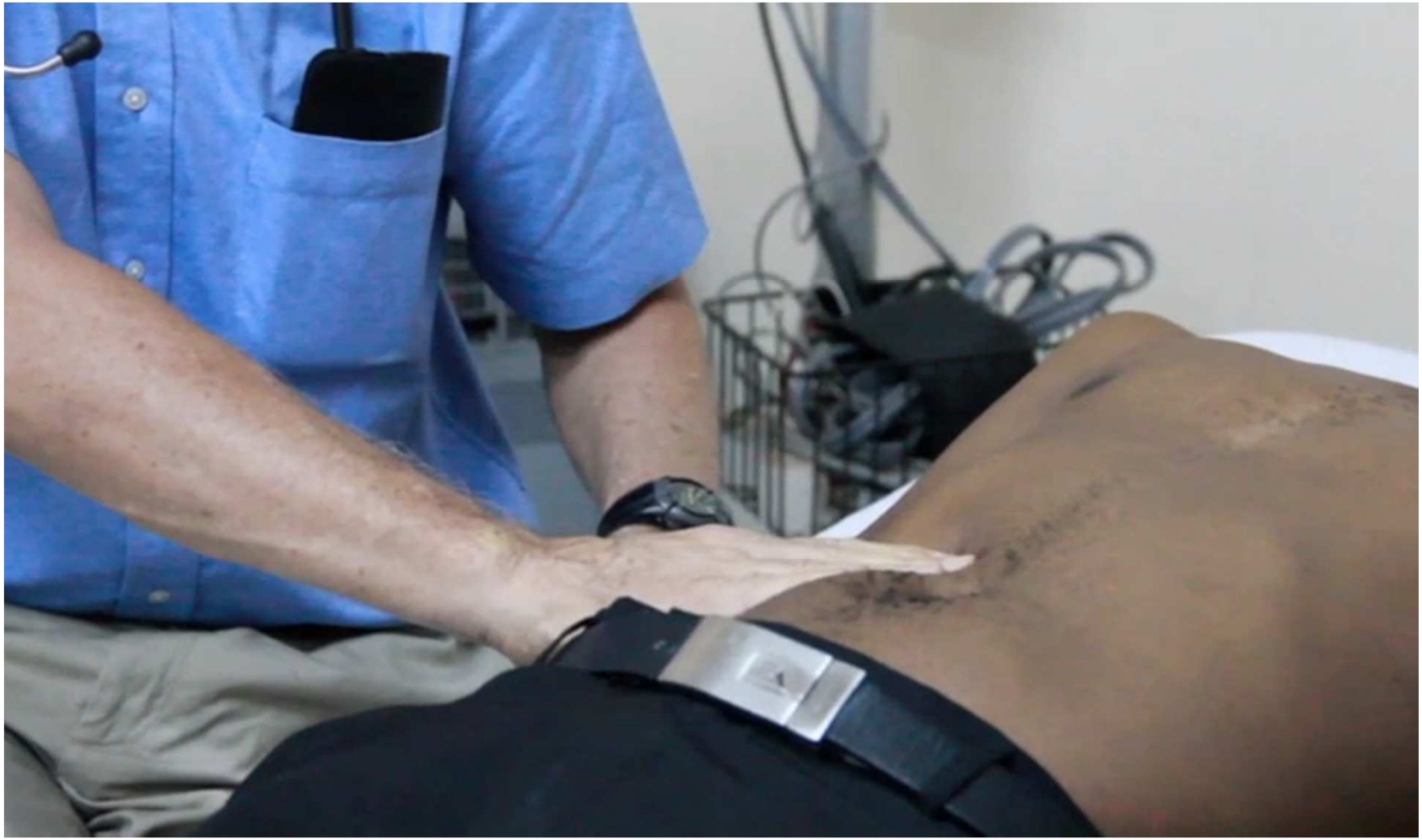
Examine: irregularities, masses, tenderness, bruits

Measure:

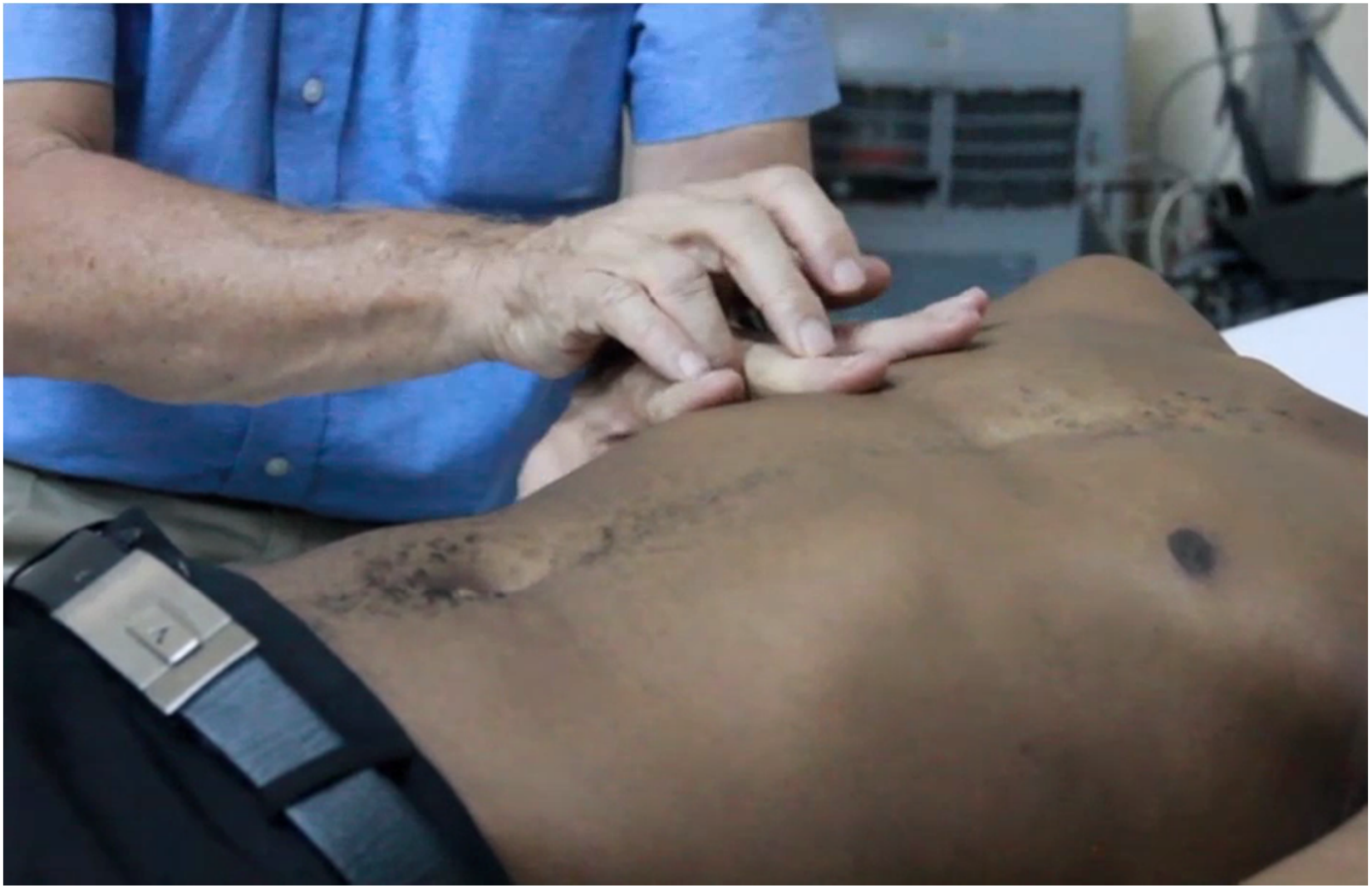
1) extent of liver below costal margin

2) span of liver by percussion *(N = 8-12 cms)*

Palpation liver



Percussion liver



Spleen 1

Spleen is a superficial organ: needs to be enlarged 2½ times to be palpable clinically

Place examining hand on the abdomen: *start in RIF* using *superficial method &* advance *diagonally* towards *LUQ*

If spleen enlarged: a leading *sharp edge or pole* will be *felt* or *palpated*

Spleen 2

Ask pt to take deep breath: leading edge will *touch/bump* the palpating fingers

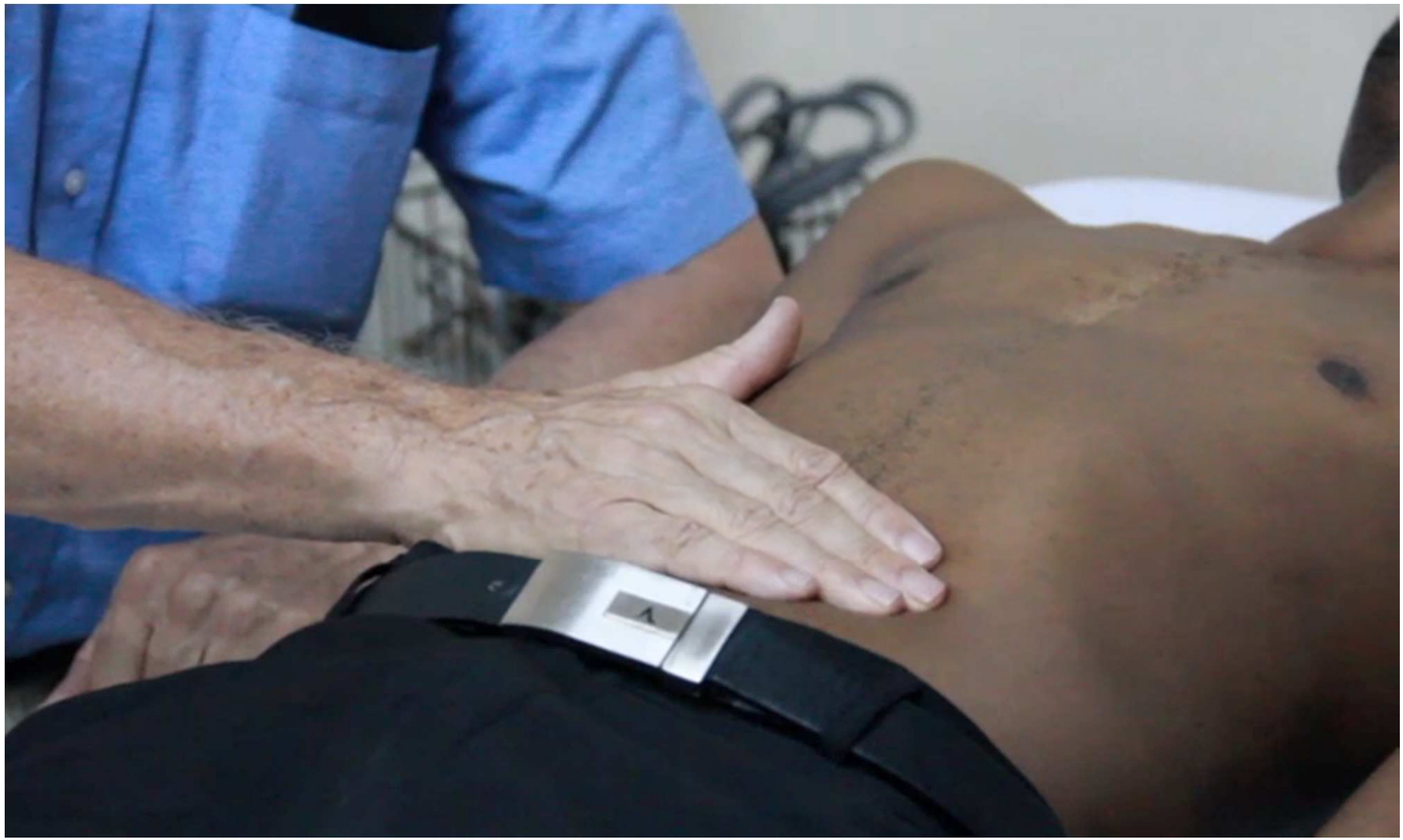
Trace edge or margins along: inferior & superior borders

Upper border will contain: one *or* two *splenic notches*

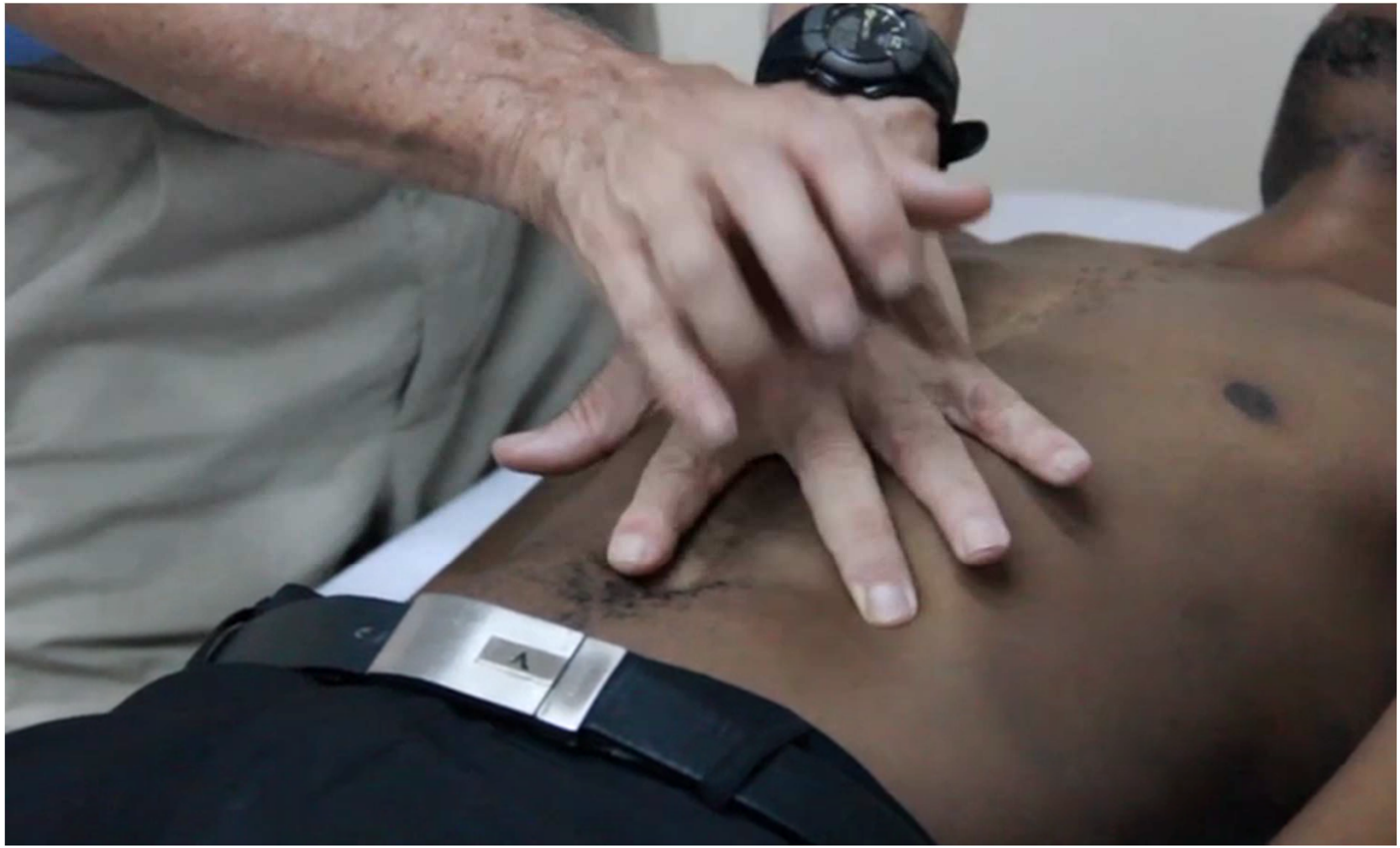
Gently define: surface spleen, hand is *unable get above*

Confirm splenic dullness posteriorly: by *percussion*

Palpation spleen



Percussion spleen



Kidney

Bimanual Method

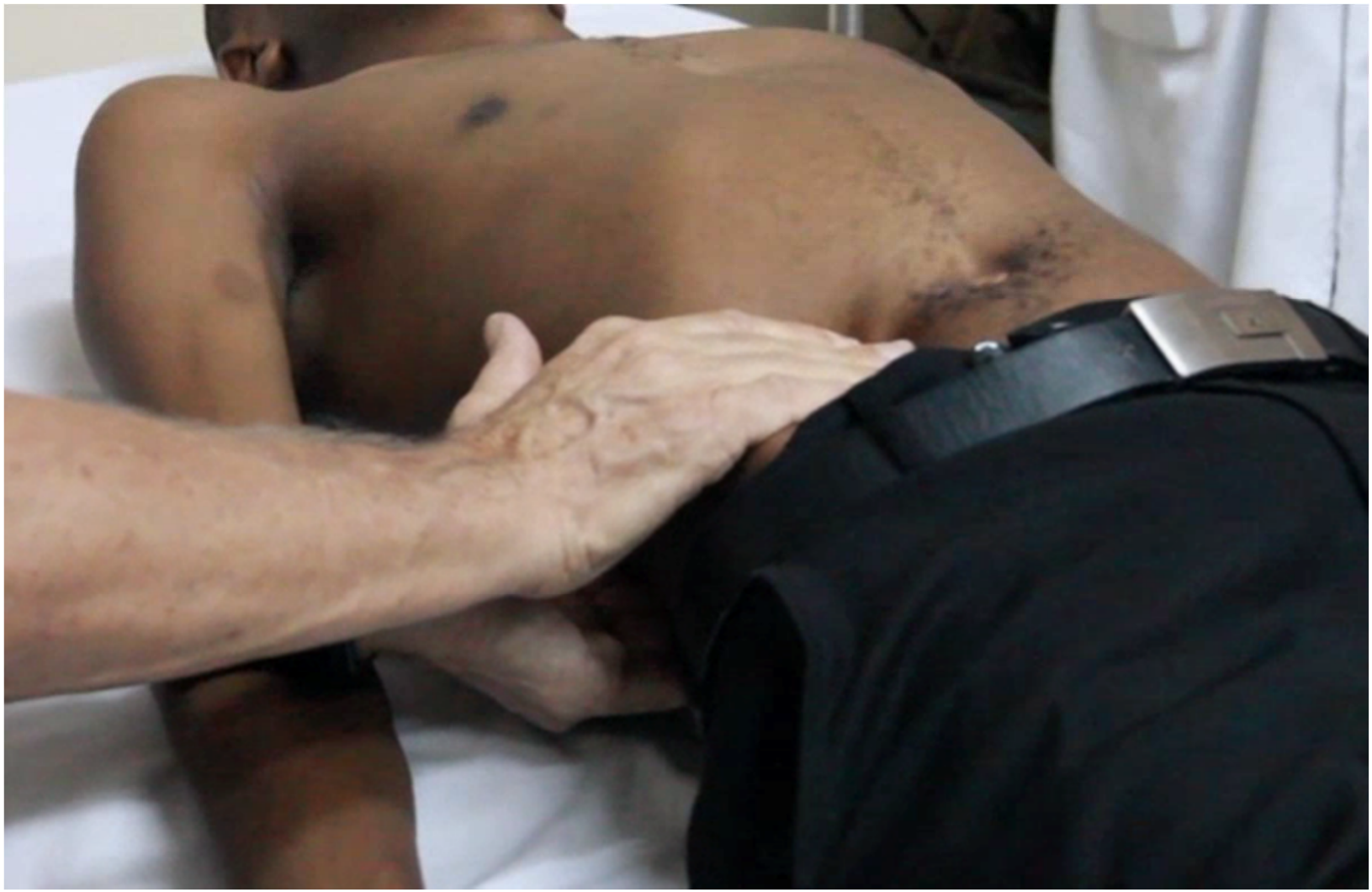
Place: one hand *posteriorly in loin* below last rib & other hand *anteriorly in upper quadrant*

Feel for lower pole of kidney: moving downwards *or* inferiorly with *upper* or palpating hand

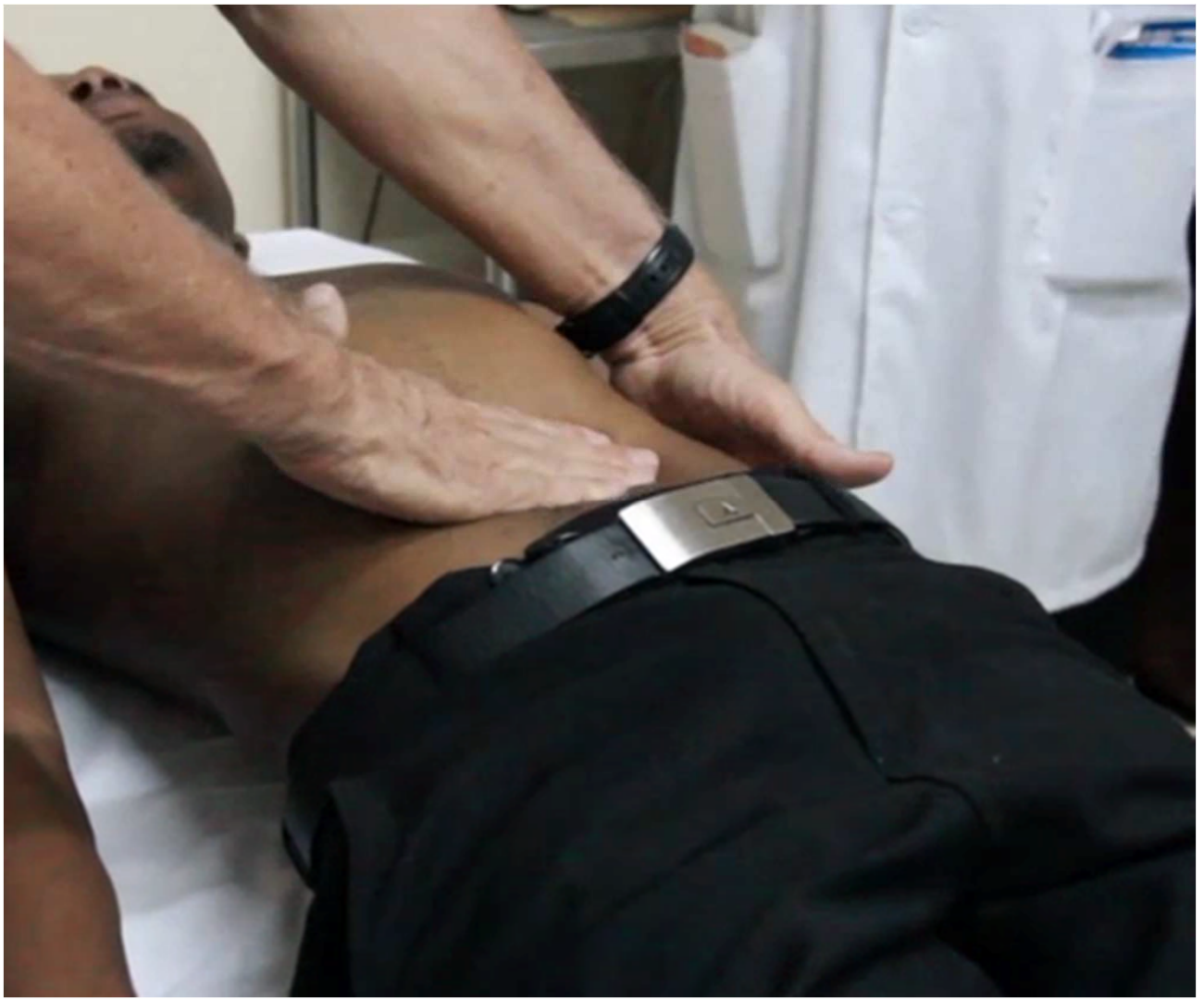
Ballot the kidney: by pushing kidney forward *from behind* and feel if kidney *ballots* the palpating hand

Repeat the same manoeuvre: on other side

Bimanual method



Bimanual method: left side



Mass: Characteristics

Site & Size & Shape (3 Ss)

Consistency: (regular or irregular, hard or soft)

Tender/Nontender

Mobile/Nonmobile

Pulsatile/Nonpulsatile

Bruit/Murmur

Other parts

Hernial orifices

Inguinal & femoral lymph nodes

External genitalia and perineum

Rectal examination

The Abdominal Examination

Inspection

Palpation

Percussion

Auscultation

Percussion

Main value: to distinguish between gas, ascites, full bladder & masses

Demonstrates organomegaly: *e.g.* Liver & Spleen

Remember to percuss from a resonant to dull direction

Place percussing fingers parallel to expected note change

Ascites

Shifting Dullness

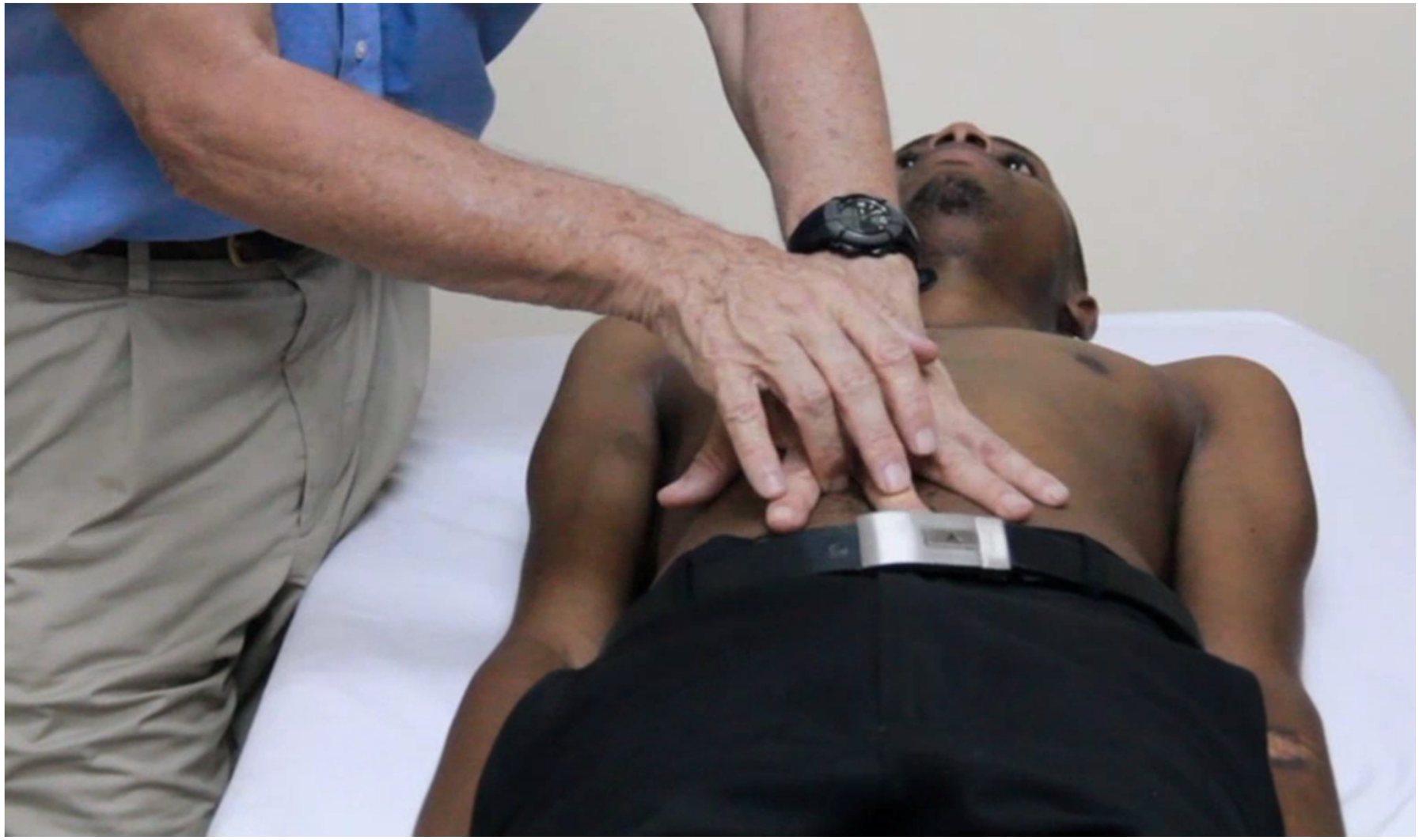
Percuss from centre of abdomen out to one flank

Mark level on the skin of change in note: of resonance to dull *or* keep the finger in place

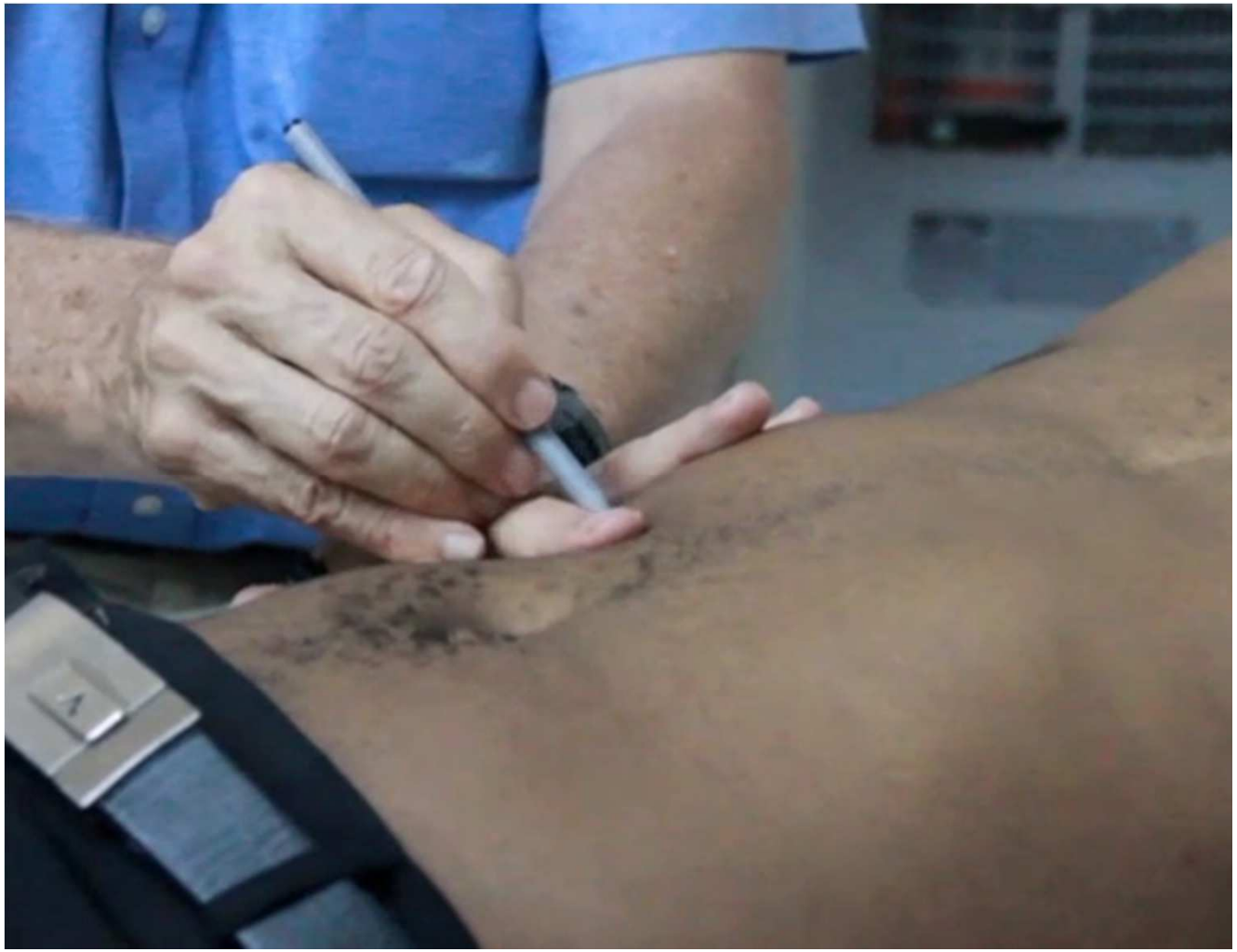
Roll patient onto the other side & wait 10 secs

Repeat percussion & if note has now changed to resonant: *dullness has shifted &* ascites is present

Shifting dullness



Shifting dullness: marking level



How to Demonstrate Ascites

Fluid Thrill Method

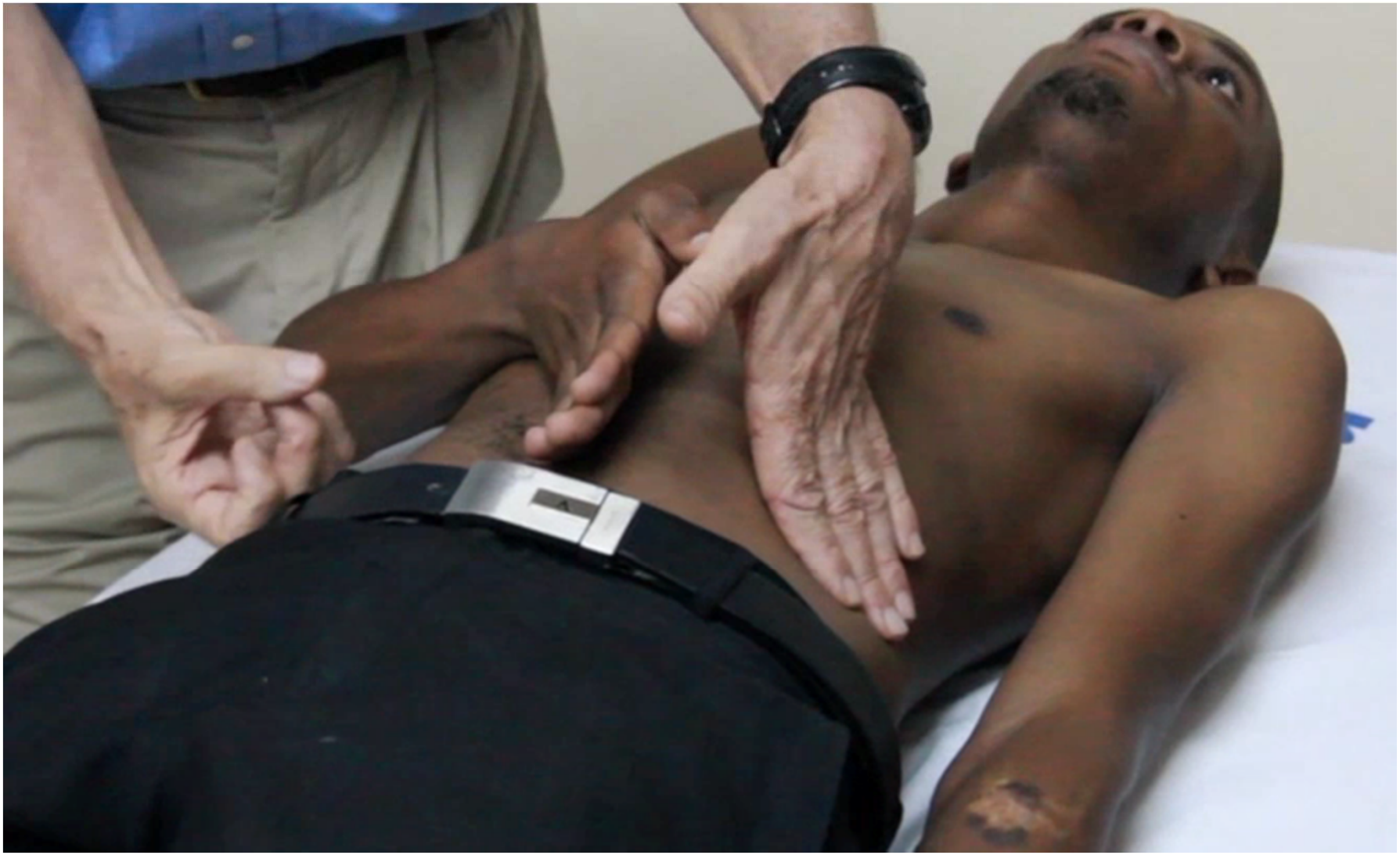
Place palpating hand on: the patient's flank

Place pts hand vertically along the midline: to dampen any transmitted thrill through tissue

Flick the skin on opposite flank: by using finger

Feel for a fluid thrill: with palpating hand

Fluid thrill method



The Abdominal Examination

Inspection

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Auscultation

Auscultation 1: Bowel Sounds

Place diaphragm below umbilicus and listen: for 2-3

3 mins before deciding bowel sounds are absent

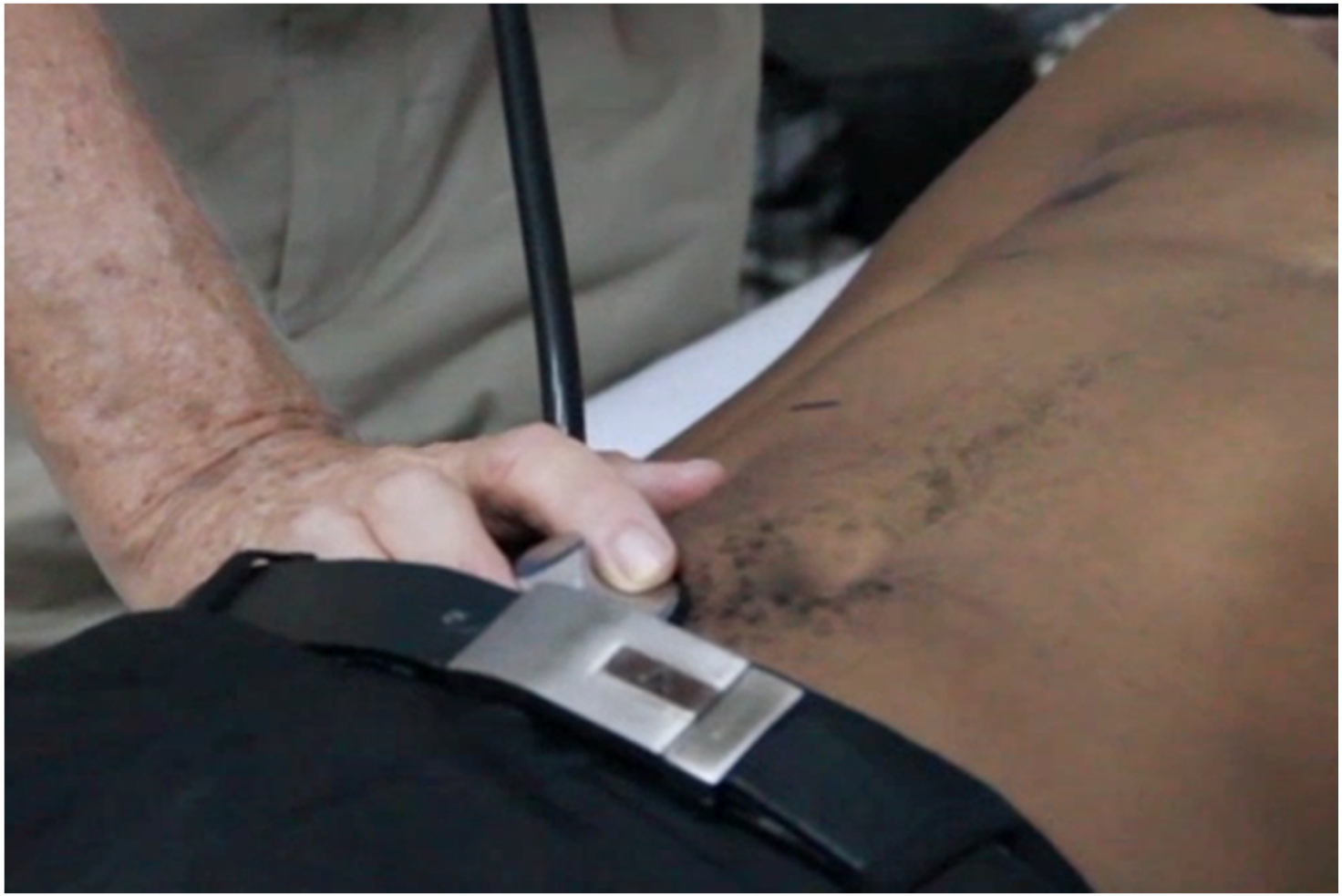
Normal bowel sounds are heard all over abdomen:

soft gurgling & intermittent

Bowel sounds are described as: present *or* absent

Complete absence for>3 mins indicates: paralytic ileus

Auscultation



Auscultation 2: Bowel Sounds

Mechanical obstruction: produces high pitched tinkling bowel sounds which are *usually increased*

Intestinal hurry as in diarrhoea: produces loud *gurgling sounds* often audible without a stethoscope

Auscultation 3: Other Uses

Bruits/Murmurs

- aorta: aneurysm, atheroma
- kidney: renal artery stenosis
- liver: hepatocellular carcinoma

Succussion splash: outlet obstruction ca stomach

Venous hums & friction rubs: hepatic

The Physical Examination

Rectal Examination

Exam is incomplete: without a rectal examination

Place tip of lubricated gloved finger over anus

Assess sphincter tone

Advance finger & palpate: anterior rectal wall & prostate in male & cervix in female

Rotate clockwise & feel: other three walls of rectum

Inspect glove for: blood, melena, mucus, faeces

Key Points

- More mistakes by not looking than not knowing
- Applies particularly to abdominal examination
- Technique of abdominal palpation is a very subtle one & must be learned & practised
- While laboratory investigations are of help, history & physical examination are your screening tools
- When in doubt re-examine the patient and/or ask senior colleague to review the pt