

# Fatigue more than just anemia: A case report of undiagnosed PBC

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## Background

- **Primary biliary cholangitis (PBC)**, formerly known as primary biliary cirrhosis, is a chronic cholestatic autoimmune liver disease characterized by T- lymphocyte activation and destruction of small biliary ducts.<sup>1</sup>
- Fatigue is one of the most frequent presenting symptoms found especially in patients with autoimmune disease with an increase in prevalence with age, with women being mostly affected.
- PBC pruritus is the most common symptom presenting in 75% of the cases, fatigue in 20% and depression or anxiety in 20% of the cases.<sup>2</sup>
- Fatigue is the most commonly reported presentation of anemia, for which the cause can be multifactorial in nature. A thorough investigation is necessary, in order to discern the various causes of fatigue. Understanding the clinical picture in its entirety, will lead to a more appropriate diagnosis of underlying fatigue.

## Objective

This case report focuses on a scenario where fixating on the most likely diagnosis of fatigue, as in iron deficiency anemia due to abnormal uterine bleeding, led to a delay in determining the actual etiology of the patient's presentation, PBC. Furthermore, it explores an approach to history taking in order to develop broader differentials for chronic fatigue.

## Case Presentation

- **45 year old female** who presented to clinic to establish care due to chronic fatigue.
- Patient had been evaluated one year prior in a different outpatient clinic where it was assumed her chronic fatigue was due to iron deficiency anemia and menorrhagia
- She also complained of shortness of breath exacerbated by exercise and generalized pruritus with hyperpigmentation that did not improve with topical antihistamines
- Patient was given initial lab orders with critical Hemoglobin reported on the 3rd day after office visit.
- She was admitted to the hospital and received 2 units of PRBC.
- Liver US showed cholelithiasis, however Abdominal CT showed fatty liver and was negative for stones.
- Patient was found to have a positive AMA with negative ANA.
- She was started on Ursodeoxycholic acid and ferrous sulfate with significant improvement of ALP.
- Follow up with OBGYN for menorrhagia, patient was found to have uterine fibroids.
- Follow up with GI, pending Liver biopsy.

## Results

**Table 1. Shows CBC trend from outpatient to 6 month follow up**

Complete Blood Count	Outpatient	Inpatient	Follow up	Range
WBC (k/mm <sup>3</sup> )	2.8	4.1	2.8	4.0-10.0
Hgb (g/dl)	4.8 L	4.8	11.5	12.0-16.0
Hct	19.2	19.3	36	37-47% <sup>2</sup>
MCV(fl)	59.1	58.1	83.1	82-92
RDW	19.9 H	21	31.9	11-16%

**Table 2. Shows LFT's with severely elevated Alkaline Phosphatase**

Liver function panel	Outpatient	Inpatient	Follow up	Range
Total bilirubin (mg/dl)	2.1	1.9	2.2	0.0-1.0
Direct bilirubin (mg/dl)		1.4		0.00-0.30
AST (u/L)	66	91	101	15-37
ALT (u/L)	54	88	142	10-49
ALP (u/L)	403	482	273	50-138
GGT (u/L)		299		5-85

**Table 3. Shows Iron Panel consisting with iron deficiency anemia**

Iron panel	Outpatient	Inpatient	Follow up	Range
Iron, Total (mcg/dl)	16	8	188	35-150
Iron Binding Capacity (mcg/dl)	604	522	505	250-450
Ferritin (ng/ml)	2	1.8	33	8.0-388.0
% Saturation	3	2	37	11-46%
Unsat Iron Binding (mcG/dl)	514	514		112-346

**Table 4. Antibodies consisting with Primary Biliary Cholangitis**

Mitochondrial Ab Screen	Positive
Mitochondrial Ab Titer	1:80 H
Antinuclear Antibodies (ANA)	Negative

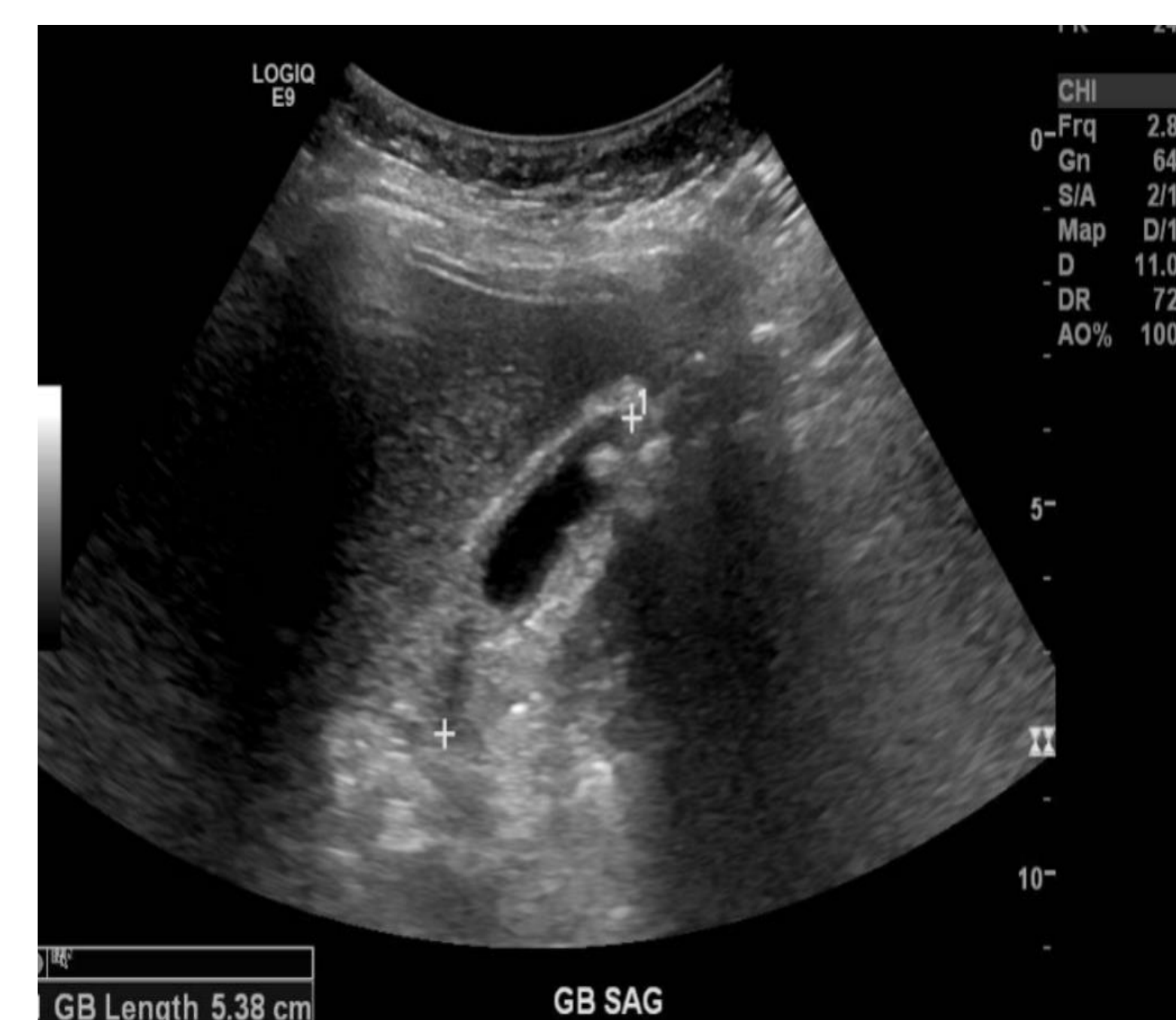


Figure 1. Liver US with cholelithiasis



Figure 2. MRCP negative for stones

## Discussion

- Fatigue is a nonspecific symptom, and therefore, the etiologies can be multifactorial in nature
- 50-60% of PBC patients are asymptomatic. Among patients that are symptomatic general fatigue and pruritus are the most reported symptoms.
- The entire clinical presentation should be accounted for when determining the cause of fatigue
- Any delay due to determining the cause can be life threatening, as patients will present when symptoms are extreme
- Important to do a thorough evaluation to determine the underlying etiology of fatigue and not to overlook the least likely differentials
- A study performed in the Netherlands in anemic patients showed that 22% of patients have multiple etiologies of anemia as in this case, where it is attributed to iron deficiency, metromenorrhagia and PBC.<sup>3</sup>

## Conclusion

- It is imperative to develop a broad differential and not overlook rare causes that may overlap with other diagnosis
- Always be methodical and have a specified approach in narrowing down the differentials
- The entire clinical presentation should be accounted for when determining the cause of fatigue.
- For PBC in particular, a timely diagnosis is of vital importance since UDCA may have little to no effect in advanced liver disease,<sup>4</sup> making liver transplant the only treatment available and by consequence further affecting the quality of life.

## References

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