Supplementary files

Supplementary Table S1: Description of the eFASH Protocol

Place the patient in the supine position. Perform sonographic examination using a 3.0 MHz convex abdominal probe, except for assessment of the ileum and superficial structures, which are examined using a 7.5 MHz linear probe. Conduct the FASH examination as follows:	
Using the 3.0 MHz convex probe	
1.	Position the probe transversely over the epigastrium and assess the heart for pericardial effusion. If present, measure the maximal distance between the visceral and parietal pericardium. Evaluate the retroperitoneal space for paraaortic and mesenteric lymph nodes; if present, record the longest diameter.
2.	Move the probe to the right axillary line of the thorax and assess the right pleural space for effusion in the longitudinal plane. If present, measure the lateral distance and subdiaphragmatic distance in centimetres with the patient in a sitting position and estimate volume using the formula: (distance lateral + distance subdiaphragmatic in centimetres) x 70
3.	Move the probe to the right axillary line of the abdomen and examine the liver in longitudinal and transverse planes for hypoechoic lesions, ensuring complete organ visualization. If lesions are present, measure the longest diameter. Assess the inferior vena cava longitudinally and evaluate its diameter and collapsibility during inspiration. Examine the Morrison pouch for free fluid.
4.	Move the probe to the left axillary line of the thorax and assess the left pleural space for effusion in the longitudinal plane. If present, measure as described in step 2 above.
5.	Move the probe to the left axillary line of the abdomen and examine the spleen for hypoechoic lesions. If present, measure the longest diameter. Examine the space between spleen and left kidney for ascites.
6.	Position the probe transversely over the suprapubic region and assess for ascites in the pouch of Douglas.
Using the 7.5-MHz linear probe	
7.	Place the probe in the right lower quadrant and assess the terminal ileum architecture. Measure the ileal wall thickness in the transverse plane.
8.	Scan the left upper and lower lung quadrants, followed by the right upper and lower lung quadrants, for pulmonary B-lines and subpleural granular artefacts.
9.	Examine the left and right axillary regions for lymphadenopathy; if present, measure the largest diameter.
10.	Assess both sides of the neck for cervical lymph nodes and measure the largest diameter when present.

Adapted from Heller et al, Focused assessment with sonography for HIV-associated tuberculosis (FASH): a short protocol and a pictorial review. Critical Ultrasound Journal, 2012.

Supplementary Table S2: Positivity by specimen type in 145 samples from 95 participants with confirmed EPTB

Specimen	Xpert MTB/RIF	Culture	Adenosine Deaminase	Cytology	Total N (%)
Pleural effusion	15	0	17	0	32 (22%)
Pericardial effusion	0	2	0	0	2 (1%)
Ascites	4	3	7	0	14 (10%)
Sputum	21	22	0	0	43 (30%)
Lymph node aspirate	3	1	0	15	19 (13)
Urine	34	0	0	0	34 (23%)
Abscess	0	1	0	0	1 (1%)
Total	77	29	24	15	145

[a] A participant can have more than one positive sample and/or diagnostic test

Supplementary Table S3 : Review of baseline eFASH examinations

Investigator	Independent reviewer [a]			Total
	negative	positive	Can not determine [b]	
neg	64	9	2	82
pos	7	191	0	214
Total	71	200	2	273

[a] Baseline eFASH examinations for 23 participants did not receive an independent review
[b] eFASH examinations classified as undetermined were treated as missing data and excluded from the Cohen's κ analysis

Supplementary Table S4: eFASH signs at baseline in 296 participants (95 definite EPTB, 201 non-definite EPTB

Sonographic signs [a]	Positive	Percentage
Pleural effusion	138	47%
Pericardial effusion	31	10%
Splenic hypoechogenic lesions	16	5%
Hepatic hypoechogenic lesions	8	3%
Ascites	67	23%
Abdominal lymphadenopathy	47	16%
Pulmonary B-lines with subpleural granular artefacts	101	34%
eFASH Positive	214	72%

[a]A participant can have more than one sonographic sign
CI confidence Interval; PPV positive predictive value; NPV negative predictive value; eFASH, extended focused assessment with sonography for HIV-associated tuberculosis. Abdominal lymphadenopathy: Detection of abdominal or mesenteric lymph nodes of at least 1.5cm in diameter

Supplementary Table S5: Sensitivity and specificity of 7 eFASH signs if present alone or multiple at baseline among 296 participants

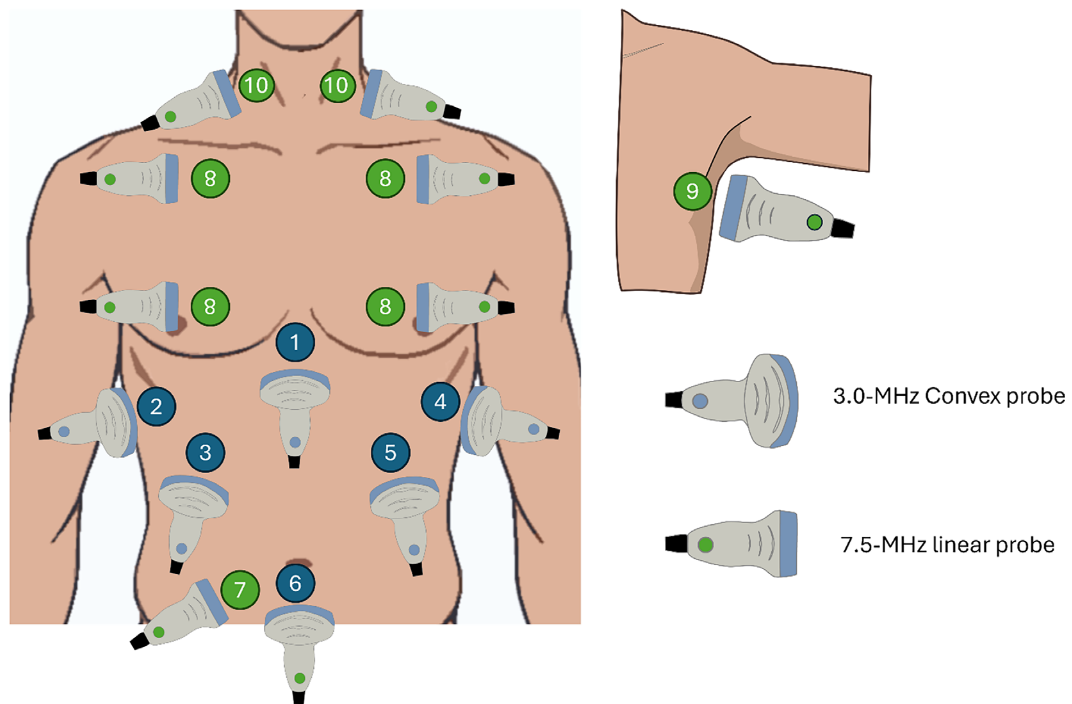
Variable [a]	Sensitivity, % (95% CI)	Specificity, % (95% CI)	PPV % (95% CI)	NPV % (95% CI)
1 eFASH sign	20.0(12.5-29.5)	78.1(71.7-83.6)	30.2(19.2-43.0)	67.4 (61.0-73.4)
3 eFASH signs	20.0 (12.5-29.5)	88.1 (82.8-92.2)	44.2 (29.1-60.1)	70.0 (63.9-75.5)
>3 eFASH signs	9.4 (4.4-17.2)	98.5 (95.7-99.7)	75.0 (42.8-94.5)	69.7 (64.0-75.0)

[a]90 participants had no eFASH sign at baseline
eFASH, extended focused assessment with sonography for HIV-associated tuberculosis; PPV, Positive Predictive Value; NPV, Negative Predictive Value, CI, Confidence Interval

Supplementary Table S6: Evolution of sonographic signs during treatment in 21 participants with definite EPTB

Variables [a]	Present at Baseline, n=21[b]	Complete Resolution By	
		2 Months, n (%)	6 Months, n (%)
Pleural effusion	16 (76%)	7 (44%)	12 (75%)
Pericardial effusion	4 (19%)	4 (100%)	0
Splenic hypo-echogenic lesions	2 (10%)	2 (100%)	0
Hepatic hypo-echogenic lesions	2 (10%)	2 (100%)	0
Ascites	8 (38%)	8 (100%)	0
Abdominal Lymphadenopathy	3 (14%)	2 (67%)	3 (100%)
Pulmonary B lines with Subpleural granular artefacts	9 (43%)	8 (89%)	9 (100%)

[a] None of the participants with definite Extrapulmonary Tuberculosis had a thickened ileum at baseline.
[b] out of 28 participants with definite EPTB and a baseline, 2 months and 6 months eFASH examination, 7 participants did not have any eFASH sign at baseline while 21 had at least one positive eFASH sign at baseline.
9 (41%) participants had cleared all the signs by 2 months. 15(68%) had cleared all the signs at 6 months



Supplementary Figure S1: Extended Focused Assessment with Sonography for human immunodeficiency virus (HIV) and tuberculosis (eFASH) ultrasound protocol illustrating the 10 scanning windows used to assess pleural and pericardial effusions (windows 1, 2, and 4), inferior vena cava (window 3 in longitudinal view), ascites (windows 2, 3, 4, 5 and 6), para-aortic and mesenteric lymphadenopathy (window 1), hypoechoic splenic and hepatic lesions (windows 2 and 4), terminal ileum architecture and thickness (window 7), pulmonary B-line with subpleural granular artefacts (window 8), and axillary and cervical lymph nodes (windows 9 and 10).

An extension of Heller et al, Focused assessment with sonography for HIV-associated tuberculosis (FASH): a short protocol and a pictorial review. Critical Ultrasound Journal, 2012.