Spontaneous Bacterial Peritonitis

SBP · Tap first, treat immediately, and remember the albumin

PMN ≥ 250
that is the diagnosis

DIAGNOSE IT *the tap is the test — and it is under-performed*

WHO TO TAP

Every cirrhotic with ascites on every admission, and any time there is clinical deterioration. **Do not wait for fever or abdominal pain** — SBP is often silent, presenting only as encephalopathy, AKI, hypotension, or unexplained decline.

THE THRESHOLD

Ascitic fluid neutrophil (PMN) count ≥ 250 cells/mm³ makes the diagnosis, **regardless of culture**. Culture-negative neutrocytic ascites is treated identically. **Send cultures before antibiotics**, in blood culture bottles, to raise yield.

ALSO SEND

Albumin (for **SAAG**), total protein, glucose, LDH, and Gram stain. Blood cultures too. If the tap is bloody, **correct the PMN count by subtracting 1 neutrophil per 250 red cells**.

TREAT IMMEDIATELY *two drugs, and the second one is the one people forget*

1. **Third-generation cephalosporin. Cefotaxime 2 g IV every 8 hours** is the agent of choice across major society guidance; ceftriaxone 2 g daily is an accepted alternative. Broaden for healthcare-associated or recently hospitalized patients, where resistant organisms are commoner.
2. **IV albumin 1.5 g/kg within 6 hours, then 1 g/kg on day 3.** This is given where there is **renal impairment or other markers of severity** and it **reduces hepatorenal syndrome and mortality**. Antibiotics alone leave that benefit on the table.
3. **Hold diuretics and non-selective beta-blockers** if there is AKI or hypotension, and **stop all NSAIDs and other nephrotoxins**. Avoid aminoglycosides entirely in this population.
4. **Duration is usually 5–7 days.** If the patient is not improving, **repeat the paracentesis at 48 hours** — a fall of less than 25% in the PMN count suggests resistant organisms or secondary peritonitis.
5. **Start secondary prophylaxis before discharge** and refer for **transplant assessment** — an episode of SBP is a marker of poor prognosis and a listing trigger.

SECONDARY BACTERIAL PERITONITIS *the one that needs a surgeon, not a longer course*

SUSPECT IT WHEN

The fluid shows **multiple organisms**, **total protein > 1 g/dL**, **glucose < 50 mg/dL**, and **LDH above the serum upper limit**. Also with a very high PMN count, or failure to improve on appropriate antibiotics.

WHAT TO DO

This is a **perforated or contained intra-abdominal source**, not primary SBP. **Get cross-sectional imaging and a surgical opinion**, and broaden antibiotics to cover anaerobes and enteric organisms. Treating it as SBP alone is fatal.

PROPHYLAXIS *who gets it, and for how long*

Indication	Regimen and rationale
Secondary after any SBP episode	**Norfloxacin 400 mg daily** (or ciprofloxacin 500 mg daily) **indefinitely**. Without it, one-year recurrence is around **70%**; with it, roughly **20%**. This is one of the highest-yield discharge prescriptions in hepatology.
After variceal bleeding	**Ceftriaxone** for up to 7 days in any bleeding cirrhotic — reduces infection, rebleeding, and mortality.
Primary selected high-risk	Consider for **low-protein ascites (< 1.0–1.5 g/dL)** together with **impaired renal or liver function**, which identifies those at increased risk of a first episode.
The trade-off	Long-term quinolones select for **resistant organisms and C. difficile**. Reserve prophylaxis for genuine indications rather than all-comers with ascites.

THE PARACENTESIS ITSELF *a bedside skill worth doing well*

Step	Detail
Coagulopathy	**A raised INR or low platelet count is not a contraindication.** Routine plasma or platelet transfusion before paracentesis is **not** recommended — the bleeding risk is very low and transfusion carries its own harm. Do not let a number delay a diagnostic tap.
Site	Left **lower quadrant**, roughly two finger-breadths medial and superior to the anterior superior iliac spine, or an ultrasound-identified pocket. **Avoid surgical scars** (adherent bowel) and visible collaterals (caput medusae).
Technique	**Use ultrasound** where available. A **Z-track** approach reduces persistent leak. Send fluid **in blood culture bottles** to maximize yield.
Albumin for large volume	For a **therapeutic** tap removing **> 5 L**, give **albumin 6–8 g per liter removed**. Not needed for a small diagnostic tap.
Complications	Persistent leak, abdominal wall hematoma, and rarely bowel perforation or hemoperitoneum. **Post-paracentesis circulatory dysfunction** is the one albumin prevents.

WHILE THEY ARE INPATIENT *the wider picture around the infection*

MONITOR ACTIVELY

Daily creatinine and sodium — the transition to hepatorenal syndrome is the main threat, and albumin is what mitigates it. Watch for **new encephalopathy**, and screen for GI bleeding. Recheck the ascitic PMN count at 48 h if the trajectory is wrong.

THINK ABOUT THE WHOLE LIVER

An SBP episode marks a **prognostic inflection point**. Calculate **MELD-Na**, arrange **transplant assessment**, confirm HCC surveillance, review varices, and address alcohol or metabolic drivers. Treating the infection without re-staging the liver disease misses the point.

PEARLS & PITFALLS

- **The commonest error is not tapping.** Any cirrhotic with ascites who deteriorates in any way needs a diagnostic paracentesis, and coagulopathy is **not** a contraindication.
- **Give the albumin.** Antibiotics plus albumin reduce hepatorenal syndrome and death; antibiotics alone do less.
- **Culture-negative neutrocytic ascites is SBP.** Treat on the PMN count and do not wait for microbiology.
- **New encephalopathy or AKI in a cirrhotic is an indication to tap**, not just to give lactulose or fluids.
- **Polymicrobial growth with low glucose and high LDH means secondary peritonitis** — call surgery and image.
- **Never use aminoglycosides** in decompensated cirrhosis; the nephrotoxicity risk is prohibitive.

References: AASLD 2021 Practice Guidance on Ascites, Spontaneous Bacterial Peritonitis and Hepatorenal Syndrome · EASL clinical practice guidelines on decompensated cirrhosis · Sort et al., albumin in SBP.

Educational aid; verify doses against local protocol, antibiogram, renal function, and patient factors.