Policies, Standards, and Guidelines

Guidelines for Abdominal Ultrasound Examination

Approved by Council Feb 2018

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Guidelines for Abdominal Ultrasound Examination

Statement

A general examination of the abdomen is conducted to detect alternate causes for the presenting of patient signs and symptoms. However, ultrasonic investigation of the abdomen is usually conducted to answer a specific clinical question. For example, Are there gallstones? Is the prominent aortic pulsation due to aneurysm? Is there evidence of parenchymal liver disease? Why is the liver function tests deranged?

The survey of the abdomen is usually restricted to the upper abdominal organs. Ultrasound examination of the lower abdomen should be obtained if directed by the respective individual, departmental or organisational protocol.

Purpose

Sonography is a valid and helpful diagnostic tool for evaluating structures and condition in the abdominal region\(^1\). These guidelines are intended to establish minimum criteria for standard of care and to assist ultrasound practitioners in the conduct of ultrasound procedures. They set out the expectations for the performance of abdominal ultrasound examinations to facilitate the provision of high quality and effective ultrasound imaging.

These Guidelines supersede the previous ASUM D5 Statement on Abdominal Scanning:
Original Approved/Effective: August 1991
Reaffirmed: May 1997
Revised: September 1999; March 2012.

Scope/Applicability

These Guidelines apply to all ultrasound practitioners. They are directed towards the normal range of pathology expected in adults.

They may be used as a general guide when examining children and infants, provided that appropriate allowance is made for the anatomical differences between adults and children.

Providers are encouraged to be accredited in accordance with their local legislative requirements. In Australia, accreditation with the Diagnostic Imaging Accreditation Scheme (DIAS) ensures safety and quality standards for diagnostic imaging practices.

Guideline 1 – Pre-Performance of Ultrasound

Any normal arrangements undertaken for patient screening, referral and background profile. The patient has been advised regarding any preparation or special dietary restrictions beforehand.

Guideline 2 – Equipment

Requirement

Equipment for abdominal ultrasound examination should be high quality real-time apparatus, meeting the Diagnostic Imaging Accreditation Scheme’s Practice Accreditation Standards (DIAS) for Capital Sensitivity.
Broadband curved linear and sector transducers with variable focal zones are preferred. The frequency should be in the 2-8 MHz range.

Guideline 3 – The Examination

Requirement - General

When assessing a particular organ in the abdomen with ultrasound, the organ should be thoroughly scanned from one border to the other in a minimum of two orthogonal planes. Archived images are obtained in standard planes to document a normal study, and specific views are taken to illustrate detected pathology.

When an abnormality is found, the following basic sonography rules apply:
1. Quantify abnormality in two planes;
2. Assess echogenicity, borders, echotexture and vascularity/hemodynamics.

Guideline 4 – Pancreas

Requirement

Transverse and longitudinal ultrasound exam is required, particularly of the head, body, tail and uncinate process.

Report

As a minimum, the following should be assessed:
1. The degree of visualisation particularly if suboptimal.
2. Parenchymal texture.
3. Focal lesions: including soft tissue masses, cysts, and calcification.
4. Pancreatic duct; calibre, contour and stones. Assess CBD size at pancreatic head.
5. Peripancreatic lesions; collections, solid masses, lymphadenopathy and cysts.

Guideline 5 – Gall Bladder

Requirement

1. Demonstrate in at least two planes with patient in supine or decubitus position.
2. To assess mobility of gall bladder lesion or findings, also scan with the patient in erect position.

Report

As a minimum, the following should be assessed:
1. Intraluminal lesions; number, size, posterior shadowing, mobility and echogenicity.
2. Wall thickness (versus degree of distension) or mass – assess wall continuity posterior to mass and presence of vascularity.
3. Presence of mural gas, mural oedema, calcification or comet tail artifact.
4. Distension - physiological, pathological.
5. Point tenderness with probe pressure and release.
6. Pericholecystic collections / echogenicity changes e.g. “fatty sparing”.
Guideline 6 – Extrahepatic Bile Duct

Requirement

Attempt to demonstrate the full length of the common bile duct and common hepatic duct.

Report

As a minimum, the following should be assessed:
1. Duct diameter – luminal measurement, at level of portal vein bifurcation (MHD) and more distally (CBD). If there is duct dilatation – degree and extent of dilatation, level of obstruction, regularity of caliber, assess for duct wall thickness.
2. Intraluminal lesions - number, size, echogenicity, posterior shadowing, and mobility within duct. If solid luminal contents – assess for wall disruption and/or vascularity of mass.

Guideline 7 – Liver

Requirement

Longitudinal and transverse views are usually sufficient. Intercostal views may be required in the technically difficult patient.

Report

As a minimum, the following should be assessed:
1. Adequacy of visualisation of the whole of the liver.
2. Overall size, contour/size changes due to mass/surgery.
4. Parenchymal echogenicity, texture and attenuation.
5. Focal lesions; number, size, location echo characteristics – segmental location required.
6. Intrahepatic bile ducts.
8. Perihepatic collections.
9. Right pleural space.

Guideline 8 – Spleen

Requirement

Measure size (indicate plane used)

Report

As a minimum, the following should be assessed:
1. Parenchyma – texture and echogenicity, vascularity post trauma or with abnormality.
2. Focal lesions – number, size, location, echo characteristics, presence of splenunculus.
3. Perisplenic collections, collateral veins, splenic vein patency and direction of flow.
4. Left pleural space.
Guideline 9 – Kidneys

Requirement

Measure size – measure bipolar distance.

Report

As a minimum, the following should be assessed:
1. Contour.
2. Parenchyma – echogenicity cortex and medulla, cortico-medullary differentiation.
3. Focal masses – number, size, location, cystic or solid, vascularity, exclude invasion into renal vein.
4. Collecting systems – hydronephrosis, prominent extrarenal pelvis, dilated ureter, intraluminal lesions, urothelial thickening, exclude focal nephronia/pyonephrosis in UTIs.
5. Perirenal and pararenal collections and masses.

Guideline 10 – Adrenal Glands

Requirement

Visualisation should be attempted. However the adrenal glands are not usually seen in the adult age group.

Report

As a minimum, the following should be assessed:
1. Size and texture if enlarged.
2. Focal masses: cystic, solid, bilateral, unilateral, vascularity.

Guideline 11 – Upper Abdominal Vasculature

Requirement

The degree of ultrasonic interrogation of the upper abdominal vasculature undertaken in a standard abdominal scan will depend on the clinical indication for the scan. For example, examination of all of the other intra-abdominal vessels would be considered as reserved for a dedicated abdominal vascular study / renal artery study.

Report

The following vessel should be visualised, and assessed for patency and haemodynamics as clinically indicated and included in the report:
1. Aorta – exclude aneurysm, atherosclerosis, para-aortic lymphadenopathy, confirm patency.

Guideline 12 – Aorta

Requirement

Size: measure the outer AP diameter of the aorta as per departmental protocol (State if obtained in the transverse or longitudinal plane) (Males: < 3cm NAD; Females: < 2.5 cm).

Report

As a minimum, the following should be assessed:
1. Aneurysmal dilatation & patency.
2. Calcification, plaques and thrombus.
3. Para-aortic masses; size number location.

**Guideline 13 – Peritoneal Cavity**

The appendix is not routinely examined. The bowel wall is also not routinely examined but it is considered good practice to scan the bowel and comment on any abnormality, if detected (thickness, dilatation, peristalsis, identify gut layer involved in abnormality – ie mucosal/mural etc).

**Requirement**

1. Confirm / Exclude Ascites – comment on maximum depth of collection.

**Report**

As a minimum, the following should be assessed:
1. Loculated collections; size, site, echo characteristics, vascularity.
2. Peritoneal masses; size, vascularity and site.

**Related/Supporting documents**

The following documents are required to give effect to these Guidelines:
1. ASUM Guidelines for Reprocessing Ultrasound Transducers.

**Supporting information/References**

The following documents inform these Guidelines:

2. Australian Government Department of Health, *Diagnostic Imaging Accreditation Scheme Practice Accreditation Standards (DIAS)*,
4. ASUM Discussion Paper: Definition of Point of Care Ultrasound (POCUS).

**Contact**

ASUM Standards of Policy Officer
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**Review**

These Guidelines will be reviewed and evaluated as required to ensure relevance and currency.

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The review table indicates previous versions of the Guideline and any significant changes.
**Approval**

These Guidelines have been approved and issued by the ASUM Council.

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