



Lesson 2 Assignment Packet

Liver Sonography: Anatomy, Scanning Techniques & Pathology Basics

Assignment 1

Fill-in-the-Blank Worksheet

Student Name: _____

Date: _____

Instructions: Complete each statement by filling in the blank with the correct answer.

1. The liver is the largest _____ organ in the human body.
2. The liver is primarily located in the _____ quadrant (RUQ).
3. The four anatomical lobes of the liver are the right lobe, left lobe, _____ lobe, and _____ lobe.
4. The liver produces _____, which helps digest fats.
5. One important function of the liver is to _____ harmful substances from the bloodstream.
6. Approximately _____% of the liver's blood supply comes from the portal vein.
7. Approximately _____% of the liver's blood supply comes from the hepatic artery.
8. Blood leaves the liver through the _____ veins.
9. The hepatic veins drain into the _____.
10. Blood flowing toward the liver is called _____ flow.
11. The portal vein has _____ echogenic walls.
12. The hepatic veins have _____ walls.
13. The primary transducer used for liver imaging is the _____ transducer.
14. The typical frequency used for abdominal liver scanning is _____ to _____ MHz.
15. Patients should fast _____ to _____ hours before most abdominal ultrasound examinations.
16. Asking the patient to take a deep _____ improves visualization of the liver.

17. A normal liver has a _____ echotexture.
 18. Fatty liver disease is also known as hepatic _____.
 19. A simple liver cyst appears _____ on ultrasound.
 20. Sonographers document imaging findings but do not make the final _____.
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Assignment 2

Image Labeling Assignment

Directions

Using the diagrams provided in Lesson 2, label all anatomical structures.

Diagram 1 – Liver Anatomy

Label the following structures:

- Right Lobe
 - Left Lobe
 - Caudate Lobe
 - Quadrate Lobe
 - Diaphragm
 - Inferior Vena Cava (IVC)
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Diagram 2 – Hepatic Vasculature

Label the following structures:

- Portal Vein
- Right Portal Vein
- Left Portal Vein
- Right Hepatic Vein
- Middle Hepatic Vein
- Left Hepatic Vein
- Inferior Vena Cava (IVC)

Diagram 3 – Liver Scanning Planes

Label the following:

- Longitudinal Plane
- Transverse Plane
- Intercostal Approach
- Subcostal Approach

Diagram 4 – Doppler Evaluation

Label the following:

- Portal Vein
- Hepatopetal Flow
- Color Doppler
- Liver Parenchyma

Assignment 3

Lesson Takeaway Reflection

Directions

After completing Lesson 2, write a brief reflection explaining what you learned.

Prompt

Please explain what you learned in Lesson 2: Liver Sonography.

Your reflection should include:

- The anatomy of the liver
- The function of the liver
- The liver's blood supply
- The portal vein and hepatic veins
- Proper patient preparation

- Basic liver scanning techniques
 - Normal sonographic appearance
 - Introductory liver pathology
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Requirements

- Minimum: **1 paragraph**
 - Maximum: **500 words**
 - Use your own words.
 - Write in complete sentences.
 - Demonstrate your understanding of the lesson.
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Assignment 4

Lesson 2 Chapter Examination

Instructions: Select the **one best answer** for each question.

1. The liver is the:

- A. Largest hollow organ
 - B. Largest solid organ
 - C. Smallest abdominal organ
 - D. Largest gland only
-

2. The liver is located primarily in the:

- A. Left lower quadrant
- B. Right upper quadrant
- C. Left upper quadrant

D. Pelvic cavity

3. Which lobe is the largest?

A. Left

B. Caudate

C. Right

D. Quadrate

4. The liver produces:

A. Urine

B. Bile

C. Insulin

D. Saliva

5. Approximately 75% of the liver's blood supply comes from the:

A. Hepatic artery

B. Portal vein

C. Hepatic vein

D. Aorta

6. Blood exits the liver through the:

A. Portal veins

B. Hepatic veins

C. Splenic vein

D. Renal vein

7. Hepatic veins drain into the:

A. Portal vein

B. Splenic vein

C. Inferior vena cava

D. Aorta

8. Blood flowing toward the liver is called:

A. Hepatofugal

B. Hepatopetal

C. Retrograde

D. Venous return

9. The portal vein normally has:

A. Thin walls

B. Thick echogenic walls

C. No visible walls

D. Calcified walls

10. Patients should generally fast:

A. 30 minutes

- B. 2 hours
 - C. 6–8 hours
 - D. 24 hours
-

11. Which transducer is most commonly used for liver imaging?

- A. Linear
 - B. Endocavity
 - C. Curvilinear
 - D. Phased Array
-

12. Which patient instruction often improves liver visualization?

- A. Hold your arm up
 - B. Take a deep breath
 - C. Drink water
 - D. Stand up
-

13. A normal liver has:

- A. Coarse echotexture
 - B. Homogeneous echotexture
 - C. Completely black appearance
 - D. Calcified borders
-

14. Fatty liver disease is also called:

- A. Hepatic fibrosis
 - B. Hepatic steatosis
 - C. Cirrhosis
 - D. Hepatitis
-

15. A simple liver cyst appears:

- A. Hyperechoic
 - B. Anechoic
 - C. Calcified
 - D. Heterogeneous
-

16. Doppler is primarily used to evaluate:

- A. Bone density
 - B. Blood flow
 - C. Gallstones
 - D. Muscle movement
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17. The hepatic veins normally demonstrate a:

- A. Flat waveform
 - B. Triphasic waveform
 - C. Monophasic waveform
 - D. Biphasic waveform
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18. The sonographer is responsible for:

- A. Prescribing treatment
 - B. Making the final diagnosis
 - C. Obtaining diagnostic-quality images
 - D. Ordering laboratory tests
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19. The interpreting physician is responsible for:

- A. Image acquisition
 - B. Patient positioning
 - C. Final diagnosis
 - D. Equipment maintenance
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20. The main purpose of Lesson 2 was to teach students:

- A. Obstetric ultrasound
- B. Liver anatomy, scanning techniques, Doppler evaluation, and introductory pathology
- C. Cardiac imaging
- D. Musculoskeletal sonography