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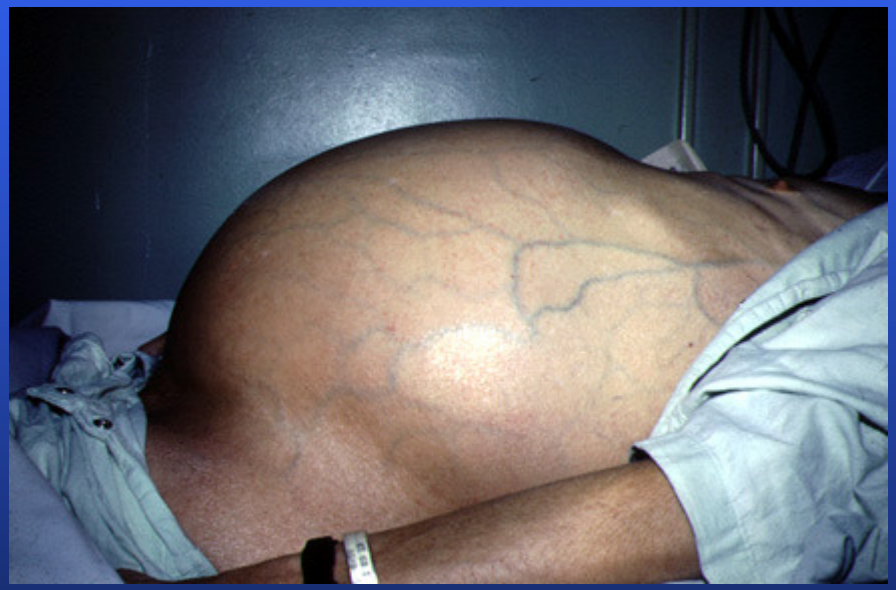
RETURNS
I can't get this lap top to work.
Reynolds

What's so bad about ascites?



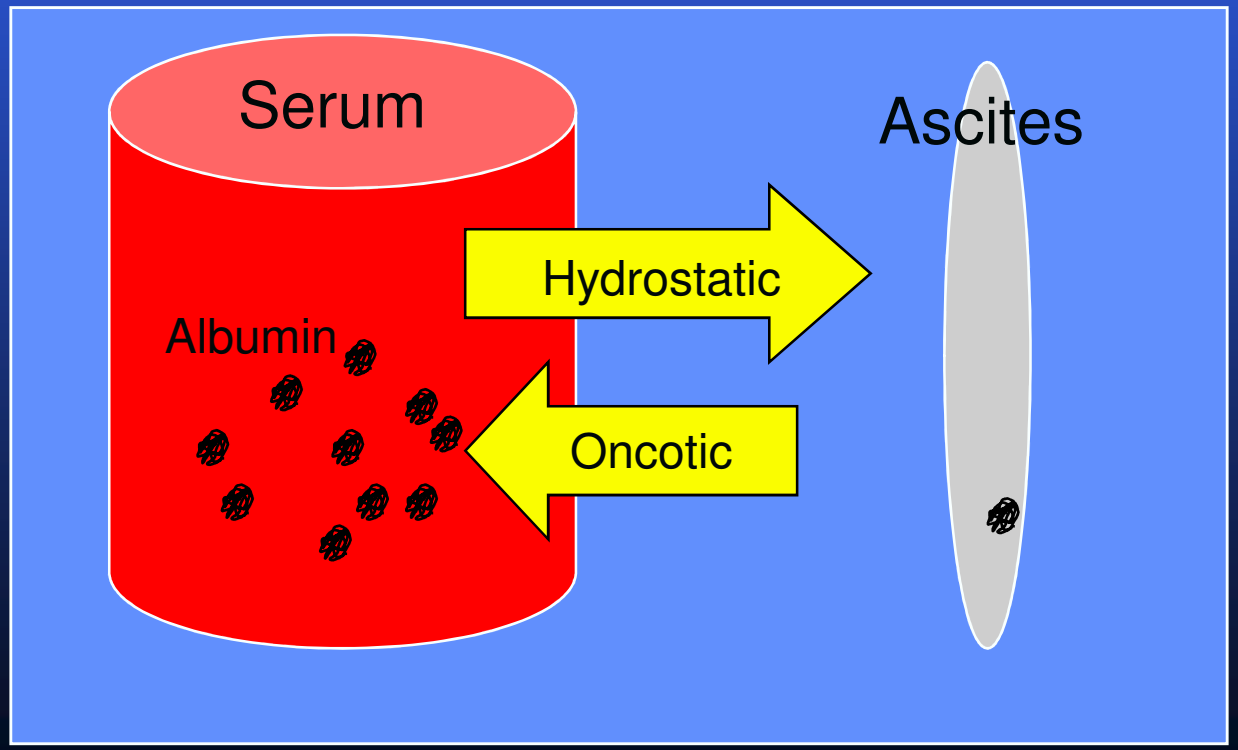
- Painful
- Anorexia & malnutrition
- Reduced mobility with deconditioning
- Hernias
- Impaired ventilation with atelectasis & pneumonia
- Increased variceal pressure
- May become infected (SBP)

Causes of ascites

- Cirrhosis
- Hepatic congestion (CHF)
- Renal disease
- Pancreatic
- Malignancy
- Infections (TB)
- Inflammatory disease
- Hypothyroidism

Why do cirrhotics retain salt and water?

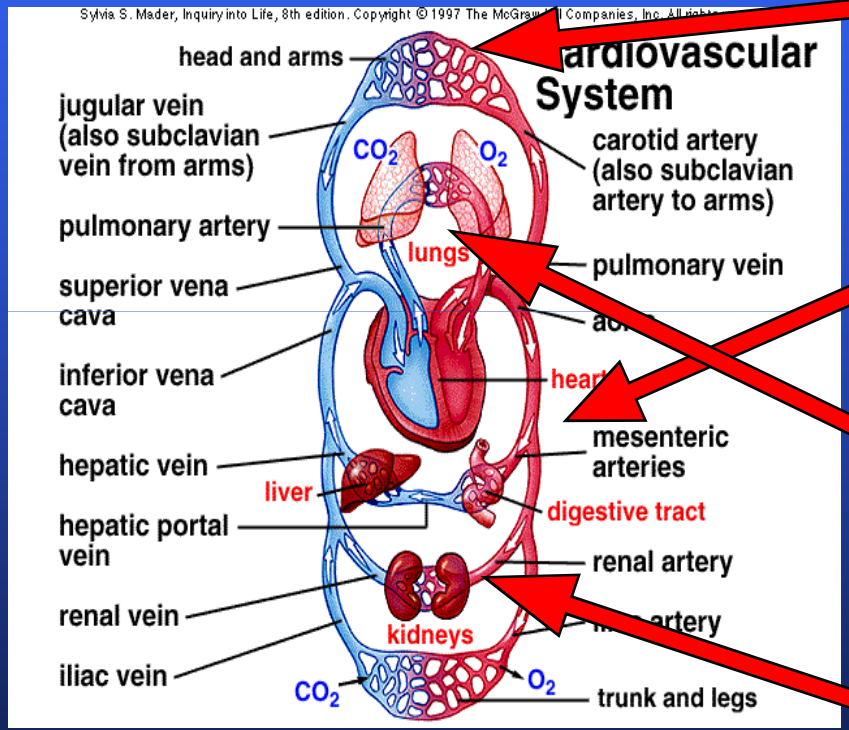
- Underfill
  - Low albumin & portal HTN
  - Transudation of fluid
  - Reduced renal perfusion
  - Renin release
  - Salt retention



Why do cirrhotics retain salt and water?

- Overflow
  - Systemic vasodilatation
  - Reduced renal perfusion
  - Renin, angiotensin system activation
  - Salt retention
  - Increased venous pressure
    - Portal
    - Systemic
  - Transudation of fluid

Features of the systemic hemodynamic derangement of cirrhosis



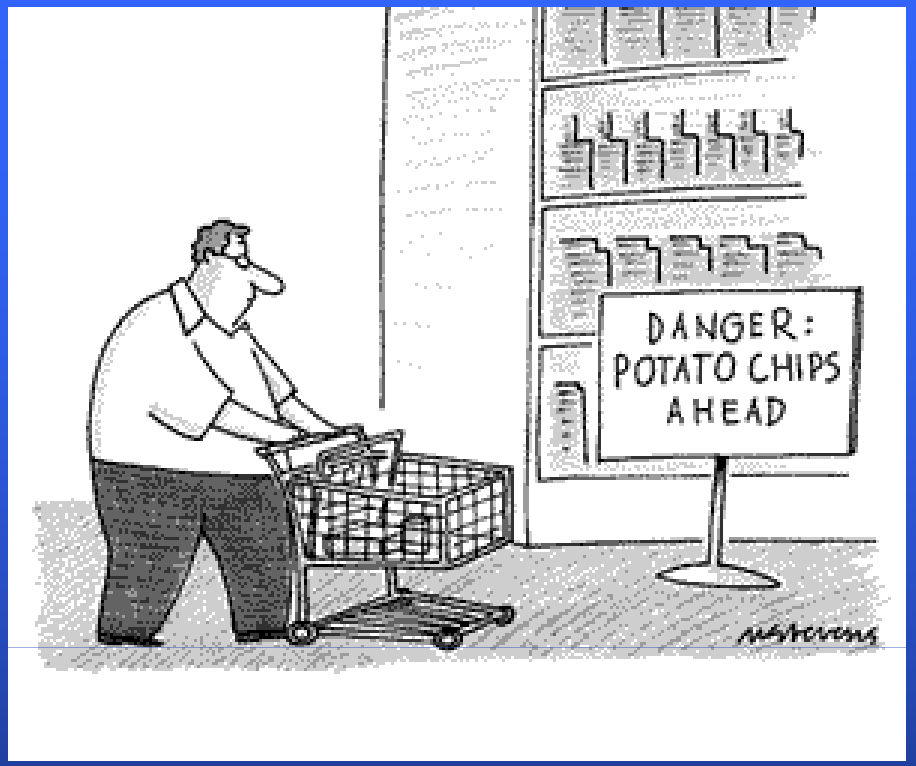
- Systemic vasodilatation
  - Low blood pressure
  - High cardiac output
- Mesenteric vasodilatation
  - Portal hypertension
- Pulmonary vasodilatation
  - Hepatopulmonary syndrome
- Renal vasodilatation
  - Reduced GFR

Stages of ascites

- Salt avidity without ascites
- Overt edema/ascites
  - Responsive to diuretics/salt restriction
  - Refractory
- Hepatorenal syndrome
  - Type II
  - Type I

Medical Rx

- Salt restriction
- Distal tubular diuretics
  - Spironolactone
  - Amiloride
- Loop and proximal diuretics
  - Furosemide

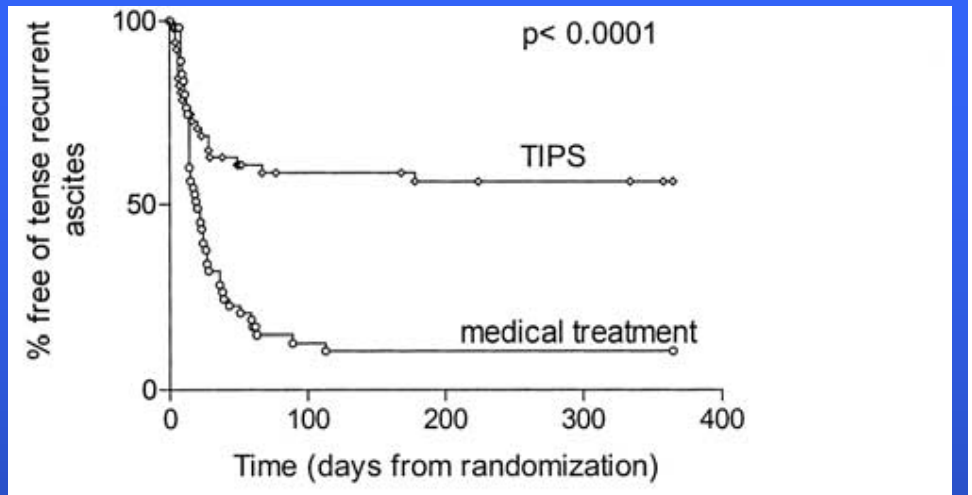


Resistant ascites

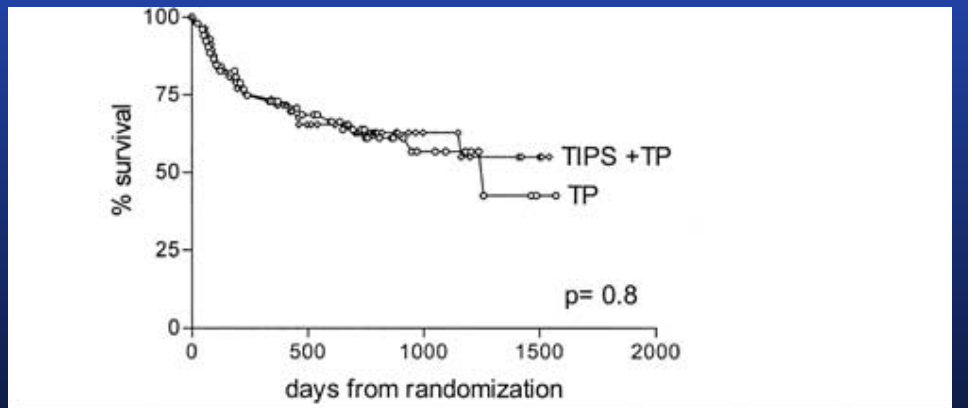
- Inadequate treatment
  - Patient noncompliance
  - Physician reluctance
- Refractory ascites
  - Failure to resolve despite maximal diuretics
  - Intolerance to treatment
    - Diuretic side effects (cramps, etc.)
    - Hyponatremia
    - Prerenal azotemia
- Hepatorenal syndrome, type II
  - Refractory ascites with persistent Cr > 1.5

Refractory ascites: the role of TIPS

- TIPS lowers portal pressure and may reduce or eliminate need for therapeutic paracentesis
- However overall TIPS does not improve survival



		time (days)				
		0	30	60	180	360
TP		57	23	10	6	5
TP + TIPS		52	36	29	26	20



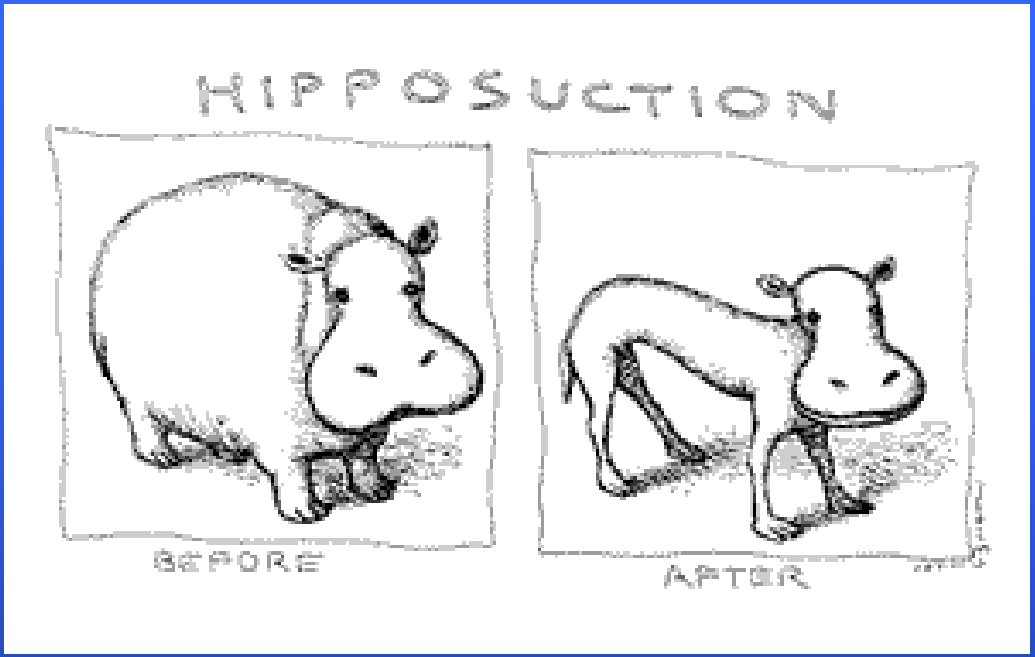
	days from randomization						
	0	50	100	250	500	750	1000
TIPS + TP	52	50	45	39	32	22	12
TP	57	56	42	30	28	20	10

Sanyal et al, 2003; Gastro 124:634

When to consider TIPS for refractory ascites

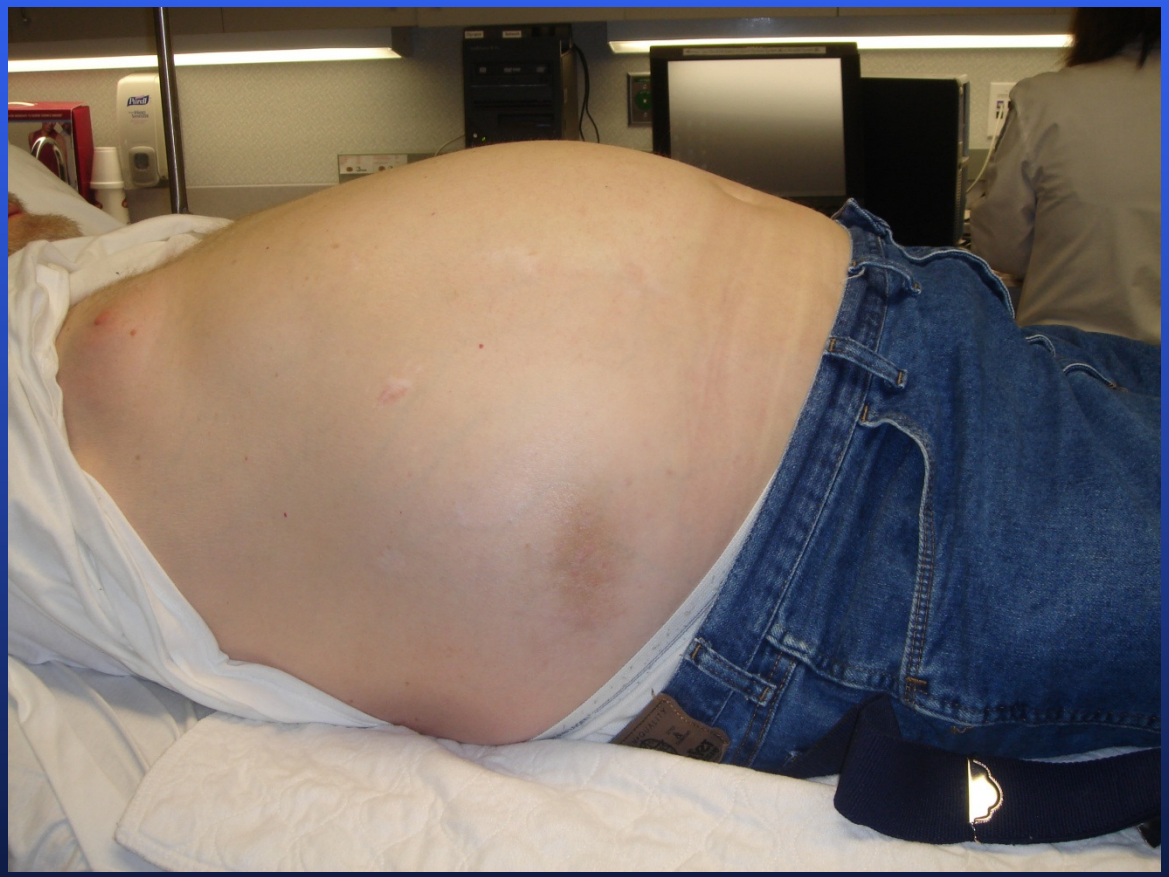
- Treatment compliant patient
- Low MELD score
- Absence of encephalopathy
- Transplantation not imminent

Large volume (total) paracentesis

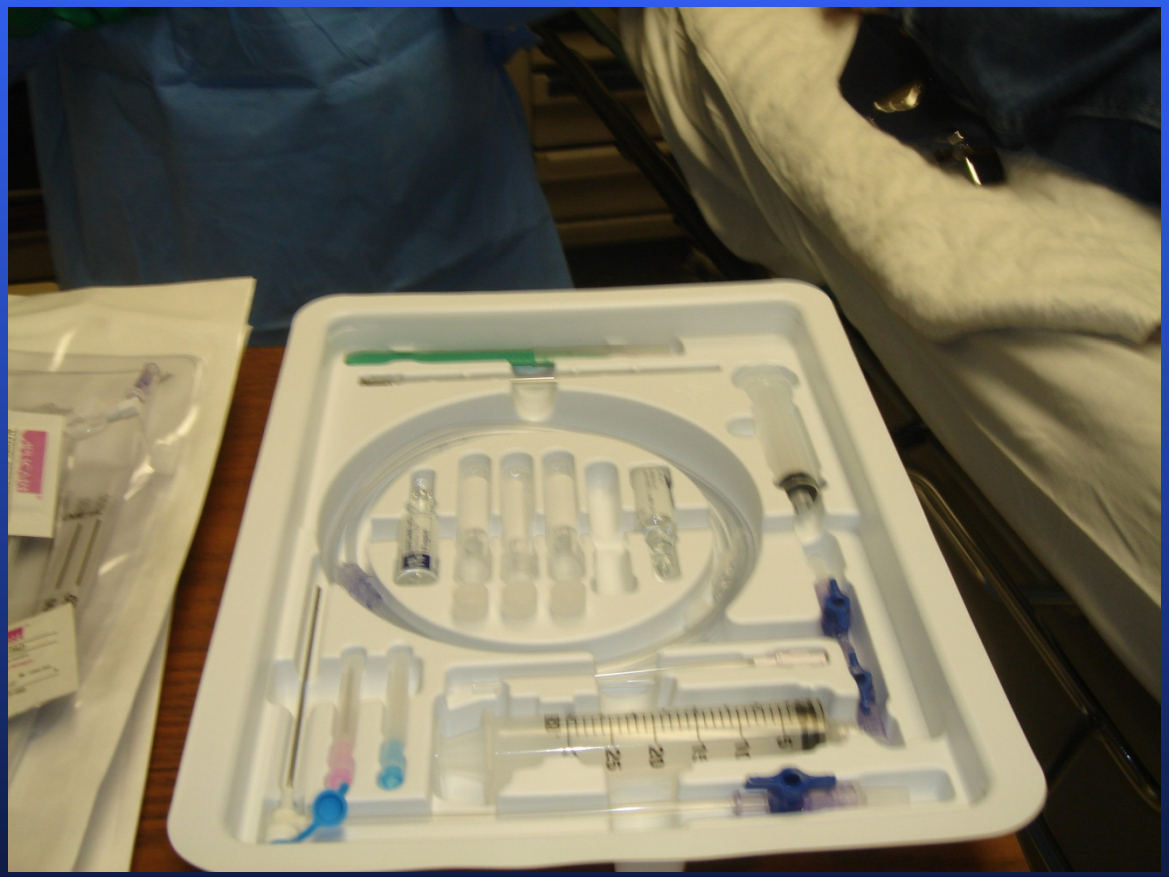


- Can be done as needed to relieve symptoms
- Benefits: comfort, nutrition, mobility, respiratory function, ?renal perfusion
- Risks:
  - Post paracentesis circulatory dysfunction: prevented with 50 g albumin (transudates only)
  - Hemorrhage, infection, perforation

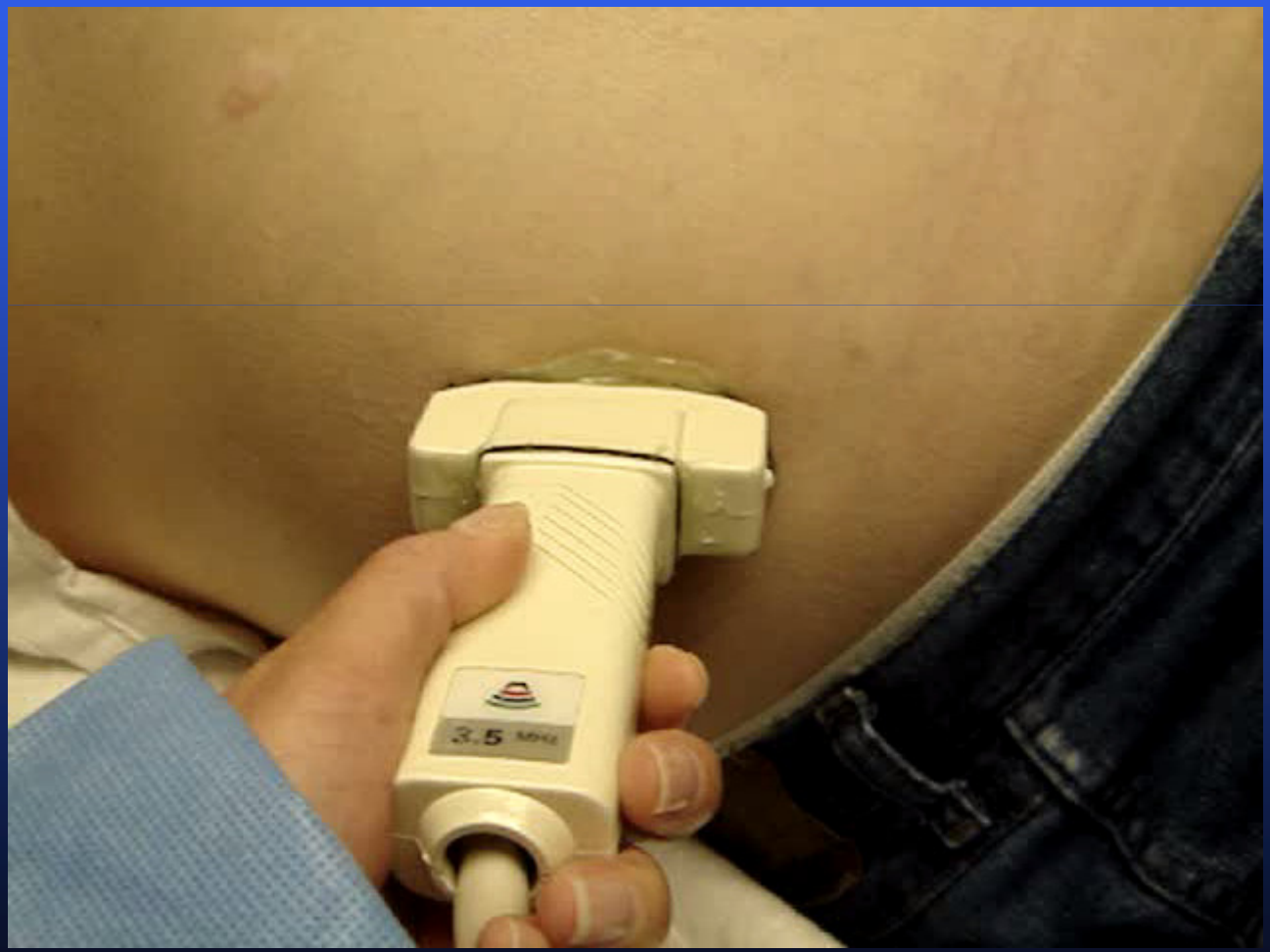
Ascites



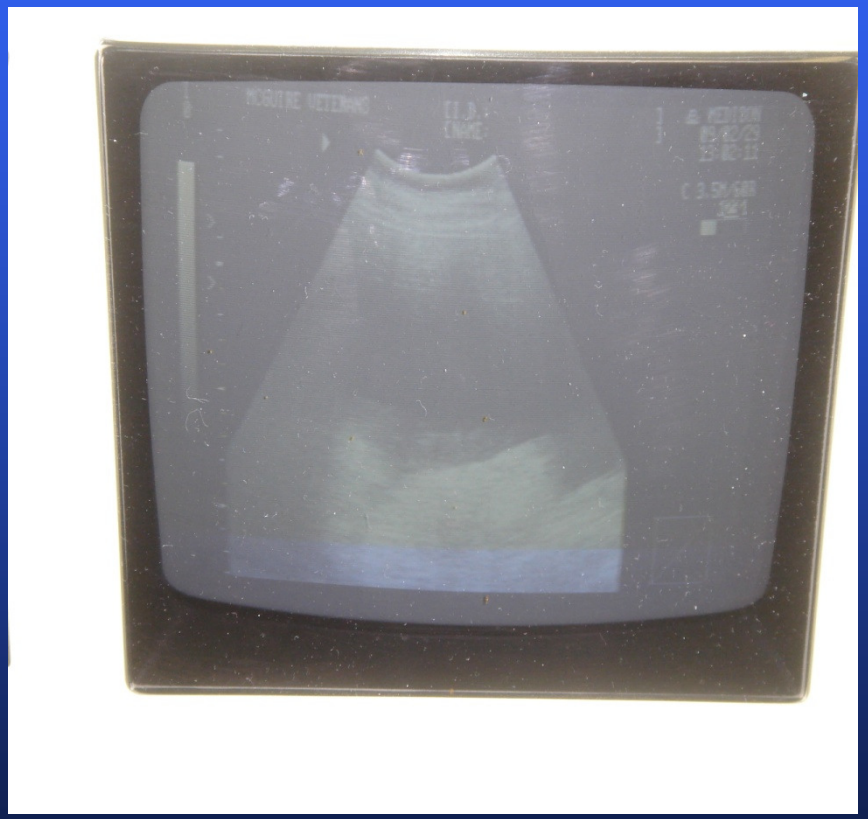
Paracentesis Tray



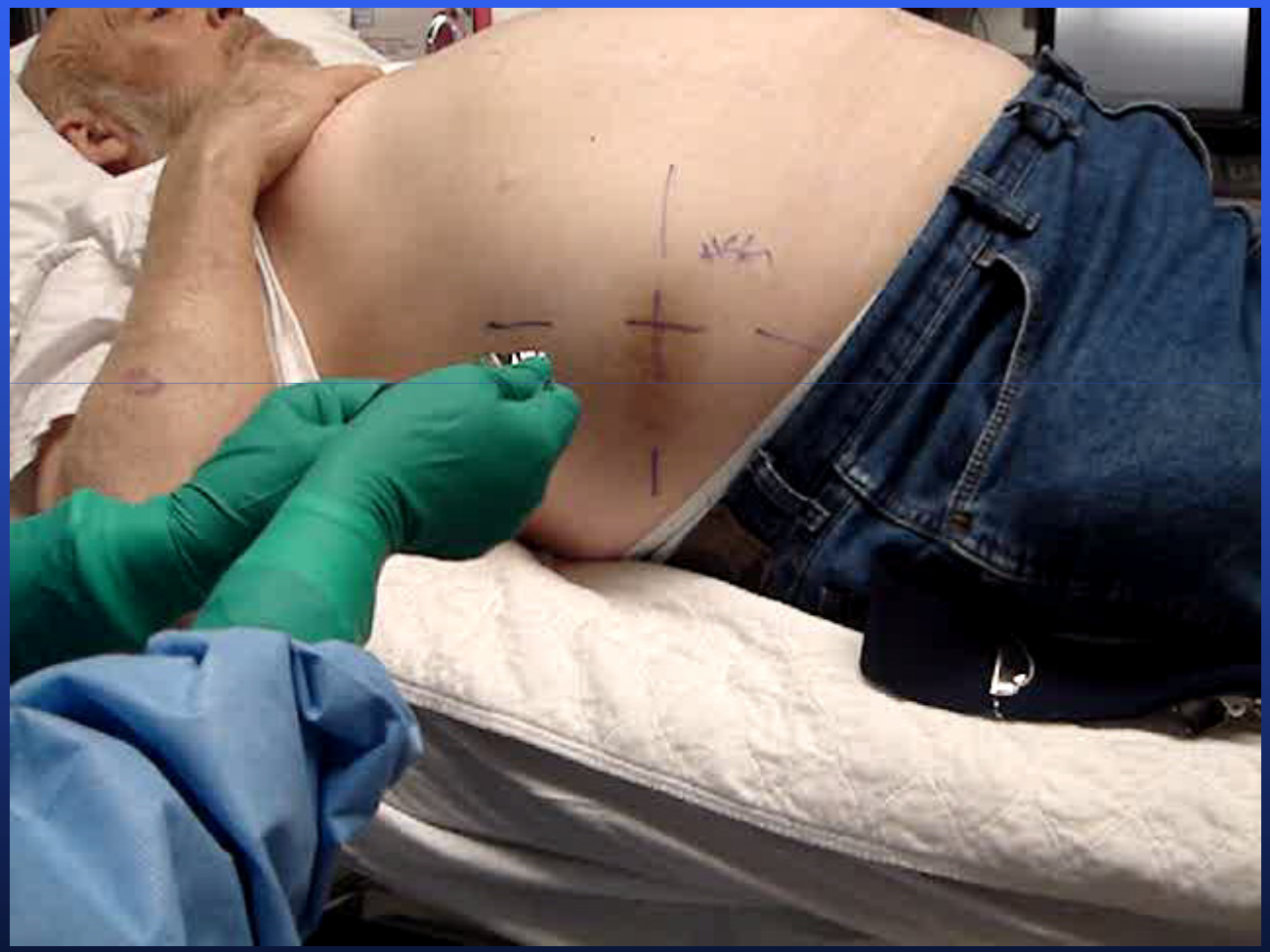
Ultrasound guidance



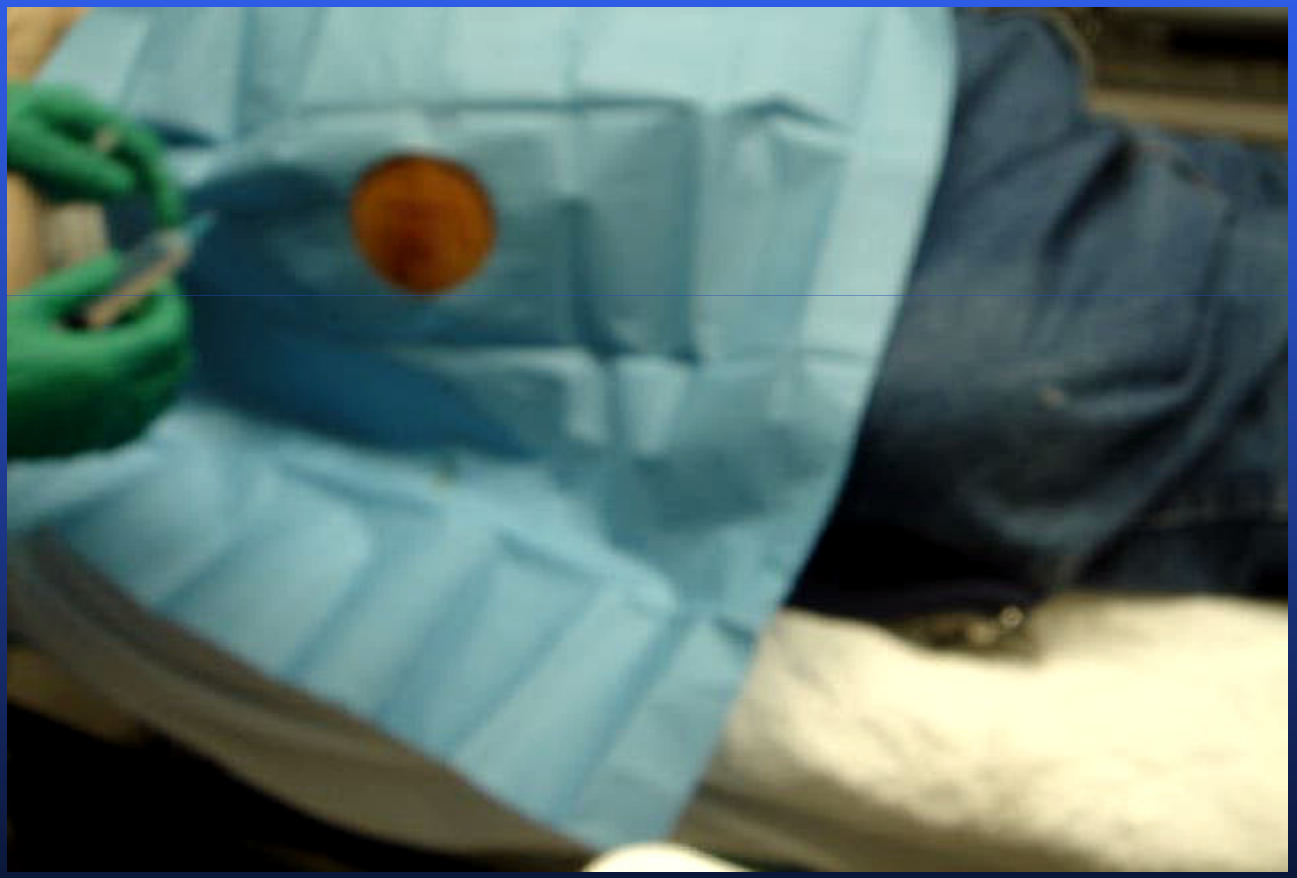
Landmarks



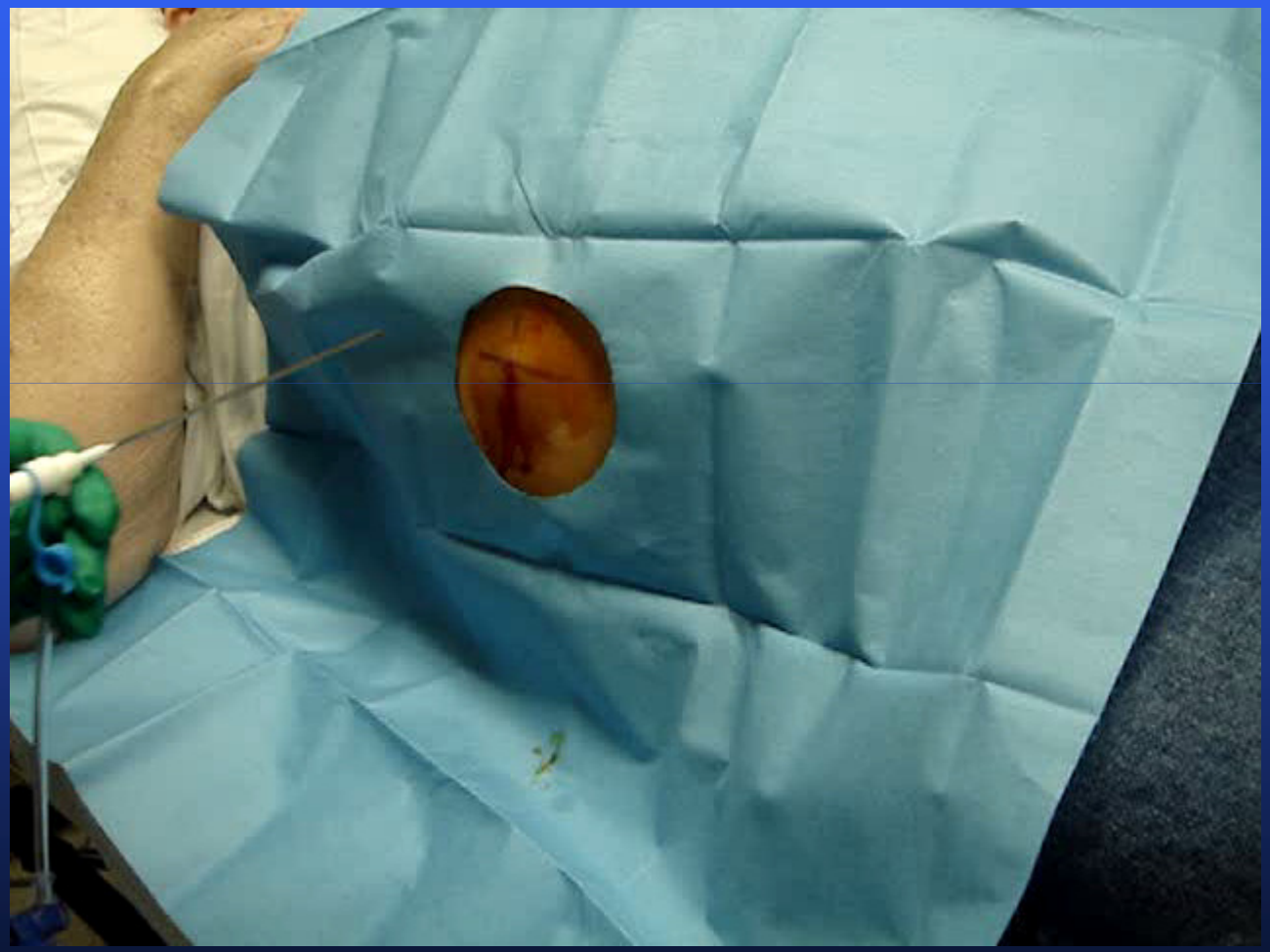
Site prep



Local anesthesia

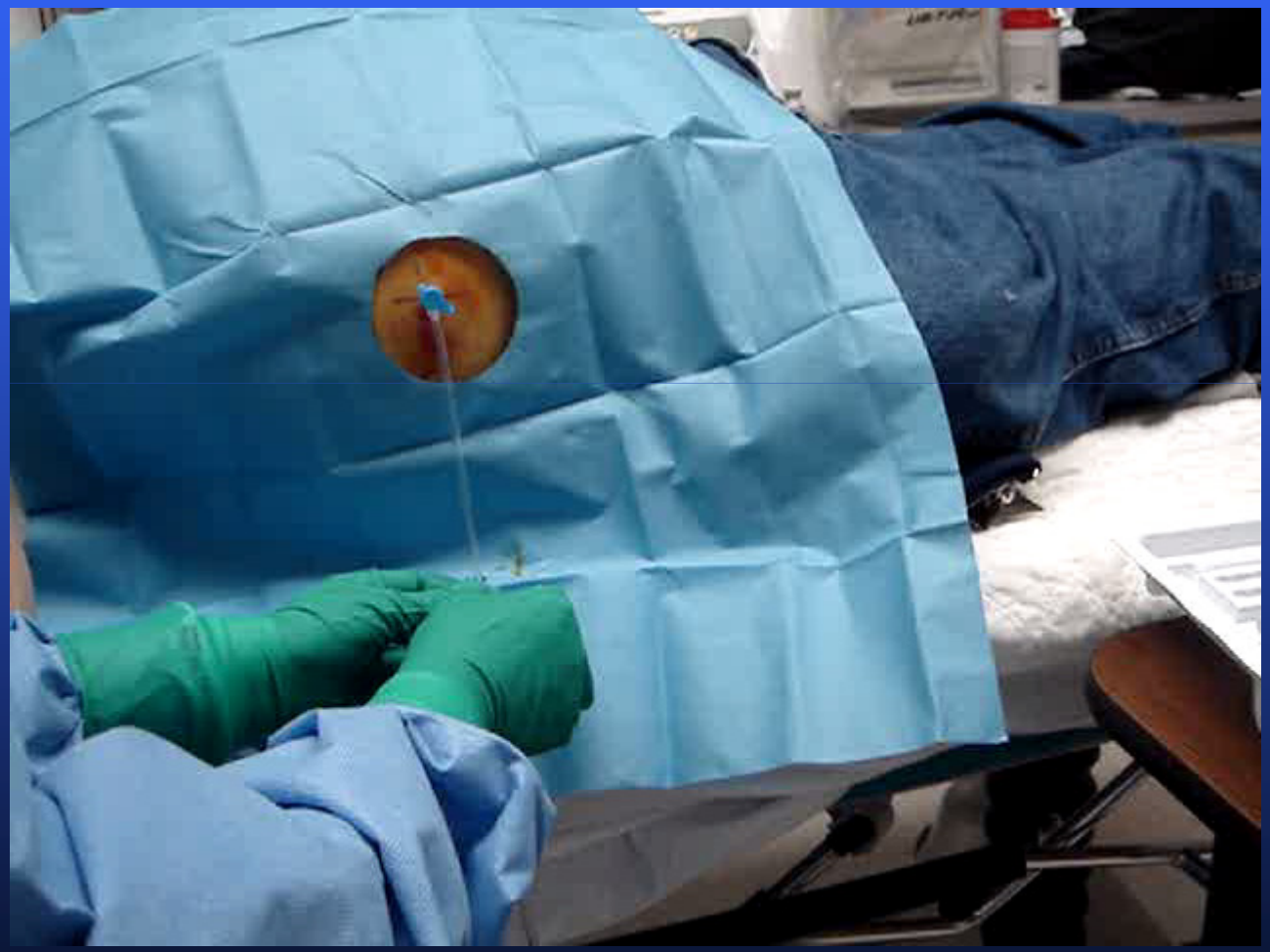


Insertion of Needle

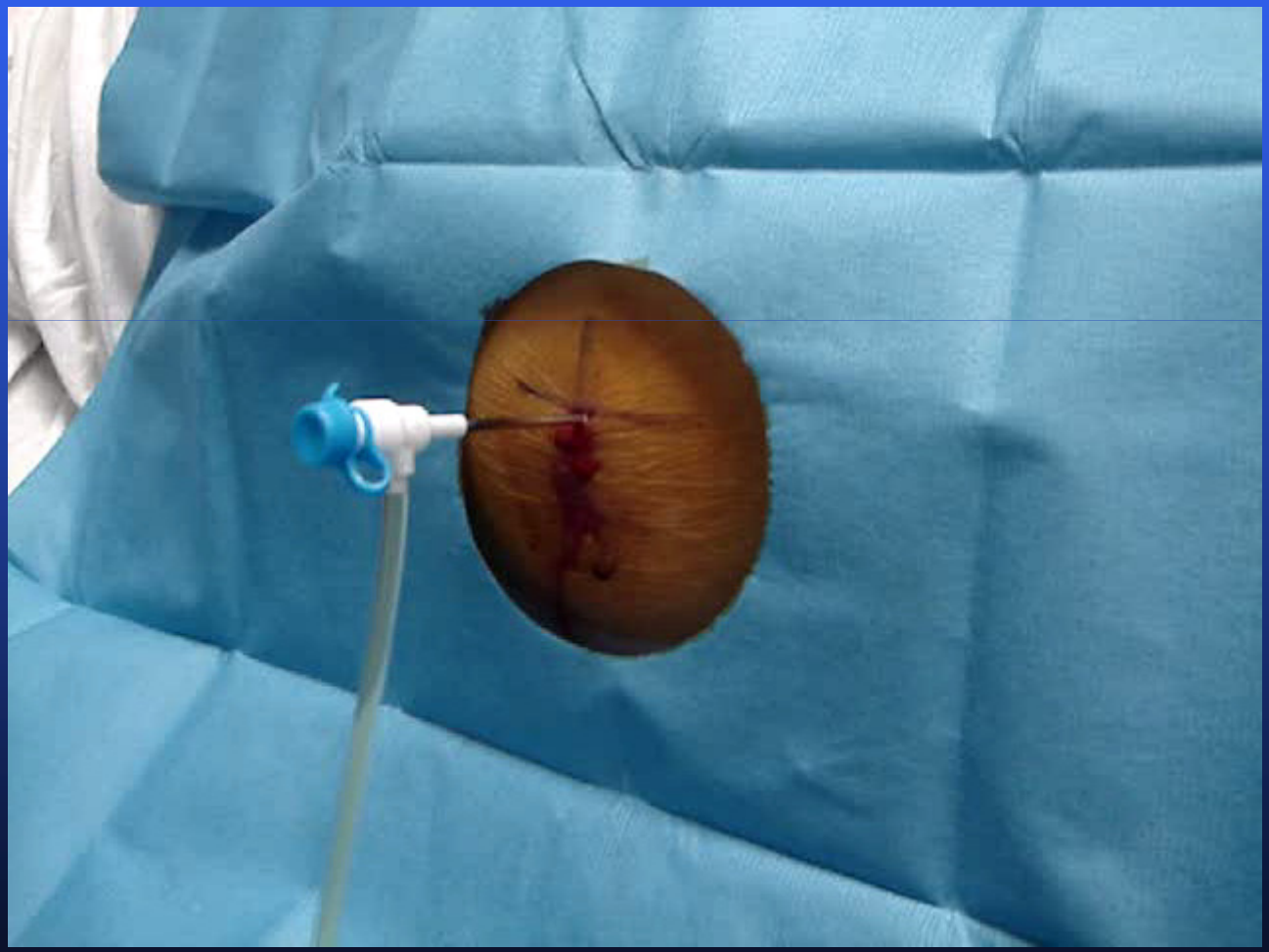


Suction vs gravity

Suction

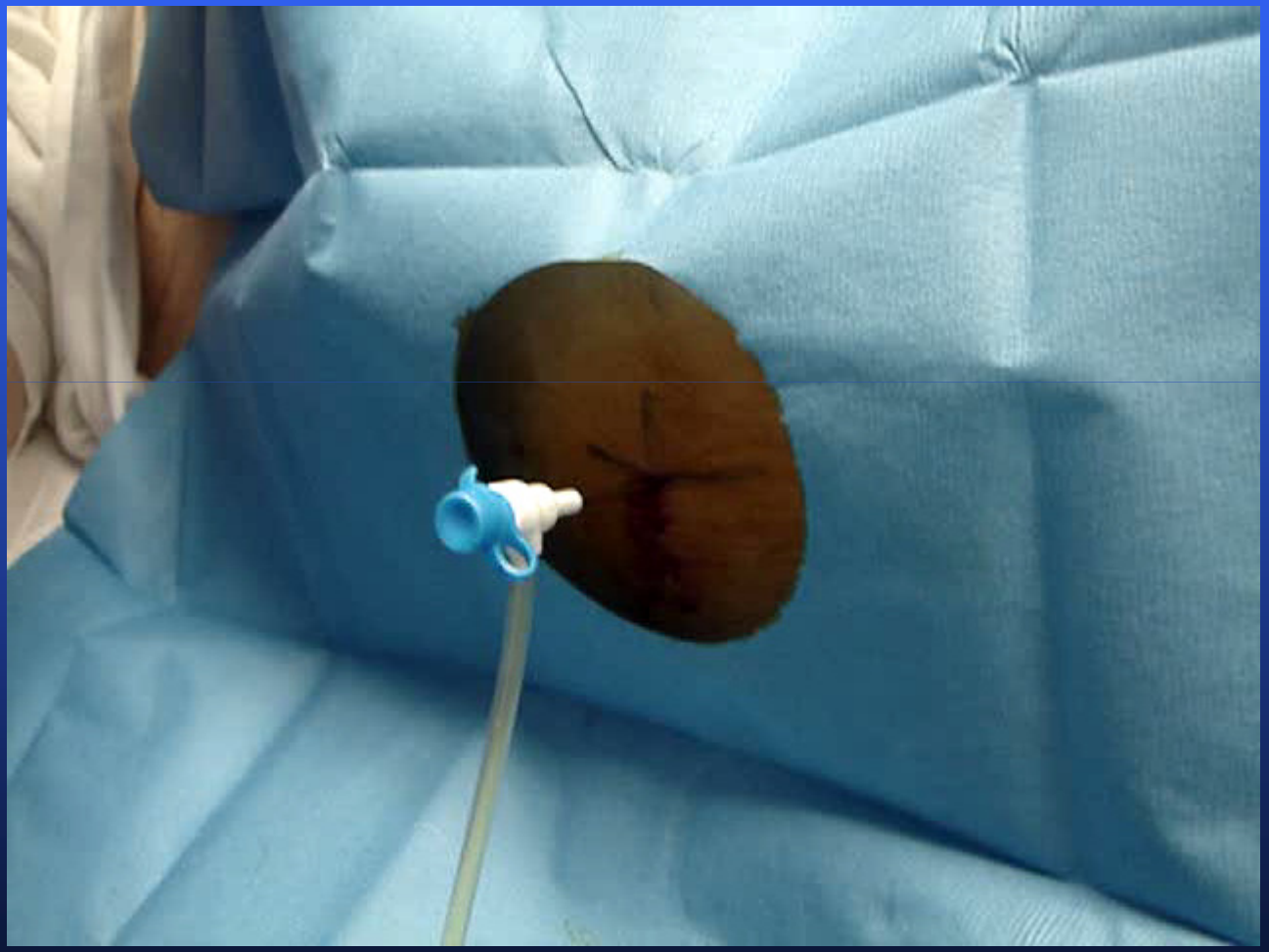


Skin changes

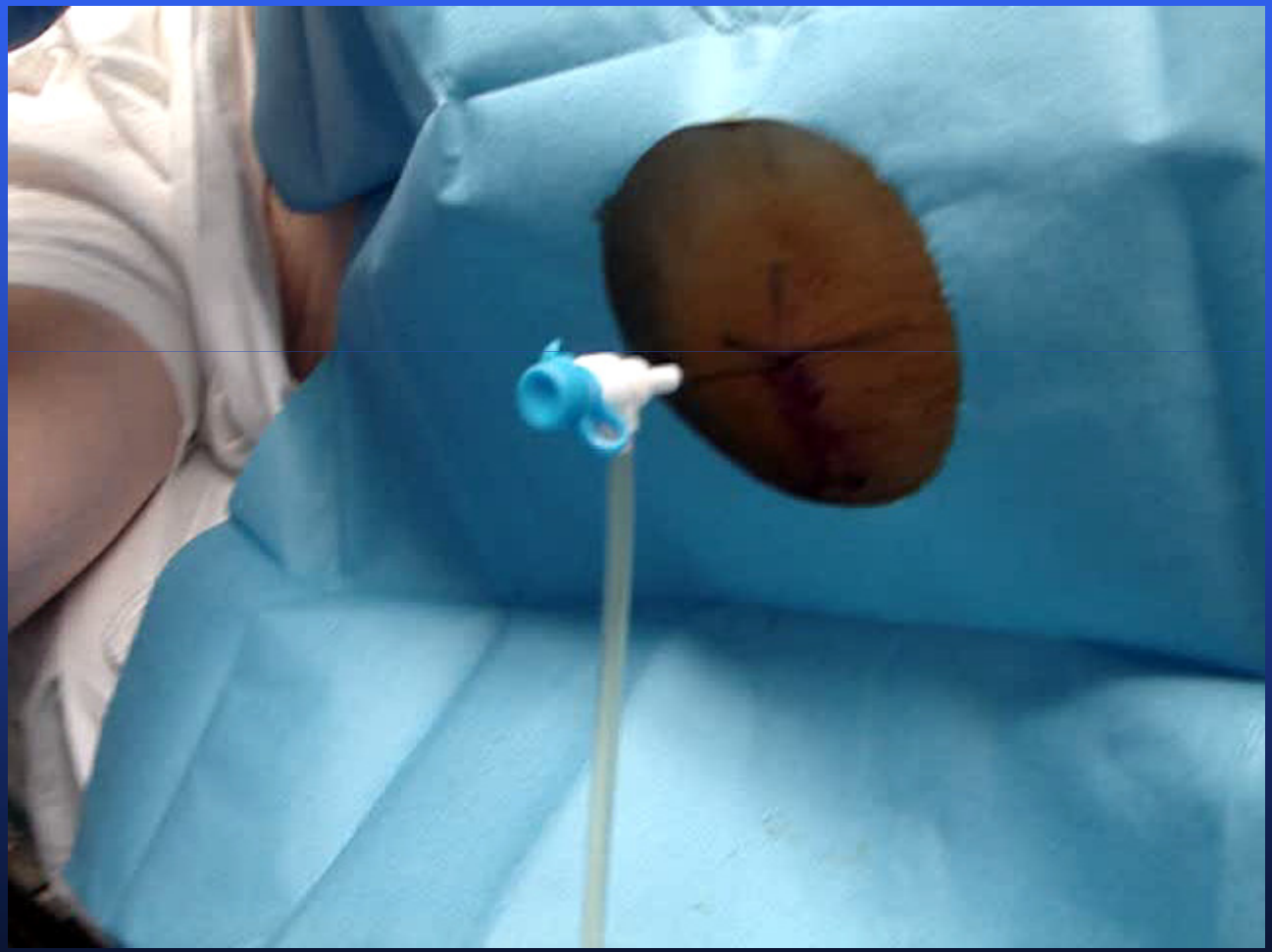


Self-contained system

Slowing down…repositioning

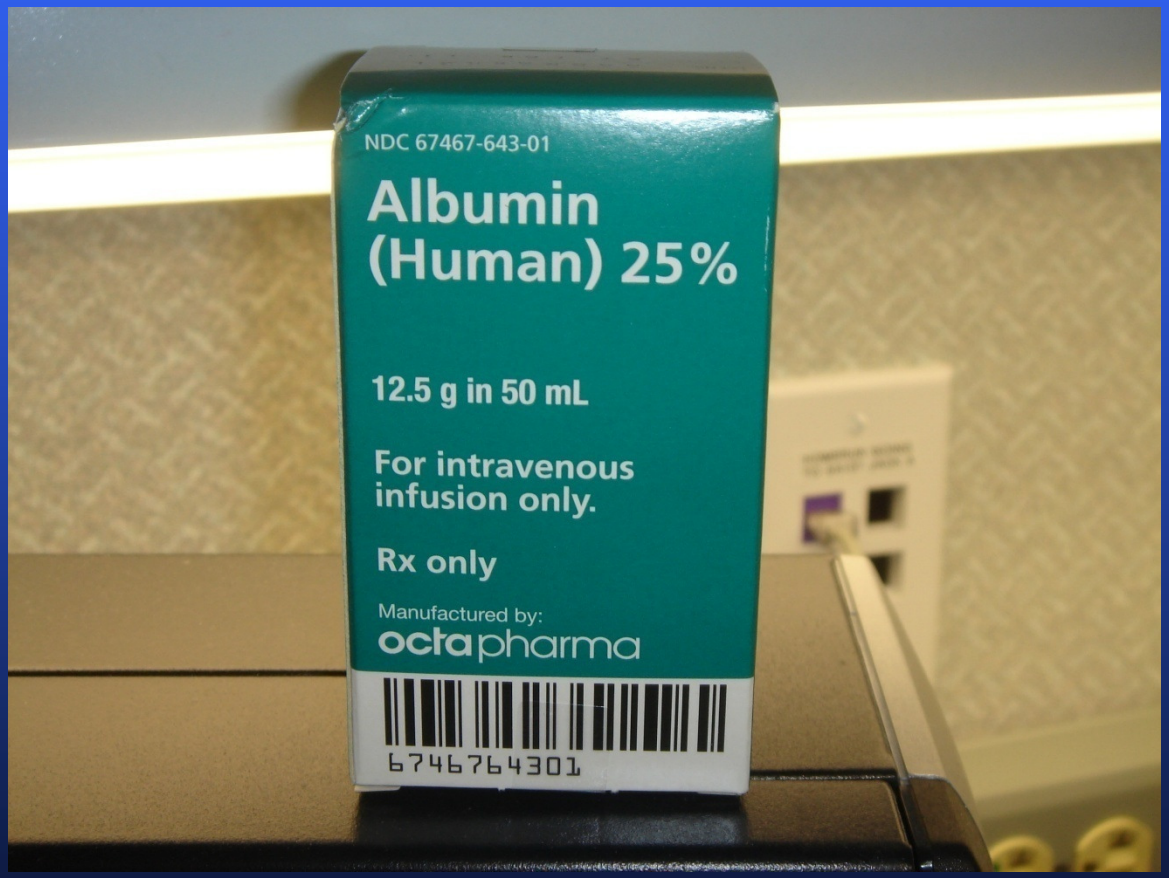


When to stop…
Procedure completion



Sample to Lab

Prevent PCD


NDC 67467-643-01
Albumin
(Human) 25%
12.5 g in 50 mL
For intravenous
infusion only.
Rx only
Manufactured by:
octapharma
6746764301

Diagnostic paracentesis:

AASLD Practice Guidelines

BA Runyon, 2004. Hepatology 39:841

- Abdominal paracentesis should be performed and ascitic fluid should be obtained from patients with clinically apparent new onset ascites
- Initial lab investigation should include:
  - Cell count and diff
  - Total protein, albumin -> calculate SAAG
- Other studies can be ordered based on pretest probability of disease, including:
  - Culture: routine, AFB, fungal
  - Chemistry: glucose, LDH, Amylase, TG
  - Cytology

Paracentesis as a guide to diagnosis

- *Low protein, high SAAG*
  - ***cirrhotic***
- *High protein, high SAAG*
  - ***congestive***
    - R sided CHF
    - Constrictive pericarditis
    - Budd-Chiari
- *Low protein, low SAAG*
  - ***hypoalbuminemic***
    - Nephrotic
    - Enteropathic
- *High protein, low SAAG*
  - ***exudative***
    - Cancer
    - TB
    - Hypothyroid
    - Pancreatic

Low protein: < 2.5 g/dl

High SAAG: > 1.1 g/dl

Fluid Analysis

- Cell Count:
  - PMNs
  - Hemorrhagic ascites- corrected PMN
- Culture
  - Usually monomicrobial in SBP
- Protein and Albumin

Fluid Analysis

- Glucose
  - Usually falls below in secondary bacterial peritonitis
- LDH- releases from PMN lysis
  - Increased in SBP; further elevated in secondary bacterial peritonitis
- Amylase
  - Increased in pancreatitis and gut perforation

Unfortunately, there's no cure—
there's not even a race for a cure